शासकीय माता शबरी
नवीन कन्या स्नातकोत्तर महाविद्यालय

राज्य में प्रथम महाविद्यालय नैक से श्रेणीबद्ध (बी+)

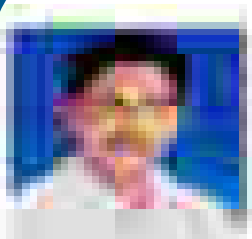
सीपत रोड, बिलासपुर (छ.ग.)

सा विद्या या विमुक्तये 1989

प्रवेश विवरणिका
Information & Admission Brochure

GOVT. MATA SHABARI NAVEEN GIRLS P.G. COLLEGE
SEEPAT ROAD, BILASPUR (C.G.)

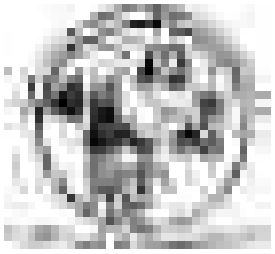
प्राचार्य की कलम से ...



शासकीय माता शबरी नवीन कन्या स्नातकोत्तर महाविद्यालय

सीपत रोड, बिलासपुर (छ.ग.) 495006

नैक मूल्यांकन "बी" ग्रेड 2.53



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प्रवेश विवरणिका

प्रवेश आवेदन पत्र की प्रतिपूर्ति छात्रा स्वयं करे ।

प्रवेश के समय –

- 10 वीं से विगत समस्त कक्षा की अंक सूची – सत्यापित प्राति ।
- मूल स्थानांतरण प्रमाण–पत्र (टी.सी.)
- मूल चरित्र प्रमाण–पत्र (सी.सी.)
- जाति प्रमाण–पत्र (जिन्हें लागू हों) – सत्यापित प्रति ।
- निवास प्रमाण–पत्र – सत्यापित प्रति ।
- अन्य चाहे गये आवश्यक प्रपत्र एवं प्रमाण पत्र
- साथ ही तीन टिकट साईज फोटोग्राफ एवं पोस्टकार्ड ।

आवेदन पत्र भरने से पूर्व विवरणिका को ध्यान से पढ़े ।

GOVT. MATA SHABARI NAVEEN GIRLS' P.G. COLLEGE

SEEPAT ROAD, BILASPUR (C.G.) TEL. 07752-240531

FIRST COLLEGE OF CHHATTISGARH GOVERNMENT ACCREDITED BY NAAC (B+)

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अनुक्रमणिका

महाविद्यालय का संक्षिप्त परिचय

म.प्र. शासन उच्चशिक्षा विभाग के आदेशानुसार यह महाविद्यालय माह दिसंबर वर्ष 1989 में स्थापित हुआ। वर्तमान में सीपत रोड, पटवारी प्रशिक्षण के बाजू में अपने स्वयं के भवन में यह महाविद्यालय संचालित है। राष्ट्रीय मूल्यांकन एवं प्रत्याययन परिषद बैंगलोर से राज्य में सर्वप्रथम श्रेणीबद्ध व उच्च स्तरीय अनुशंसित होने के कारण संपूर्ण छत्तीसगढ़ प्रदेश में महाविद्यालय की विशिष्ट पहचान बनी है।

इस महाविद्यालय का लक्ष्य छात्राओं के लिये उच्चशिक्षा का प्रबंध करना एवं उनके बौद्धिक, शैक्षणिक तथा नैतिक दृष्टि से परिपूर्ण प्रतिभाशाली व्यक्तित्व का निर्माण करना है जो भावी राष्ट्र निर्माण में सहायक हो सके। छात्राओं एवं महिलाओं के लिये "स्वास्थ्य शिक्षा और जागृति" इस संस्था का मूल उद्देश्य है। महाविद्यालय छात्राओं में कम्प्यूटर जागृति लाने हेतु प्रयासरत है। उल्लेखनीय है कि महाविद्यालय में प्रवेश लेने वाली छात्राओं को हम केवल छात्रा या विद्यार्थी के रूप में ही नहीं स्वीकार करते और न ही उनके क्रियाकलापों को अध्ययनकक्ष तक ही सीमित करते है, अपितु प्राचार्य एवं प्राध्यापकों से लेकर कर्मचारीगण, छात्राओं के सर्वांगीण व्यक्तित्व विकास, नैतिक आदर्श, संचेतना, कैरियर निर्माण, सांस्कृतिक, साहित्यक एवं क्रीड़ा गतिविधियों की सहभागिता, स्वरोजगार तथा अन्यान्य महत्वपूर्ण उद्देश्यों की पूर्णता हेतु कटिबद्ध रहतें है।

विविध राष्ट्रीय-अंतर्राष्ट्रीय शोध संगोष्ठियों और अन्य आयोजनों में हमारे प्राध्यापकों की सहभागिता, शोध परियोजनाओं में संलग्नता से संस्था की अकादमिक छवि विस्तारित हुई है। शिक्षक अभिभावक संकल्पना के माध्यम से सम्मानीय अभिभावकों को हमने संस्था परिवार में सम्मिलित किया है।

महाविद्यालय के अन्य आर्कषण :-

1. 50 सीट का महिला छात्रावास की सुविधा।
2. वर्ष में तीन बार आंतरिक मूल्यांकन एवं इकाई परीक्षा।
3. राष्ट्रीय सेवा योजना (एन.एस.एस.) ईकाई।
4. आधुनिक एवं उन्नत प्रयोगशालायें।
5. अनुसूचित जाति / जनजाति कल्याण एवं विकास प्रकोष्ठ।
6. रेडक्रास समिति।
7. स्वरोजगार प्रकोष्ठ।
8. मार्गदर्शन एवं परामर्श प्रकोष्ठ।
9. सुसज्जित ग्रंथालय एवं वाचनालय।
10. खेलकूद सुविधाएँ।
11. कैंटिन सुविधाएँ।

हेल्प डेस्क

शासकीय मदनलाल शुक्ल महाविद्यालय में छात्र-छात्राओं के विभिन्न संकायों / समस्याओं के समाधान एवं मार्गदर्शन हेतु हेल्प डेस्क स्थापित की गई है । हेल्प डेस्क प्रकोष्ठ के प्रभारी निम्नानुसार है :-

1. प्रभारी अधिकारी हेल्प डेस्क (संयोजक) - डॉ. नाज बेंजामिन, प्राध्यापक - राजनीति शास्त्र
2. सदस्य - प्रो. शोभा महेश्वर, सहायक प्राध्यापक - गृहविज्ञान
3. सदस्य - प्रो. आरती सिंह ठाकुर, सहायक प्राध्यापक - अंग्रेजी

हेल्प डेस्क में विचार किए जाने वाले विषय -

1. विश्वविद्यालयीन / महाविद्यालयीन परीक्षा से संबंधित ।
2. विश्वविद्यालय / महाविद्यालय में प्रवेश संबंधी ।
3. खेलकूद गतिविधि संबंधी ।
4. छात्रावास संबंधी ।
5. कैंटीन संबंधी ।
6. ग्रंथालय संबंधी।
7. विभिन्न प्रकार के छात्रवृत्ति जैसे - बी.पी.एल. पोस्ट मेट्रिक, एकीकृत छात्रवृत्ति, सैन्य छात्रवृत्ति इत्यादि।
8. बी.पी.एल. बुक बैंक योजना ।
9. छात्र / छात्राओं को निःशुल्क स्टेशनरी / पुस्तकें प्रदान करने संबंधी ।
10. विश्वविद्यालय / महाविद्यालय के अधिकारी, कर्मचारी संबंधी ।
11. सायकल स्टैण्ड संबंधी ।
12. रैगिंग संबंधी शिकायत ।
13. प्रयोगशाला संबंधी ।
14. प्रसाधन कक्ष संबंधी ।
15. अध्यापन कक्षों की साफ-सफाई संबंधी ।
16. एन.सी.सी. / एन.एस.एस. संबंधी गतिविधियां ।
17. कॉमन रुप संबंधी इत्यादि ।

- हेल्प डेस्क के माध्यम से छात्र / छात्राओं की समस्या का त्वरित निदान किया जाता है ।
- हेल्प डेस्क में आवेदन मौखिक / लिखित दोनों रुप में हो सकते हैं ।

प्राचार्य
शास.माता शबरी नवीन कन्या स्नातको. महाविद्यालय
बिलासपुर (छ.ग.)

महाविद्यालय में स्नातक एवं स्नातकोत्तर स्तर पर पढ़ाये जाने वाले विषय समूह एवं संकाय :-

कला संकाय

1. बी.ए. भाग–1 का पाठ्यक्रम –

अ. अनिवार्य विषय – आधार पाठ्यक्रम के विषय : 1. हिन्दी भाषा 2. अंग्रेजी भाषा पर्यावरण अध्ययन (प्रायोगिक कार्य सहित)

ब. ऐच्छिक विषय – निम्नांकित विषयों में से किन्हीं तीन विषयों का चयन करें। वि.वि. द्वारा परिवर्तन संभावित है ।

1. समाज शास्त्र 2. मनोविज्ञान/भूगोल
3. राजनीति शास्त्र/गृहविज्ञान 4. हिन्दी साहित्य
5. अर्थशास्त्र 6. इतिहास/अंग्रेजी साहित्य

बी.ए. पाठ्यक्रम के तीनों वर्षो के लिये विषय एक ही होंगे, विषय परिवर्तन की अनुमति नहीं दी जा सकेगी।

2. बी.ए. भाग–2 एवं बी.ए. भाग–3

अ. अनिवार्य विषय – आधार पाठ्यक्रम के विषय : 1. हिन्दी भाषा 2. अंग्रेजी भाषा

ब. ऐच्छिक विषय – बी.ए. भाग–2 एवं 3 में वे ही विषय लेने होंगे जो बी.ए. प्रारंभिक में लिये गये थे ।

वाणिज्य संकाय

1. बी.काम. भाग–1

अ. अनिवार्य विषय – आधार पाठ्यक्रम के विषय : 1. हिन्दी भाषा 2. अंग्रेजी भाषा पर्यावरण अध्ययन (प्रायोगिक कार्य सहित)

ब. अनिवार्य समूह –

प्रथम समूह	–	1. वित्तीय लेखांकन	2. व्यवसायिक गणित
द्वितीय समूह	–	1. व्यवसायिक संचार	2. व्यवसायिक नियमन रूप रेखा
तृतीय समूह	–	1. व्यावसायिक अर्थशास्त्र	2. व्यावसायिक पर्यावरण

2. बी.काम भाग–2

अ. अनिवार्य विषय – आधार पाठ्यक्रम के विषय : 1. हिन्दी भाषा 2. अंग्रेजी भाषा

ब. अनिवार्य समूह –

प्रथम समूह	1. निगमित लेख	2. लागत लेखांकन
द्वितीय समूह	2. व्यावसायिक सांख्यिकी	2. उद्यमिता के तत्व
तृतीय समूह	1. व्यवसाय प्रबंध	2. कम्पनी अधिनियम

3. बी.काम. तृतीय वर्ष

अ. अनिवार्य विषय – आधार पाठ्यक्रम के विषय : 1. हिन्दी भाषा 2. अंग्रेजी भाषा

ब. अनिवार्य समूह –
1. आयकर (प्रत्यक्ष कर) 2. अप्रत्यक्ष कर
3. प्रबंधकीय लेखांकन 4. अंकेक्षण

स. वैकल्पिक समूह (कोई–1) –
1. वित्तीय प्रबंध (दो प्रश्न पत्र)
2. वित्तीय बाजार संचालन (दो प्रश्न पत्र)

बी.सी.ए. एवं पी.जी.डी.सी.ए.

1. **बी.सी.ए. भाग–1**

2. **बी.सी.ए. भाग–2**

3. **बी.सी.ए. भाग–3**

4. **P.G.D.C.A.**

5. **D.C.A.**

स्नातकोत्तर

1. **एम.ए. हिन्दी**
2. **एम.ए. इतिहास**
3. **एम.ए. राजनीतिशास्त्र**
4. **एम.ए. समाजशास्त्र**
5. **एम.ए. अर्थशास्त्र**

प्रायोगिक कार्य – वैकल्पिक प्रश्न पत्रों में (प्रश्न पत्र नवम् व दशम्) 20–20 अंको का प्रयोगिक कार्य रखा गया है ।

महाविद्यालय में शासन द्वारा निर्धारित प्रवेश संबंधी नियम

छत्तीसगढ़ शासन, उच्च शिक्षा विभाग

छत्तीसगढ़ के शासकीय/अशासकीय महाविद्यालयों की स्नातक तथा स्नातकोत्तर कक्षाओं में प्रवेश के लिये मार्गदर्शक सिद्धांत सत्र : 2020-21

1. प्रयुक्ति :

1.1 ये मार्गदर्शक सिद्धांत छत्तीसगढ़ के सभी शासकीय/अशासकीय महाविद्यालयों में छ.ग. विश्वविद्यालय अधिनियम 1973 के तहत अध्यादेश क्र. 6 एवं 7 के प्रावधान के साथ सहपाठित करते हुये लागू होंगे तथा समस्त प्राचार्य इनका पालन सुनिश्चित करेंगें ।

1.2 प्रवेश के नियमों को शासकीय तथा अशासकीय महाविद्यालयों को कड़ाई से पालन करना होगा। ''प्रवेश'' से आशय स्नातक कक्षा के प्रथम वर्ष अथवा प्रथम सेमेस्टर तथा स्नातकोत्तर कक्षा के प्रथम सेमेस्टर से है ।

2. प्रवेश की तिथि :

2.1 प्रवेश हेतु आवेदन-पत्र जमा करना :

इस वर्ष विश्वविद्यालय स्तर पर प्रवेश हेतु ''ऑनलाईन'' फार्म जमा कराया जावेगा। जिन महाविद्यालयों के लिये जितने फार्म जमा होंगे, उसे उस महाविद्यालय को प्रेषित किये जायेंगे। ऑनलाईन से प्राप्त आवेदनों में से प्राचार्य, शासन से प्राप्त प्रवेश मार्गदर्शिका सिद्धांत के नियमों के आधार पर प्रवेश प्रदान करेंगे।

(अ) अपरिहार्य कारणों से यदि ''ऑफलाईन'' आवेदन जमा करना हो तो आवेदक द्वारा महाविद्यालय में प्रवेश के लिये प्राचार्य द्वारा निर्धारित आवेदन पत्र समस्त प्रमाण-पत्रों सहित निर्धारित दिनांक तक महाविद्यालय में जमा किये जायेंगे।

(ब) प्रवेश हेतु बोर्ड / विश्वविद्यालय द्वारा अंकसूची प्रदान न किये जाने की स्थिति में पूर्व संस्था के संबंधित प्राचार्य द्वारा प्रमाणित किये जाने पर बिना अंकसूची के आवेदन पत्र जमा किये जा सकेंगे।

2.2 प्रवेश हेतु अंतिम तिथि निर्धारित करना :

स्थानांतरण प्रकरण को छोड़कर 01 अगस्त से 31 अगस्त तक प्राचार्य स्वयं तथा 15 सितम्बर तक कुलपति की अनुमति से प्राचार्य प्रवेश देने में सक्षम होंगें । (स्नातक प्रथम वर्ष में प्रवेश की तिथि 01 अगस्त से तथा अन्य कक्षाओं हेतु परीक्षा परिणाम घोषित होने के 15 दिवस के भीतर) शासन द्वारा समय-समय पर जारी निर्देशों के अनुसार प्रवेश प्रक्रिया की जावेगी। परीक्षा परिणाम विलम्ब से घोषित होने की स्थिति में प्रवेश की अंतिम तिथि महाविद्यालय में परीक्षा परिणाम प्राप्त होने की तिथि से 10 दिन तक अथवा विश्वविद्यालय/बोर्ड द्वारा परीक्षा परिणाम घोषित होने की तिथि से 15 दिन तक, जो भी पहले हो मान्य होगी । कंडिका 5.1 (क) में उल्लेखित कर्मचारियों के स्थानांतरित होने पर प्रवेश की अंतिम तिथि के बाद प्रवेश चाहने वाले उनके पुत्र/पुत्रियों को स्थान रिक्त होने पर ही सत्र के दौरान प्रवेश दिया जाये किन्तु इसके लिए कर्मचारी द्वारा कार्यभार ग्रहण करने का प्रमाण पत्र प्रस्तुत करना एवं आवेदक का प्रवेश हेतु निर्धारित अंतिम तिथि के पूर्व अन्य महाविद्यालय में प्रवेश होने की स्थिति में ही प्रवेश दिया जायेगा ।

स्पष्टीकरण :-

आवेदक 'क' ने किसी अन्यत्र स्थान (अ) के महाविद्यालय में नियमानुसार किसी कक्षा में प्रवेश लिया था। उसके बाद उसके पालक का स्थानांतरण स्थान 'ब' में हो गया, इस स्थान (ब) के किसी महाविद्यालय में अब वह प्रवेश लेना चाहता है, रिक्त स्थान होने पर ही उसे प्रवेश दिया जायेगा । आवेदक 'ख' ने स्थान (अ) के जहां उसके पालक कार्यरत थे, किसी भी महाविद्यालय में प्रवेश नहीं लिया किन्तु पालक के स्थान (ब) में स्थानांतरण होते ही, स्थान (ब) के किसी महाविद्यालय में प्रवेश लेना चाहता है, अतः अब प्रवेश के लिये निर्धारित अंतिम तिथि निकल जाने के बाद आवेदक (ख) को प्रवेश नहीं दिया जा सकता ।

2.3 पुनर्मूल्यांकन/पुर्नगणना में उत्तीर्ण छात्रों के लिये प्रवेश की अंतिम तिथि निर्धारित करना:-

विधि संकाय के अतिरिक्त अन्य संकायों में पुनर्मूल्यांकन/पुर्नगणना में उत्तीर्ण छात्रों को पुनर्मूल्यांकन/पुर्नगणना के परिणाम घोषित होने के 15 दिन तक संबंधित विश्वविद्यालय के कुलपति की अनुमति के पश्चात गुणानुक्रम में आने पर प्रवेश की पात्रता होगी । किन्तु विधि संकाय की कक्षाओं में गुणानुक्रम के आधार पर प्रवेश की पात्रता होने पर भी महाविद्यालय में स्थान रिक्त होने पर ही प्रवेश दिया जायेगा। 12 वीं कक्षा में पुनर्मूल्यांकन/पुर्नगणना में उत्तीर्ण छात्र-छात्राओं को भी स्थान रिक्त होने पर नियमित प्रवेश की पात्रता होगी।

3. प्रवेश संख्या का निर्धारण :

3.1 महाविद्यालयों में उपलब्ध साधनों तथा कक्षा में बैठने की व्यवस्था, प्रयोगशाला में उपलब्ध उपकरण/उपयोग योग्य सामग्री एवं स्टाफ की उपलब्धता आदि के आधार पर स्वीकृत छात्र संख्या (सीट) के अंतर्गत ही विभिन्न कक्षाओं के लिये छात्रों को प्रवेश दिया जायेगा। यदि प्राचार्य महाविद्यालय में प्रवेश हेतु छात्र संख्या में सीट की वृद्धि चाहते है तो वे 30 अप्रैल तक अपना प्रस्ताव उच्च शिक्षा संचालनालय को प्रेषित करें। तथा "उच्च शिक्षा संचालनालय/ उच्च शिक्षा विभाग से अनुमति प्राप्त होने पर ही बढ़े हुये स्थान के अनुसार प्रवेश की कार्यवाही करें।"

3.2 विधि स्नातक प्रथम, द्वितीय एवं तृतीय वर्ष एवं पंचवर्षीय पाठ्यक्रम बी.ए.एल.एल.बी. की कक्षाओं में बार कौंसिल द्वारा निर्धारित मापदण्डों के अनुसार अधिकतम 60 विद्यार्थियों को ही प्रति सेक्शन (न्यूनतम 2 सेक्शन एवं अधिकतम 5 सेक्शन) में प्रवेश गुणानुक्रम के आधार पर दिया जावे।

3.3 सम्बद्ध वि.वि./स्वशासी महाविद्यालय द्वारा प्रत्येक कक्षा के लिये अध्यापन के विषय/विषय समूह का निर्धारण किया गया है। प्राचार्य अपने महाविद्यालयों में उन्हीं निर्धारित विषय/विषय समूह में निर्धारित प्रवेश संख्या के अनुसार ही प्रत्येक कक्षा में आवेदकों को प्रवेश देंगें।

4. प्रवेश सूची :

4.1 प्राचार्य द्वारा प्रवेश शुल्क जमा करने की निर्धारित अंतिम तिथि की सूचना देते हुए, प्रवेश हेतु चयनित विद्यार्थियो की अर्हकारी परीक्षा में प्राप्तांको एवं जहां अधिभार देय है, वहां अधिभार देकर कुल प्राप्तांको की गुणानुक्रम सूची, प्रतिशत अंक सहित, सूचना पटल पर लगायी जायेगी।

4.2 प्रवेश समिति द्वारा आवश्यक संलग्न प्रमाण पत्रों की प्रतियों को मूल प्रमाण पत्रों से मिलान कर प्रमाणित किये जाने एवं स्थानांतरण प्रमाण पत्र की मूल प्रति जमा करने के पश्चात ही प्रवेश शुल्क जमा करने की अनुमति दी जायेगी।

प्रवेश देने के तत्काल बाद स्थानांतरण प्रमाण पत्र पर ''प्रवेश दिया गया'' की मोहर लगाकर उसे रद्द करना चाहिये।

4.3 निर्धारित शुल्क जमा करने पर ही महाविद्यालय में प्रवेश मान्य होगा। प्रवेश के पश्चात स्थानांतरण प्रमाण पत्र की मूल प्रति को निरस्त की सील लगा कर अनिवार्य रूप से निरस्त कर दिया जाए।

4.4 घोषित प्रवेश सूची की शुल्क जमा करने की अंतिम तिथि के बाद स्थान रिक्त होने पर सभी कक्षाओं में नियमानुसार प्रवेश हेतु विलंब शुल्क रूपये 100/-अशासकीय मद में अतिरिक्त रूप से वसूला जायेगा, तथापि ऐसे प्रकरणों में 15 सितम्बर के पश्चात प्रवेश की अनुमति नहीं दी जायेगी।

4.5 स्थानांतरण प्रमाण पत्र की द्वितीय प्रति (डुप्लीकेट) के आधार पर प्रवेश नहीं दिया जायेगा । स्थानांतरण प्रमाण पत्र खो जाने की स्थिति में विद्यार्थी द्वारा निकटस्थ पुलिस थाने में एफ.आई.आर. दर्ज किया जाये। पुलिस थाने की रिपोर्ट एवं पूर्व प्रवेश प्राप्त संस्था से अधिकृत रिपोर्ट जिसमें मूल स्थानांतरण प्रमाण पत्र का अनुक्रमांक एवं दिनांक का उल्लेख हो, प्राप्त होने की स्थिति में ही प्रवेश दिया जा सकता है। इस हेतु विद्यार्थी से वचन पत्र लिया जाये।

4.6 महाविद्यालय के प्राचार्य स्थानांतरण प्रमाण पत्र जारी करने के साथ-साथ छात्र से संबंधित गोपनीय रिपोर्ट जारी करेंगे कि संबंधित छात्र रैगिंग/अनुशासनहीनता/तोड़फोड़ आदि में संलिप्त है या नहीं। ऐसे गोपनीय रिपोर्ट को सीलबंद लिफाफे में बंद कर उस महाविद्यालय के प्राचार्य को प्रेषित करेंगे जहां कि छात्र/छात्रा ने प्रवेश के लिये आवेदन किया है।

4.7 राज्य शासन द्वारा शासकीय महाविद्यालयों में अध्ययनरत स्नातक/स्नातकोत्तर स्तर की छात्राओं को शिक्षण शुल्क से छुट प्रदान की गई है। अतः उक्त निर्देशों का पालन किया जाये ।

5. प्रवेश की पात्रता :

5.1 निवासी एवं अर्हकारी परीक्षा :

क. छत्तीसगढ़ के मूल/स्थायी, छ.ग. में स्थायी सम्पत्तिधारी निवासी/राज्य या केन्द्र सरकार के शासकीय कर्मचारी, अर्धशासकीय कर्मचारी तथा प्राईवेट लिमिटेड कम्पनी के कर्मचारी, राष्ट्रीयकृत बैंको तथा भारत सरकार द्वारा संचालित व्यावसायिक संगठनों के कर्मचारी जिनका पंदाकन छत्तीसगढ़ में है, उनके पुत्र/पुत्रियों एवं जम्मू कश्मीर के विस्थापितो तथा उनके आश्रितो को ही शासकीय महाविद्यालयों में प्रवेश दिया जाएगा। उपरोक्तानुसार प्रवेश देने के पश्चात भी स्थान रिक्त होने पर अन्य राज्यों के मान्यता प्राप्त बोर्ड एवं अर्हकारी परीक्षा उत्तीर्ण आवेदकों को नियमानुसार गुणानुक्रम के आधार पर प्रवेश दिया जा सकता है।

ख. सम्बद्ध वि.वि. से या सम्बद्ध वि.वि. द्वारा मान्यता प्राप्त विश्वविद्यालयों/बोर्ड से अर्हकारी परीक्षा उत्तीर्ण आवेदकों को ही महाविद्यालय में प्रवेश की पात्रता होगी।

ग. आवश्यकतानुसार संबंधित विश्वविद्यालय से पात्रता प्रमाण-पत्र प्राप्त करने के पश्चात् ही आवेदक को प्रवेश प्रदान किया जाए।

5.2 स्नातक स्तर, नियमित प्रवेश :

क. 10+2 परीक्षा उत्तीर्ण आवेदकों को स्नातक प्रथम वर्ष में नियमित प्रवेश की पात्रता होगी। किन्तु वाणिज्य व कला संकाय के आवेदकों को विज्ञान संकाय में प्रवेश नहीं दिया जाएगा। बी.एस.सी. (गृहविज्ञान) प्रथम वर्ष में किसी भी संकाय से उत्तीर्ण छात्रा को प्रवेश की पात्रता होगी। व्यवसायिक पाठ्यक्रम से 12वीं उत्तीर्ण विद्यार्थियों को केवल कला

संकाय में प्रवेश की पात्रता होगी। परंतु यदि अभ्यार्थी ने वाणिज्य संकाय के विषयों से अध्ययन किया हो तो उसे वाणिज्य संकाय में प्रवेश की पात्रता होगी। इसी प्रकार 10+2 परीक्षा कृषि संकाय से उत्तीर्ण आवेदकों को विज्ञान संकाय अथवा बी.एस.सी. (बायो./गणित समूह) प्रथम वर्श में प्रवेश नहीं दिया जायेगा।

ख. स्नातक स्तर की प्रथम/द्वितीय वर्ष की परीक्षा उत्तीर्ण आवेदको को उन्हीं विषयों की क्रमशः द्वितीय/तृतीय वर्ष में नियमित प्रवेश की पात्रता होगी। स्नातक द्वितीय स्तर पर विषय परिवर्तन की पात्रता नहीं होगी।

5.3 स्नातकोत्तर स्तर नियमित प्रवेश :-

क. बी.कॉम./बी.एस.सी. (गृहविज्ञान)/बी.ए. स्नातक परीक्षा उत्तीर्ण आवेदकों को क्रमशः एम.कॉम/ एम.एस.-सी (गृहविज्ञान)/ एम.ए. प्रथम सेमेस्टर एवं अर्हकारी विषय लेकर बी.एस.-सी उत्तीर्ण आवेदकों को एम.एस.सी./एम.ए. प्रथम सेमेस्टर में नियमित प्रवेश की पात्रता होगी। एम.ए. प्रथम सेमेस्टर/पूर्व - भूगोल में उन्हीं विद्यार्थियों को प्रवेश की पात्रता होगी जिन्होंने स्नातक स्तर पर भूगोल विषय का अध्ययन किया हो। उपरोक्त के अतिरिक्त अर्हता के संबंध में सकाय की स्थिति में सबंधित विश्वविद्यालय संबंधित अध्यादेश में उल्लेखित प्रावधान /अर्हता ही बंधनकारी होंगे।

ख. स्नातकोत्तर प्रथम वर्ष उत्तीर्ण आवेदकों को उसी विषय के स्नातकोत्तर द्वितीय वर्ष में नियमित प्रवेश की पात्रता होगी। सेमेस्टर पद्धति की पूर्व अर्हकारी परीक्षा उत्तीर्ण आवेदकों को अगले सेमेस्टर में नियमित प्रवेश की पात्रता होगी।

ग. स्नातकोत्तर कक्षाओं हेतु ए.टी.के.टी. (Allowed To Keep Terms) नियम :-

1. स्नातकोत्तर प्रथम सेमेस्टर में प्रावधिक प्रवेश की पात्रता रखने वाले आवेदकों को प्रवेश के लिये निर्धारित अंतिम तिथि के पूर्व प्रावधिक प्रवेश लेना अनिवार्य है।
2. स्नातकोत्तर तृतीय सेमेस्टर में ए.टी.के.टी. (Allowed To Keep Terms) नियमों के अनुसार पात्र आवेदकों को अगले सेमेस्टर में प्रावधिक प्रवेश की पात्रता होगी।

5.4 विधि संकाय नियमित प्रवेश :

क. स्नातक परीक्षा उत्तीर्ण आवेदकों को विधि स्नातक प्रथम वर्ष में नियमित प्रवेश की पात्रता होगी।

ख. विधि स्नातक परीक्षा उत्तीर्ण आवेदकों को एल.एल.एम. प्रथम वर्ष में नियमित प्रवेश की पात्रता होगी ।

ग. एल.एल.बी. प्रथम सेमेस्टर एवं एल.एल.एम. प्रथम सेमेस्टर परीक्षा उत्तीर्ण आवेदकों को क्रमशः एल.एल.बी. द्वितीय सेमेस्टर एवं एल.एल.एम. द्वितीय सेमेस्टर में प्रवेश की पात्रता होगी। इसी प्रकार तृतीय, चतुर्थ, पंचम सेमेस्टर में भी प्रवेश की यही प्रक्रिया लागू होगा।

5.5 प्रवेश हेतु अर्हकारी परीक्षा में न्यूनतम अंक सीमा :-

क. विधि स्नातक प्रथम वर्ष में प्रवेश हेतु न्यूनतम अंक सीमा 45 प्रतिशत (अनुसूचित जनजाति एवं अनुसूचित जाति हेतु 40 प्रतिशत अन्य पिछड़ा वर्ग 42 प्रतिशत होगी तथा विधि स्नातकोत्तर पूवार्द्ध में 55 प्रतिशत अंक (अनुसूचित जनजाति/अनुसूचित जाति/ओ.बी.सी. हेतु 50 प्रतिशत) प्राप्त आवेदकों को ही नियमित प्रवेश की पात्रता होगी।

5.6 AICTE/NCTE/BAR COUNCIL OF INDIA/MEDICAL COUNCIL OF INDIA से अनुमोदित पाठ्यक्रमों में प्रवेश/संचालन पर संबंधित संस्था के प्रावधान प्रभावी होंगें ।

6. समकक्ष परीक्षा :

6.1 सेन्ट्रल बोर्ड ऑफ सेकेण्डरी एजुकेशन (सी.बी.एस.ई.), इंडियन कौंसिल फार सेकेण्डरी एजूकेशन (आई.सी.एस.ई.) तथा

अन्य राज्यों के विद्यालयों/इण्टरमीडिएट बोर्ड की 10+2 परीक्षायें में मा.शि.मं. की 10+2 परीक्षा के समकक्ष मान्य है। प्राचार्य मान्य बोर्ड की सूची सम्बद्ध वि.वि. से प्राप्त कर सकते हैं।

6.2 सामान्यतः भारत में स्थित विश्वविद्यालयों जो भारतीय विश्वविद्यालय संघ (एसोसिएसन ऑफ यूनिवर्सिटी) के सदस्य हैं उनकी समस्त परीक्षाएं छत्तीसगढ़ के विश्वविद्यालय की परीक्षा के समकक्ष मान्य है। ऐसे विश्वविद्यालय (IGNOU को छोड़कर) जो दूरवर्ती पाठ्यक्रम संचालित करते हैं, किन्तु राज्य शासन से अनुमति प्राप्त नहीं है की परीक्षाएं मान्य नहीं है। विश्वविद्यालय अनुदान आयोग, नई दिल्ली के निर्देशानुसार छत्तीसगढ़ राज्य के बाहर के किसी भी विश्वविद्यालय अथवा शैक्षणिक संस्था को छत्तीसगढ़ राज्य में अध्ययन केन्द्र/ऑफ कैम्पस आदि खोलकर छात्र-छात्राओं को प्रवेश देने/डिगी देने की मान्यता नहीं है तथा ऐसी संस्थाओं से डिग्री/डिप्लोमा वैधानिक रूप से मान्य नहीं होगा।

6.3 संबद्ध विश्वविद्यालय द्वारा मान्यता प्राप्त विश्वविद्यालय का शिक्षण संस्थाओं की सूची एवं विश्वविद्यालय अनुदान आयोग द्वारा समय-समय पर जारी फर्जी अथवा मान्यता विहीन विश्वविद्यालय या शिक्षण संस्थाओं, जिनकी उपाधि मान्य नहीं है, की जानकारी प्राचार्य संबद्ध विश्वविद्यालय से प्राप्त करें।

6.4 वर्ष 2012 में प्रारंभ किए गए एनवीईक्यूएफ (National Vocational Educational Qualification) के अंतर्गत उत्तीर्ण आवेदकों को विश्वविद्यालय एवं महाविद्यालय में स्नातक स्तर के पाठ्यक्रमों में दाखिलों के लिए अन्य सामान्य विषयों की तुलना में समतुल्य प्राथमिकता प्रदान की जावे ।

विश्वविद्यालय अनुदान आयोग के अर्द्धशासकीय पत्र क्रमांक 1-52/2013 (सीसी/एनएसक्यूएफ) अप्रैल 2014 के अनुसार -

''जैसा कि आपको ज्ञात है आर्थिक कार्य विभाग, वित्त मंत्रालय द्वारा अधिसूचित राष्ट्रीय कौशल अर्हता संरचना (एनएसक्यूएफ) में मानव संसाधन विकास मंत्रालय द्वारा राष्ट्रीय व्यावसायिक शैक्षिक अर्हता संरचना (एनवीईक्यूएफ) में सूत्रबद्ध किये गये समस्त महत्वपूर्ण तथ्यों को निगमित किया गया है । जैसा एनएसक्यूएफ में अधिसूचित किया गया है कि यह 1 से 10 स्तर तक के प्रमाण पत्र उपलब्ध कराता है जिनमें स्तर 5 से स्तर 10 तक के प्रमाण पत्र उच्च शिक्षा से एवं स्तर 1 से स्तर 4 तक के प्रमाण पत्र स्कूली शिक्षा के क्षेत्र से संबंध है। वर्ष 2012 में प्रारंभ किये गयेएनवीईक्यूएफ के अनुसरण में कुछ स्कूल बोर्डो द्वारा छात्रों को पाठ्यक्रम प्रस्तावित किये गये और एनवीईक्यूएफ के अंतर्गतछात्रों को समतुल्य/समस्तरीय प्रमाण-पत्र प्रदान किये जा रहे है । ऐसे छात्र एनएसक्यूएफ के स्तर 4 के प्रमाणित स्तर सहित 10+2 शिक्षा को वर्ष 2014 तक सफल कर पायेंगें । मानव संसाधन विकास मंत्रालय, भारत सरकार ने आशंका जताई है कि ऐसे छात्र जो विश्वविद्यालय एवं महाविद्यालय में स्नातक पूर्व किसी भी पाठ्यक्रम में दाखिला लेने के इच्छुक हैंतथा जिनके पास + 2 स्तर में व्यावसायिक विषय थे वे अलाभकारी स्थिति में होंगे । अतः मेरा आपसे अनुरोध है कि जिस समय छात्रों द्वारा विश्वविद्यालय एवं महाविद्यालय में अन्य किसी भी स्नातक पूर्व पाठ्यक्रमों में दाखिलों के लिए प्रयास कियेजा रहे हो तो उस समय ऐसे विषयों को अन्य सामान्य विषयों की तुलना में समतुल्य प्राथमिकता प्रदान की जाये, ताकि उन छात्रों को क्षैतिजिक गत्यात्मकता के लिए सुअवसर मिल सकें।

7. बाह्य आवेदकों का प्रवेश :

7.1 स्नातक स्तर तक बी.ए./बी.कॉम/बी.एस.सी./बी.एच.एस.सी. में एकीकृत पाठ्यक्रम लागू होने से छ.ग. के किसी भी विश्वविद्यालय, स्वशासी महाविद्यालय से प्रथम/द्वितीय वर्ष की परीक्षा उत्तीर्ण आवेदकों को क्रमशः द्वितीय/तृतीय वर्ष में प्रवेश की पात्रता है। किन्तु सम्बद्ध वि.वि./स्वशासी महाविद्यालय में पढ़ाये जा रहे विषयों/विषय समूहों में आवेदकों

ने पिछली परीक्षा दी हो, इसका परीक्षण करने के पश्चात ही नियमित प्रवेश दिया जावे। आवश्यक हो तो वि.वि. से पात्रता प्रमाण पत्र अवश्य लिया जाये।

7.2 छ.ग. के बाहर स्थित विश्वविद्यालयों/स्वशासी महाविद्यालयों से स्नातक स्तर की प्रथम/द्वितीय परीक्षा, अन्य विश्वविद्यालयों/स्वशासी महाविद्यालयों से स्नातकोत्तर पूर्व की परीक्षा या प्रथम, द्वितीय, तृतीय सेमेस्टर परीक्षा एवं विधि स्नातक स्तर की प्रथम/द्वितीय वर्ष की परीक्षा उत्तीर्ण आवेदकों को उनके द्वारा सम्बद्ध विश्वविद्यालयों से पात्रता प्रमाण पत्र प्रस्तुत करने के पश्चात् ही उन्हीं विषयों/विषय समूह की अगली कक्षा में नियमित प्रवेश दिया जावे।

राज्य के बाहर के विद्यार्थियों को निर्धारित प्रारूप में एक शपथ-पत्र देना होगा किसी भी प्रकार की झूठी/गलत जानकारी पाये जाने पर संबंधित विद्यार्थी का प्रवेश निरस्त करते हुये उसे प्रदेश के किसी भी विश्वविद्यालय में प्रवेश से वंचित कर दिया जायेगा। अन्य राज्य के आवेदकों द्वारा प्रस्तुत दस्तावेजों का प्रमाणीकरण संबंधित बोर्ड/विश्वविद्यालयों से कराया जाना अनिवार्य है।

7.3 विज्ञान एवं अन्य प्रायोगिक विषयों में स्वाध्यायी आवेदकों को स्थान रिक्त होने पर तथा महाविद्यालय के पूर्व छात्रों को 30 नवम्बर तक, निर्धारित शुल्क लेकर मात्र प्रायोगिक कार्य करने की अनुमति प्राचार्य द्वारा दी जा सकती है।

8. अस्थायी प्रवेश की पात्रता :

अस्थायी प्रवेश की पात्रता रखने वाले विद्यार्थियों को प्रवेश हेतु निर्धारित अंतिम तिथि के पूर्व अस्थायी प्रवेश लेना अनिवार्य होगा।

8.1 स्नातक स्तर की प्रथम/द्वितीय वर्ष की परीक्षा में पूरक परीक्षा (कम्पार्टमेंट) प्राप्त नियमित आवेदकों को अगली कक्षा में स्थान रिक्त होने पर अस्थायी प्रवेश की पात्रता होगी।

8.2 स्नातकोत्तर सेमेस्टर प्रथम/द्वितीय/तृतीय में पूरक/एटी-केटी प्राप्त आवेदकों को अगली कक्षा में अस्थायी प्रवेश की पात्रता होगी।

8.3 विधि स्नातक त्रिवर्षीय पाठ्यक्रम एल.एल.बी. के प्रथम/द्वितीय वर्ष में निर्धारित एग्रीगेट 48% पूरा न करने वाले या पूरक प्राप्त आवेदकों को अगली कक्षा में अस्थायी प्रवेश की पात्रता होगी।

8.4 उपरोक्त कंडिका 7 के खण्ड 1 एवं 2 के आवेदकों को अस्थायी प्रवेश की पात्रता नही होगी।

8. 5 पूरक परीक्षा में अनुत्तीर्ण होने पर अस्थायी प्रवेश प्राप्त छात्र/छात्राओं का अस्थायी प्रवेश स्वतः निरस्त हो जाएगा। उत्तीर्ण होने पर अस्थायी प्रवेश नियमित प्रवेश के रूप में मान्य किया जावेगा।

9. प्रवेश हेतु अर्हताऐं :

9.1 किसी भी महाविद्यालय/वि.वि.शिक्षण विभाग के किसी संकाय में प्रवेश प्राप्त छात्र / छात्राओं को उसी संकाय की उसी कक्षा में आगामी वर्ष/वर्षो में पुनः नियमित प्रवेश की पात्रता नहीं होगी। यदि किसी छात्र ने पूर्व सत्र में आवेदित कक्षा में नियमित प्रवेश नहीं लिया हो तो ऐसा आवेदक नियमित प्रवेश हेतु अनर्ह नहीं माना जावेगा। उसे मात्र मूल स्थानांतरण प्रमाण पत्र तथा शपथ पत्र जिससे प्रमाणित हो कि पूर्व में उसने प्रवेश नहीं लिया है, के आधार पर ही नियमानुसार प्रवेश दिया जावेगा।

9.2 जिनके विरूद्ध न्यायालय में चालान प्रस्तुत किया गया हो /या न्यायालय में अपराधिक प्रकरण चल रहा हों, परीक्षा में

या पूर्व सत्र में छात्रों/अधिकारियों/कर्मचारियों के साथ दुर्व्यवहार/मारपीट करने के गंभीर आरोप हो/ चेतावनी देने के बाद भी सुधार परिलक्षित नहीं हुआ हो, तो ऐसे छात्र/छात्राओं को प्रवेश नहीं देने के लिए प्राचार्य अधिकृत है।

9.3 महाविद्यालय में तोड़-फोड़ करने और महाविद्यालय की सम्पत्ति को नष्ट करने वाले/रैगिंग के आरोपी छात्र/छात्राओं का प्रवेश निरस्त करने/प्रवेश न देने के लिए अधिकृत है। प्राचार्य इस हेतु समिति गठित कर जांच करवाये एवं जांच रिपोर्ट के आधार पर प्रवेश निरस्त किया जाये। ऐसे छात्र/छात्राओं को छत्तीसगढ़ राज्य के किसी भी शासकीय/अशासकीय महाविद्यालय में प्रवेश न दिया जावे।

9.4 प्रवेश की आयु सीमा :-

(क) स्नातक प्रथम वर्ष में 22 वर्ष एवं स्नातकोत्तर प्रथम सेमेस्टर में 27 वर्ष से अधिक आयु के आवेदकों को प्रवेश की पात्रता नहीं होगी। आयु की गणना आवेदित वर्ष के एक जुलाई की स्थिति में की जायेगी। डिप्लोमा एवं स्नातकोत्तर डिप्लोमा में प्रवेश हेतु निर्धारित अधिकतम आयु सीमा सामान्यतः 27 वर्ष मान्य की जायेगी । बी.पी.एड. एवं एम.पी. एड. के लिये निर्धारित आयु सीमा 25 से 28 वर्ष होगी।

(ख) आयु सीमा का बंधन किसी भी राज्य सरकार/भारत सरकार के मंत्रालय/कार्यालय तथा उनके द्वारा नियंत्रित संस्थाओं द्वारा प्रायोजित व अनुशंसित प्रत्याशियों भारत सरकार द्वारा आयोजित अथवा किसी विदेश सरकार द्वारा अनुशंसित विदेश से अध्ययन हेतु भेजे गए छात्रों अथवा विदेश से अध्ययन के लिए विदेशी मुद्रा में पेमेंटसीट पर अध्ययन करने वाले छात्रों पर लागू नहीं होगा।

(ग) विधि संकाय में प्रवेश हेतु अधिकतम आयु सीमा का प्रावधान समाप्त किया जाता है ।

(घ) संस्कृत महाविद्यालय में प्रवेश हेतु स्नातक प्रथम वर्ष में 25 वर्ष एवं स्नातकोत्तर प्रथम सेमेस्टर में 27 वर्ष से अधिक आयु वाले आवेदकों को प्रवेश की पात्रता नहीं होगी।

(ड.) विधि संकाय को छोड़कर अनुसूचित जाति/अनुसूचित जनजाति/पिछड़े वर्ग/विकलांग विद्यार्थियों/महिला आवेदको के लिए आयु सीमा में 3 वर्ष की छूट रहेगी। निःशक्त अभ्यर्थी आवेदकों के लिए आयु सीमा में 5 वर्ष की छूट रहेगी ।

9.5 पूर्णकालिक शासकीय/अशासकीय सेवारत् कर्मचारी को उसकी दैनिक कार्य की अवधि में लगने वाले महाविद्यालय में नियमित प्रवेश की पात्रता नहीं होगा। दैनिक कर्तव्य अवधि के उपरांत लगने वाले महाविद्यालय में प्रवेश हेतु आवेदन करने पर आवेदक द्वारा नियोक्ता का अनापत्ति प्रमाण पत्र प्रस्तुत करने के बाद ही प्रवेश दिया जावेगा।

9.6 किसी संकाय में स्नातक उपाधि प्राप्त छात्र/छात्राओं को किसी अन्य संकायो के स्नातक पाठ्यक्रम में नियमित प्रवेश की पात्रता नहीं होगी।

10. प्रवेश हेतु गुणानुक्रम का निर्धारण :

10.1 उपलब्ध स्थानों से अधिक आवेदक होने पर प्रवेश निम्नानुसार गुणानुक्रम से किया जायेगा।

(क) स्नातक एवं स्नातकोत्तर कक्षाओं में प्रवेश हेतु अर्हकारी परीक्षा के प्राप्तांक एवं अधिभार देय है, तो अधिभार जोड़कर प्राप्त कुल प्रतिशत अंकों के आधार पर, तथा

(ख) विधि स्नातक प्रथम वर्ष में सम्बद्ध विश्वविद्यालय में प्रवेश परीक्षा का प्रावधान हो तो विश्वविद्यालय द्वारा निर्धारित मापदण्डों के अनुसार होगी ।

10.2 अनारक्षित एवं आरक्षित श्रेणी के लिए अलग-अलग गुणानुक्रम सूची तैयार की जावेगी।

11. प्रवेश हेतु प्राथमिकता :

11.1 स्नातक/स्नातकोत्तर/विधि कक्षाओं में प्राथमिकता का आधार, अर्हकारी परीक्षा के प्राप्तांक के आधार पर प्रावीण्य सूची तैयार की जायेगी।

11.2 स्नातक/स्नातकोत्तर अगली कक्षाओं में प्राथमिकता का आधार, अर्हकारी परीक्षा में उत्तीर्ण नियमित/उत्तीर्ण भूतपूर्व नियमित परीक्षार्थी/एक विषय में पूरक प्राप्त पूर्व सत्र के नियमित/स्वाध्यायी विद्यार्थियों के क्रम में होगा ।

11.3 विधि संकाय की अगली कक्षाओं में पूरक छात्रों के पहले उत्तीर्ण, परन्तु 48 एग्रीगेट प्राप्त करने वाले छात्रों को प्राथमिकता के आधार पर प्रवेश दिया जावे, अन्य क्रम यथावत रहेगा ।

11.4 स्नातक स्तर के त्रिवर्षीय पाठ्यक्रम के प्रथम वर्ष में प्रवेश के लिये प्रदेश के किसी भी महाविद्यालय में प्रदेश के अन्य स्थानों / तहसीलों / जिलों के निवासरत् अथवा परीक्षा उत्तीर्ण करने वाले आवेदक विद्यार्थीयों को भी गुणानुक्रम से प्रवेश दिया जाये।

11.5 किसी एक विषय की स्नातकोत्तर परीक्षा उत्तीर्ण विद्यार्थी को अन्य विषय की स्नातकोत्तर कक्षा में प्रवेश महाविद्यालय में स्थान रिक्त रहने की स्थिति में ही दिया जा सकेगा।

12. आरक्षण :

छ.ग. शासन की आरक्षण नीति के अनुरूप निम्नानुसार होगा :--

12.1 प्रत्येक शैक्षणिक सत्र में प्रवेश में सीटों का आरक्षण तथा किसी शैक्षणिक संस्था में इसका विस्तार निम्नलिखित रीति से होगा, अर्थात :-

क. अध्ययन या संकाय की प्रत्येक शाखा मे वार्षिक अनुज्ञप्त संख्या मे से 32 प्रतिशत सीटें अनुसूचित जनजातियों के लिए आरक्षित रहेंगी।

ख. अध्ययन या संकाय की प्रत्येक शाखा में वार्षिक अनुज्ञप्त संख्या मे से 12 प्रतिशत सीटें अनुसूचित जातियों के लिए आरक्षित रहेगी।

ग. अध्ययन या संकाय की प्रत्येक शाखा में वार्षिक अनुज्ञप्त संख्या में से 14 प्रतिशत सीटें अन्य पिछड़ा वर्ग के लिए आरक्षित रहेगी।

परन्तु जहॉ अनुसूचित जनजातियों के साथ-साथ अनुसूचित जाति / अन्य पीछड़ा वर्ग के रिक्त सीटों पर भी विपरीत क्रम में पात्र आवेदकों को प्रवेश दिया जावेगा। आरक्षित सीटे पात्र विद्यार्थियों के अनुपलब्धता के कारण अंतिम तिथियों पर रिक्त रह जाती है तो इस विपरित क्रम में पात्र विद्यार्थियों में से भरा जायेगा।

परन्तु यह और कि पूर्वगामी परंतुक में निर्दिष्ट व्यवस्था के पश्चात भी, जहॉ खण्ड क. ख. तथा ग. के अधीन आरक्षित सीटें, अंतिम तिथियों पर रिक्त रह जाती हैं, तो इसे अन्य पात्र विद्यार्थियों से भरा जाएगा।

12.2 (1) बिन्दु क्र. 12.1 के खण्ड क., ख. तथा ग. के अधीन उपलब्ध सीटों का आरक्षण उर्ध्वाधर (वर्टीकल) रूप से अवधारित किया जायेगा ।

(2) निःशक्त व्यक्तियों, महिलाओं, भूतपूर्व कार्मिको/भूतपूर्व सैनिकों, स्वतंत्रता संग्राम सेनानियों के बच्चों या व्यक्तियों के अन्य विशेष वर्गो के संबंध में क्षैतिज आरक्षण का प्रतिशत ऐसा होगा, जैसा कि राज्य सरकार द्वारा समय-समय पर इस अधिनियम के प्रयोजनों के लिए अधिसूचित किया जाए, तथा यह बिन्दु क्र. 12.1 के खण्ड क, ख, तथा ग के अधीन यथास्थिति, उर्ध्वाधर आरक्षण के भीतर होगा ।

12.3 स्वतंत्रता संग्राम सेनानियों के पुत्र-पुत्रियों, पौत्र-पौत्रियों और नाती/नातीन के लिये 3 प्रतिशत स्थान आरक्षित रहेंगें । निःशक्त श्रेणी के आवेदकों के लिए 5 प्रतिशत स्थान आरक्षित रहेंगें ।

12.4 सभी वर्गो में उपलब्ध स्थानों में से 30 प्रतिशत स्थान महिला छात्राओं के लिये आरक्षित होंगे।

12.5 आरक्षित श्रेणी का कोई उम्मीदवार अधिक अंक पाने के कारण अनारक्षित श्रेणी ओपन काम्पीटीशन में नियमानुसार मेरिट सूची में रखा जाता है, तो आरक्षित श्रेणी की सीटें यथावत् अप्रभावित रहेंगी, परन्तु ऐसा विद्यार्थी किसी संवर्ग जैसे - स्वतंत्रता संग्राम सेनानी आदि का भी है तो संवर्ग की यह सीट उस आरक्षित श्रेणी में भरी मानी जावेगी, शेष संवर्ग की सीटे भरी जाएगी।

12.6 आरक्षित स्थान का प्रतिशत 1/2 से कम आता है तो आरक्षित स्थान उपलब्ध नहीं होगा। 1/2 प्रतिशत एवं 1 प्रतिशत के बीच आने पर आरक्षित स्थान की संख्या एक होगी।

12.7 जम्मू कश्मीर विस्थापितों तथा आश्रितों को 5 प्रतिशत तक सीट वृद्धि कर प्रवेश दिया जाए तथा न्यूनतम अंक में 10 प्रतिशत की छुट प्रदान की जायेगी।

12.8 समय-समय पर शासन द्वारा जारी आरक्षण नियमों का पालन किया जाए।

12.9 कंडिका 12.1 में दर्शाई गई आरक्षण के प्रावधान माननीय उच्च न्यायालय बिलासपुर के निर्णय के अध्यधीन रहेगा।

12.10 तृतीय लिंग के व्यक्तियों को माननीय उच्चतम न्यायालय द्वारा इस संबंध में प्रकरण क्रमांक डब्ल्यू.पी.(सी) 400/2012 नेशनल लीगत सर्विसेस अथॉरिटी विरूद्ध भारत सरकार एवं अन्य में पारित निर्णय दिनांक 15.04.2014 की कंडिका 129 (3) में यह निर्देश दिया गया है कि - "We direct the Centre and the State Government to take Steps to treat them as socially and educationally backward classes of citizens and extend all kinds of reservation in cases of admission in educational institutions and for public appointements." का कड़ाई से पालन किया जाए ।

13. अधिभार :

अधिभार मात्र गुणानुक्रम निर्धारण के लिए ही प्रदान किया जायेगा, पात्रता प्राप्ति हेतु इसका उपयोग नहीं किया जायेगा। अर्हकारी परीक्षा के प्राप्तांको के प्रतिशत पर ही अधिभार देय होगा। अधिभार हेतु समस्त प्रमाण पत्र प्रवेश आवेदन पत्र के साथ ही संलग्न करना अनिवार्य है। आवेदन पत्र जमा करने के पश्चात बाद में लाये जाने/जमा किये जाने वाले प्रमाण पत्रों पर अधिभार हेतु विचार नहीं किया जायेगा। एक से अधिक अधिभार प्राप्त होने पर मात्र सर्वाधिक अधिभार ही देय होगा।

13.1 एन.सी.सी./एन.एस.एस./स्काउट्स :

स्काउट्स शब्द को स्काउट्स/गाईड्स/रेन्जर्स/रोवर्स के अर्थ में पढ़ा जाये।

(क)	एन.एस.एस./एन.सी.सी./ए-सर्टिफिकेट	- 02 प्रतिशत
(ख)	एन.एस.एस./एन.सी.सी. 'बी' सर्टिफिकेट	- 03 प्रतिशत
(ग)	'सी' सर्टिफिकेट या तृतीय सोपान उत्तीर्ण स्काउट्स	- 04 प्रतिशत
(घ)	राज्य स्तरीय संचालनालयीन एन.सी.सी. प्रतियोगिता में ग्रुप का प्रतिनिधित्व करने वाले छात्रों को	- 04 प्रतिशत

(च) नई दिल्ली के गणतंत्र दिवस परेड में छ.ग. के एन.सी.सी./एन.एस.एस. कटिन्जेन्स में भाग लेने वाले विद्यार्थी को - 05 प्रतिशत

(छ) राज्यपाल स्काउट्स - 05 प्रतिशत

(ज) राष्ट्रपति स्काउट्स - 10 प्रतिशत

(झ) छ.ग. का सर्वश्रेष्ठ एन.सी.सी.कैडेट - 10 प्रतिशत

(य) ड्यूक ऑफ एडिनवर्ग अवार्ड प्राप्त एन.सी.सी. कैडेट - 10 प्रतिशत

(र) भारत एवं अन्य राष्ट्रों के मध्य यूथ एक्सचेंज प्रोग्राम में भाग लेने वाले कैडेट/ एन.सी.सी./एन.एस.एस. के लिए चयनित एवं प्रवास करने वाले कैडेट को अंतर्राष्ट्रीय जम्बूरी के लिये चयनित होने वाले विद्यार्थियों को - 15 प्रतिशत

13.2 आनर्स विषय पाठ्यक्रम में उत्तीर्ण विद्यार्थी को स्नातकोत्तर कक्षा में उसी विषय में प्रवेश लेने पर - 10 प्रतिशत

13.3 खेलकूद/साहित्यिक/सांस्कृतिक/क्विज/रूपांकन प्रतियोगिताएं

(1) लोक शिक्षण संचालनालय अथवा छ.ग. उच्च शिक्षा विभाग द्वारा आयोजित अंतर जिला, संभाग स्तर अथवा केन्द्रीय विद्यालय संगठन द्वारा आयोजित अंतर संभाग/क्षेत्र स्तर प्रतियोगिता में -

(क) प्रथम, द्वितीय, तृतीय स्थान प्राप्त टीम के प्रत्येक सदस्य को - 02 प्रतिशत

(ख) व्यक्तिगत प्रतियोगिता में उपर्युक्त स्थान प्राप्त करने वाले को - 04 प्रतिशत

(2) उपर्युक्त कंडिका 13.3 (1) में उल्लेखित विभाग/संचालनालय द्वारा आयोजित अंतर संभाग राज्य स्तर अथवा केन्द्रीय विद्यालय संगठन द्वारा आयोजित अंर्तक्षेत्रीय, राष्ट्रीय प्रतियोगिता में अथवा भारतीय विश्वविद्यालय संघ ए.आई.यू. द्वारा आयोजित प्रतियोगिता में अथवा संसदीय कार्य मंत्रालय भारत सरकार द्वारा आयोजित क्षेत्रीय प्रतियोगिता में-

(क) प्रथम, द्वितीय, तृतीय स्थान प्राप्त टीम के प्रत्येक सदस्य को - 06 प्रतिशत

(ख) व्यक्तिगत प्रतियोगिता में उपर्युक्त स्थान प्राप्त करने वाले को - 07 प्रतिशत

(ग) संभाग/क्षेत्र का प्रतिनिधित्व करने वाले प्रतियोगी को - 05 प्रतिशत

(3) भारतीय विश्वविद्यालय संघ द्वारा आयोजित संसदीय कार्य मंत्रालय, भारत सरकार द्वारा आयोजित राष्ट्रीय प्रतियोगिताओं में -

(क) व्यक्तिगत प्रतियोगिता में प्रथम, द्वितीय, तृतीय स्थान प्राप्त करने वालों को - 15 प्रतिशत

(ख) प्रथम, द्वितीय अथवा तृतीय स्थान अर्जित करने वाली टीम के सदस्यों को - 12 प्रतिशत

(ग) क्षेत्र का प्रतिनिधित्व करने वाले प्रतियोगी को - 10 प्रतिशत

13.4 भारत एवं अन्य राष्ट्रों के मध्य यूथ अथवा सांइस एवं कल्चरल एक्सचेंज प्रोग्राम के तहत विज्ञान/सांस्कृतिक/साहित्यिक/कला क्षेत्र में चयनित एवं प्रवास करने वाले दल के सदस्य को - 10 प्रतिशत

13.5 छ.ग.शासन/म.प्र.से मान्यता प्राप्त खेल संघो द्वारा आयोजित राष्ट्रीय प्रतियोगिता में-

(क) छ.ग./म.प्र. का प्रतिनिधित्व करने वाली टीम के सदस्य को - 10 प्रतिशत

(ख) प्रथम, द्वितीय, तृतीय स्थान प्राप्त करने वाली छ.ग. की टीम के सदस्य को - 12 प्रतिशत

13.6 जम्मू काश्मीर के विस्थापितों तथा उनके आश्रितों को - 01 प्रतिशत

13.7 विशेष प्रोत्साहन :

छत्तीसगढ़ राज्य एवं महाविद्यालय के हित में एन.सी.सी./खेलकूद को प्रोत्साहन देने के लिये एन.सी.सी. के राष्ट्रीय स्तर के सर्वश्रेष्ठ कैडेट्स तथा ओलम्पियाड/एशियाड/ स्पोटर्स अथारिटी ऑफ इंडिया द्वारा राष्ट्रीय एवं अंतर्राष्ट्रीय स्तर पर आयोजित खेल प्रतियोगिता में भाग लेने वाले विद्यार्थियों को बगैर गुणानुक्रम के आगामी शिक्षा सत्र में उन कक्षाओं में सीधे प्रवेश दिया जाए जिनकीं उन्हें पात्रता है कि-

(1) इस प्रकार के प्रमाण पत्रों को संचालक, खेल एवं युवक कल्याण छ.ग. शासन द्वारा अभिप्रमाणित किया गया हो एवं

(2) यह सुविधा केवल उन्हीं अभ्यर्थियों को मिलेगी जिन्होंने निर्धारित समयावधि के अंतर्गत अपना अभ्यावेदन महाविद्यालय में प्रस्तुत किया है, परन्तु इस प्रकार की सुविधा दूसरी बार प्राप्त करने के लिए उन्हें उपलब्धि पुनः प्राप्त करना आवश्यक होगा।

13.8 प्रथम वर्ष में प्रवेश हेतु स्कूल स्तर के पिछले 4 क्रमिक सत्र तक के प्रमाण पत्र स्नातकोत्तर प्रथम या विधि प्रथम वर्ष में प्रवेश हेतु विगत तीन क्रमिक सत्र तक के प्रमाण पत्र अधिभार हेतु मान्य किये जायेंगे। स्नातक द्वितीय, तृतीय वर्ष एवं स्नातकोत्तर द्वितीय वर्ष में प्रवेश पूर्व सत्र के प्रमाण पत्र अधिभार हेतु मान्य होंगे।

14. संकाय/विषय/ग्रुप परिवर्तन :

स्नातक/स्नातकोत्तर प्रथम वर्ष में अर्हकारी परीक्षा के संकाय/विषय/ग्रुप परिवर्तन कर प्रवेश चाहने वाले विद्यार्थियों को उनके प्राप्तांको से 5 प्रतिशत घटाकर उनका गुणानुक्रम निर्धारित किया जायेगा। अधिभार घटे हुए प्राप्तांको पर देय होगा। महाविद्यालय में स्नातक/स्नातकोत्तर प्रथम वर्ष में एक बार प्रवेश लेने के बाद वर्तमान सत्र के दौरान संकाय/विषय/ग्रुप परिवर्तन की अनुमति महाविद्यालय के प्राचार्य द्वारा 30 सितम्बर तक या विलम्ब से मुख्य परीक्षा परिणाम आने पर कंडिका 2.2 में उल्लेखित प्रवेश की अंतिम तिथि से 15 दिन तक ही दी जायेगी। यह अनुमति उन्हीं विद्यार्थियों को देय होगी जिनके प्राप्तांक संबंधित विषय/संकाय की मूल गुणानुक्रम सूची में अंतिम प्रवेश पाने वाले विद्यार्थी के समकक्ष या उससे अधिक हो।

15. शोध छात्र :

शासकीय महाविद्यालयों में पी-एच.डी. के शोध छात्रों को दो वर्ष के लिए प्रवेश दिया जायेगा। पुस्तकालय/प्रायोगिक कार्य अपूर्ण रह जाने की स्थिति में सुपरवाइजर की अनुशंसा पर प्राचार्य इस समयावधि को अधिकतम 4 वर्ष कर सकेंगे। छात्र निर्धारित आवेदन पत्र में आवेदन करेंगे। प्रवेश के बाद निर्धारित शुल्क जमा करने के बाद ही नियमित प्रवेश मान्य किया जायेगा। शोध छात्र के लिए संबंधित विश्वविद्यालय द्वारा पी-एच.डी. निर्देशन हेतु महाविद्यालय में पदस्थ मान्य प्राध्यापक सुपरवाइजर विश्वविद्यालय द्वारा निर्धारित नियमों के अंतर्गत ही अपना शोध कार्य संपादन करेंगे। अध्ययन अवकाश लेकर कोई शिक्षक यदि शोध छात्र के रूप में कार्यरत हैं, तो सक्षम अधिकारी द्वारा प्रेषित उपस्थिति प्रमाण-पत्र एवं प्रति तीन माह की कार्य प्रगति रिपोर्ट प्राप्त होने पर ही वेतन आहरण अधिकारी द्वारा शोध शिक्षक का वेतन आहरित किया जायेगा।

महाविद्यालय में पदस्थ प्राध्यापक सुपरवाइजर के अन्यत्र स्थानांतरण हो जाने की स्थिति में शोध छात्र ऐसी संस्था में अपना शोध कार्य चालू रख सकते हैं जहां से उनका शोध आवेदन पत्र अग्रेषित किया गया था। शोध कार्य पूर्ण हो जाने के उपरांत शोध का प्रबंध उसी महाविद्यालय के प्राचार्य अग्रेषित करेंगे। संबंधित विश्वविद्यालय के शोध अध्यादेश के साथ सहपठित करते हये लागू होगा।

16. विशेष :

16.1 जाली प्रमाण पत्रों, गलत जानकारी, जानबूझकर छिपाये गये प्रतिकूल तथ्यों प्रशासकीय अथवा कार्यालयीन असावधानीवश यदि किसी आवेदक को प्रवेश मिल गया है तब ऐसे प्रवेश को निरस्त करने का पूर्ण दायित्व प्राचार्य को होगा।

16.2 प्रवेश लेकर किसी समुचित कारण, पूर्व अनुमति या सूचना के बिना लगातार एक माह या अधिक समय तक अनुपस्थित रहने वाले विद्यार्थी का प्रवेश निरस्त करने का अधिकार प्राचार्य को होगा।

16.3 प्रवेश के बाद सत्र के दौरान कंडिका 9.2 एवं 9.3 में वर्णित अनुशासनहीनता के प्रकरणों में लिप्त विद्यार्थी का प्रवेश निरस्त करने अथवा उसे निष्कासित करने का अधिकार प्राचार्य को होगा।

16.4 प्रवेश के बाद सत्र के दौरान विद्यार्थी द्वारा महाविद्यालय छोड़ देने अथवा उसका प्रवेश निरस्त होने अथवा उसका निष्कासन किये जाने की स्थिति में विद्यार्थी को संरक्षित निधि के अतिरिक्त अन्य कोई शुल्क वापिस नहीं किया जायेगा।

16.5 प्रवेश के मार्गदर्शक सिद्धांतो के स्पष्टीकरण या प्रवेश संबंधी किसी भी प्रकरण में मार्गदर्शन की आवश्यकता होने पर, प्राचार्य प्रकरण में अनिवार्य रूप से स्पष्ट टीप व अभिमत देते हुए स्पष्टीकरण/मार्गदर्शन आयुक्त, उच्च शिक्षा, छत्तीसगढ़, रायपुर से प्राप्त करेंगें। प्रवेश संबंधी किसी भी प्रकरण को केवल अग्रेषित लिखकर प्रेषित न किया जाये।

16.6 इन मार्गदर्शन सिद्धांतो में उल्लेखित प्रावधानों की व्याख्या करने का अधिकार आयुक्त, उच्च शिक्षा विभाग को है। इन मार्गदर्शक सिद्धांतो में समय-समय पर परिवर्तन/संशोधन /निरसन/संलग्न का सम्पूर्ण अधिकार छत्तीसगढ़ शासन, उच्च शिक्षा विभाग, मंत्रालय को होगा।

अवर सचिव
छत्तीसगढ़ शासन, उच्च शिक्षा विभाग

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महाविद्यालय में प्रवेश के आवश्यक नियम

महाविद्यालय में प्रवेश प्राप्ति के लिये इच्छूक सभी छात्राओं से अपेक्षा है कि वे संलग्न निर्धारित आवेदन पत्र भरें। आवेदन पत्र के साथ निम्नलिखित प्रमाण–पत्रों की अभिप्रमाणित सत्य प्रतिलिपियाँ संलग्न करें।

1. स्थानांतरण प्रमाण पत्र (मूल)
2. चरित्र प्रमाण–पत्र (मूल)
3. 10वीं से पिछली परीक्षा की अंक सूची
4. प्रवजन प्रमाण–पत्र (आवश्यकतानुसार)
5. जाति प्रमाण पत्र
6. निवास प्रमाण पत्र
7. प्रवेश आवेदन पत्र में फोटो चिपकायें

प्रवेश प्राप्त होने एवं सूचना पटल पर नाम आ जाने के पश्चात् ही उपर्युक्त प्रमाण–पत्रों की मूल प्रति कार्यालय में जमा करें। जांच पश्चात मूल प्रति वापस कर दी जायेगी ।

शुल्क पटाने पर ही प्रवेश संपन्न माना जायेगा । शुल्क पटाते समय प्रत्येक विद्यार्थी को दो पासपोर्ट आकार का फोटो जिसमें पीछे विद्यार्थी का नाम और कक्षा लिखा हो, कार्यालय में देना होगा। तब उसे फीस कार्ड और प्रवेश कार्ड दिया जायेगा । फोटो का उपयोग परिचय पत्र बनाने के लिये होगा जिसमें विद्यार्थी को प्रभारी प्राध्यापक के हस्ताक्षर कराने होंगे ।

किसी भी छात्रा को प्रवेश की सूचना घर नहीं भेजी जायेगी, प्रतिदिन सूचना पटल देखना अनिवार्य होगा।

डुप्लीकेट स्थानांतरण प्रमाण–पत्र के लिये शपथ–पत्र और शुल्क 10 रूपये मात्र जमा करना अनिवार्य है यह राशि शासकीय मद में जमा होगी ।

नोट :

1. अनुत्तीर्ण, पूरक तथा विश्वविद्यालयीन परीक्षा में नकल करते पकड़े गये छात्राओं को महाविद्यालय में प्रवेश नहीं दिया जायेगा।
2. अपूर्ण, असत्य एवं भ्रामक जानकारी के आधार पर प्राप्त प्रवेश सूचना प्राप्त होते ही निरस्त कर दिया जायेगा एवं उसका दायित्व छात्रा का होगा, ऐसी स्थिति में उसके द्वारा जमा की गई राशि वापस नहीं की जायेगी।
3. उपर्युक्त प्रमाण पत्र के अभाव में प्रवेश रद्द हो जायेगा।
4. छात्रा का आचरण अर्हता आदि से संबंधित आपत्ति होने पर प्राचार्य ऐसे प्रत्याशियों को महाविद्यालय में प्रवेश के लिए अपात्र घोषित कर सकते है।
5. महाविद्यालय के शुल्क एवं आवश्यक प्रपत्र प्रस्तुत करने पर ही छात्रा का प्रवेश स्थाई समझा जायेगा। महाविद्यालय को यह अधिकार होगा कि बिना कारण बताये प्रवेश से वंचित कर दे या प्रवेश ही रद्द कर दे।
6. जिस छात्रा का प्रवेश स्वीकार हो जायेगा उसे एक प्रवेश पत्र/परिचय पत्र कार्यालय से दिया जायेगा। इन दोनों को वर्ष भर सुरक्षित रखना चाहिए।
7. आवेदन पत्र में छात्रा का नाम सही होना चाहिये जो उच्चतर माध्यमिक शाला परीक्षा प्रमाण पत्र या अंकसूची में अंकित हो। नाम परिवर्तन के इच्छुक छात्रा को पांच रूपये के नान ज्युडिशियर स्टाम्प में प्रथम श्रेणी न्यायाधीश की अदालत में शपथ पत्र (Affidavit) देकर नत्थी करना होगा।
8. छात्रा द्वारा आवेदन पत्र में दर्शाये स्थायी एवं वर्तमान पते में यदि किसी प्रकार का परिवर्तन होता है, तो उसकी सूचना प्राचार्य को तत्काल देना अनिवार्य है।

शुल्क विनियम :

1. एक बार कोई शुल्क पट जाने के बाद वह किसी भी प्रकार वापस नहीं हो सकेगा।
2. एक बार किसी छात्रा का महाविद्यालय में प्रवेश हो जाने के पश्चात् शासकीय अनुदान नियमों के अनुसार उसे पूरे सत्र का सभी शुल्क पटाना पड़ेगा, चाहे वह जिस तिथि को प्रवेश ले एवं महाविद्यालय छोड़ दें।
3. संस्था छोड़ने के दो वर्ष बाद किसी प्रकार की राशि वापस नहीं की जायेगी।
4. छात्राओं को सलाह दी जाती है कि शुल्क पटाने के बाद रसीद का ठीक से निरीक्षण करें तथा उसे प्रमाण स्वरूप सुरक्षित रखें। जो भी शुल्क या किसी प्रकार की अन्य धनराशि इस महाविद्यालय में किसी भी छात्रा या व्यकित के द्वारा जमा की जाये, उसकी रसीद नियमानुसार प्राप्त कर लेनी चाहिए। अन्यथा उसका उत्तरदायित्व जमा करने वाले व्यक्ति का ही होगा।
5. परीक्षा फार्म जमा करने के पूर्व विश्वविद्यालयीन शुल्क भी जमा करना होगा।

परिचय पत्र (Identity Card) :

1. परिचय पत्र महाविद्यालय के छात्राओं के लिये अनिवार्य है। महाविद्यालय में प्रवेश करते समय चेक पोस्ट में प्रत्येक छात्रा को परिचय पत्र दिखाना अनिवार्य है।
2. महाविद्यालय में प्रवेश लेते समय आवेदन पत्र के साथ पासपोर्ट साईज फोटो संलग्न कर कार्यालय में देना आवश्यक होगा, ताकि प्रवेश पत्र के साथ परिचय पत्र भी छात्रा को प्राप्त हो सके।
3. परिचय पत्र को सावधानी पूर्वक सुरक्षित रखना छात्रा का कर्त्तव्य है।
4. महाविद्यालय में प्रवेश करते समय, प्रत्येक समारोह एवं उत्सव में सम्मिलित होते समय छात्राओं को परिचय पत्र साथ रखना होगा।
5. महाविद्यालय के किसी भी अधिकारी द्वारा परिचय पत्र की मांग करने पर प्रस्तुत करना अनिवार्य होगा।
6. परिचय पत्र हस्तांतरण योग्य नहीं है। छात्रा को यह निर्देश बाध्यकारी होगा, अन्यथा छात्रा दण्ड की अधिकारी होगी।
7. परिचय पत्र खो जाने पर 10/– रूपये शुल्क तथा दो प्रतियां पासपोर्ट साईज फोटो जमा करने पर पुनः प्राप्त किया जा सकेगा, परन्तु नया परिचय–पत्र, शपथ पत्र प्रस्तुत करने पर ही दिया जावेगा।

उपस्थिति संबंधी विश्वविद्यालय के नियम :

मध्यप्रदेश विश्वविद्यालय अधिनियम 1973 के अधीन बनाये गये अध्यादेश क्रमांक 7 के अनुसार नियमित छात्राओं को विश्वविद्यालय परीक्षा में सम्मिलित होने की पात्रता के लिये 75 प्रतिशत उपस्थिति आवश्यक है अन्यथा उसे परीक्षा में बैठने से रोका जा सकता है । जिन छात्राओं की उपस्थिति 31 अक्टूबर तक 50 प्रतिशत से कम होगी उनके परीक्षा आवेदन पत्र विश्वविद्यालय को अग्रेषित नहीं किये जावेंगे । उपस्थिति की द्वितीय गणना 17 फरवरी तक की जायेगी ।

समय–समय पर अपनी उपस्थिति के आंकड़ो की जानकारी प्रत्येक विद्यार्थी को व्यक्तिगत उत्तरदायित्व के साथ संबंधित प्राध्यापकों तथा विभागाध्यक्षों से संपर्क साधकर जानकारी लेना चाहिये । उपस्थिति में कमी के संबंध में महाविद्यालय विद्यार्थियों या उनके पालकों को सूचना देने के लिये उत्तरदायी नहीं है। कुल सात आंतरिक परीक्षाओं में से कम से कम पॉच में सम्मिलित होना आवश्यक होगा ।

विश्वविद्यालय अधिनियम में प्रावधान -

मध्यप्रदेश विश्वविद्यालय अधिनियम 1976 के अधीन बनाये गये अध्यादेश क्रमांक 7 की धारा 13 के अनुसार महाविद्यालय की छात्राओं द्वारा महाविद्यालय में अथवा बाहर अनुशासन भंग किये जाने या दुराचरण किये जाने पर ऐसे छात्राओं के विरूद्ध अनुशासनात्मक कार्यवाही के लिये प्राचार्य सक्षम हैं, अनुशासनहीनता के लिये उक्त अध्यादेश में निम्नलिखित दण्ड का प्रावधान है जो रैगिंग करने वाली छात्राओं पर भी लागू होगा :–

1. निलंबन 2. निष्कासन 3. रेस्टीकेशन
4. विश्वविद्यालय परीक्षा में सम्मिलित होने से रोकना

विश्वविद्यालय नामांकन : (नवीन छात्राओं हेतु अनिवार्य)

विश्वविद्यालय में नामांकन हेतु समय पर आवश्यक आवेदन पत्र भर कर नामांकन करा लेने का उत्तरदायित्व छात्राओं का होगा। प्रवेश के बाद नामांकन फार्म महाविद्यालय में निर्धारित अवधि में भरना होगा।

आंतरिक मूल्यांकन (सतत् मूल्यांकन) :

शासन के अकादमिक केलैन्डर के अनुसार इस महाविद्यालय में इकाई मूल्यांकन एवं सतत् मूल्यांकन परीक्षा नियमित रूप से आयोजित होती है जिसमें छात्राओं की उपस्थिति अनिवार्य है।

शुल्क का विवरण

1.	ए.एफ.			
	1.	सम्मिलित निधि शुल्क	-	50.00
	2.	वार्षिक स्नेह सम्मेलन	-	100.00
	3.	महाविद्यालय विकास निधि	-	150.00
	4.	छात्र संघ	-	10.00
		योग	-	310.00
2.	पी.डी. (महाविद्यालय)			
	1.	पत्रिका	-	75.00
	2.	छात्र कॉमन रुम	-	50.00
	3.	कॉसन मनी (नये विद्यार्थी के लिये)	-	100.00
	4.	चिकित्सा शुल्क	-	05.00
	5.	परिचय पत्र	-	50.00
	6.	सायकल स्टैण्ड	-	75.00
	7.	छात्र सहायता निधि	-	05.00
	8.	वाचनालय शुल्क	-	20.00
	9.	आंतरिक मूल्यांकन शुल्क	-	50.00
	10.	रेडक्रास	-	25.00
	11.	क्षतिपूर्ति शुल्क	-	25.00
	12.	प्रायोगिक शुल्क	-	200.00 (बी.ए. प्रायोगिक शुल्क)
		योग	-	680.00
3.	पी.डी. (विश्वविद्यालय)			
	1.	शारीरिक युवा कल्याण शुल्क	-	150.00
	2.	वि.वि. युवा गतिविधि शुल्क	-	02.00
	3.	वि.वि. ग्रंथालय शुल्क	-	20.00
	4.	वि.वि. छात्र शुल्क	-	10.00
	5.	वि.वि. छात्र कल्याण शुल्क	-	10.00
		योग	-	192.00
4.	शासकीय शुल्क			
	1.	प्रवेश शुल्क	-	03.00
	2.	स्टेश्नरी	-	03.00
	3.	प्रायोगिक	-	20.00
		योग	-	26.00
5.	जनभागीदारी शुल्क		-	250
6.	जनभागीदारी शुल्क			
	1.	बी.सी.ए. प्रथम / द्वितीय / तृतीय वर्ष	-	10000 / -
	2.	पीजीडीसीए	-	12000 / -
	3.	बी.लिब. आई.एस.सी.	-	8000 / -
	4.	एम.कॉम.	-	6000 / -

महाविद्यालय संबंधी अन्य जानकारियाँ

प्रवेश संख्या :

(स्नातक स्तर)

कला संकाय :

बी.ए. भाग–1	200
बी.ए. भाग–2	200
बी.ए. भाग–3	200

वाणिज्य संकाय :

बी.काम. भाग–1	100
बी.काम. भाग–2	100
बी.काम. भाग–3	100

कम्प्यूटर संकाय :

बी.सी.ए. भाग–1	40
बी.सी.ए. भाग–2	40
बी.सी.ए. भाग–3	40
पी. जी. डी. सी. ए.	30
डी. सी. ए.	30
बी.लिब. एंड आई.एस.सी	30

(स्नातकोत्तर स्तर)

एम.ए. हिन्दी	25
एम.ए. इतिहास	25
एम. ए.राजनीतिशास्त्र	25
एम. ए. समाजशास्त्र	25
एम. ए. अर्थशास्त	25

वाणिज्य संकाय :

एम.काम.	30

अन्य सामान्य नियम :

1. महाविद्यालय के अधिकारीगण इस संस्था में प्रवेश प्राप्त करने वाले समस्त विद्यार्थियों से अपेक्षा करते हैं कि विद्यार्थीगण अनुशासन तथा सद्व्यवहार का एक आदर्श इस शैक्षणिक संस्था में प्रस्तुत करेंगे तथा किसी भी राजनैतिक प्रदर्शन में भाग नहीं लेंगे ।
2. यदि किसी भी विद्यार्थी के विरूद्ध दुराचरण, दुर्व्यवहार या सतत् निष्क्रियता के गंभीर आरोप पाये गये तो प्राचार्य उसे महाविद्यालय से पृथक अथवा निलम्बित कर सकते हैं । ऐसे विद्यार्थी को प्राचार्य महोदय, विश्वविद्यालय की होने वाली परीक्षा में बैठने वंचित भी कर सकते हैं ।
3. सुरक्षा निधि (काशन मनी) विद्यार्थी को महाविद्यालय छोड़े पर व स्थानांतरण प्रमाण पत्र प्राप्त करने पर वापसी योग्य है जिसके लिये विद्यार्थी को काशन मनी की रसीद प्रस्तुत करना अनिवार्य है।
4. वे विद्यार्थी जो स्थानंतरण प्रमाण पत्र, चरित्र प्रमाण पत्र आदि इस महाविद्यालय के कार्यालय से डाक द्वारा प्राप्त करना चाहते हों, आवश्यक टिकट–लिफाफा भेजना अनिवार्य होगा अन्यथा उनके आवेदन पर विचार नहीं किया जावेगा ।
5. पालक शब्द से तात्पर्य उस शब्द से है जिस पर विद्यार्थी पूर्णरूपेण आर्थिक सहायता के लिये निर्भर है।
6. यदि कोई विद्यार्थी अपने आवेदन पत्र में त्रुटिपूर्ण जानकारी देता है या तथ्य छिपाता है तो प्राचार्य ऐसे विद्यार्थी का प्रवेश निरस्त कर सकते हैं तथा निलम्बित भी कर सकते हैं ।
7. विद्यार्थियों से अपेक्षा की जाती है कि वे नियमित रूप से आवश्यकतानुसार परिवर्तन कर सकेंगे जो भी नये निर्देश प्रभावशील होंगे वे महाविद्यालय के सभी विद्यार्थियों पर अनिवार्य रूप से बंधनकारी होंगे ।

शिक्षण शुल्क :

बी.ए. कक्षाओं के लिये शासन के निर्देशानुसार समस्त छात्राओं के लिये माफ है ।
बी.काम. कक्षाओं के लिये शासन के निर्देशानुसार समस्त छात्राओं के लिये माफ है ।
बी.सी.ए. कक्षाओं के लिये स्व–वित्तीय योजनाओं के तहत् वार्षिक शुल्क
एम.ए. (सभी विषयों में) स्व–वित्तीय योजनाओं के तहत् वार्षिक शुल्क
पी.जी.डी.सी.ए. स्व–वित्तीय योजनाओं के तहत् वार्षिक शुल्क

परीक्षा शुल्क :

परीक्षा शुल्क विश्वविद्यालय द्वारा निर्धारित राशि सभी के लिये देय होगा ।

टीप : विश्वविद्यालयीन परीक्षा शुल्क की घोषणा बाद में की जाती है जो कि परिवर्तनीय होता है। उपरोक्त के अतिरिक्त शासन द्वारा घोषित किये जाने वाले अन्य समस्त शुल्क देय होगा ।

समस्त रसीदें सुरक्षित रखें, आवश्यकता पड़ने पर मांगी जा सकती है। महाविद्यालय छोड़ने स्थानांतरण प्रमाण पत्र प्राप्त करने के बाद अवधान राशि प्राप्त करने हेतु संबंधित रसीद जमा करना अनिवार्य होगा।

उपस्थिति के संबंध में छात्रों से अपेक्षित कार्यवाही :

महाविद्यालय में अध्ययनरत् समस्त छात्राओं की उपस्थिति कम से कम 75 प्रतिशत अनिवार्य है। 75 प्रतिशत से कम उपस्थिति होने की स्थिति में छात्राओं को नियमित परीक्षार्थी के रूप में मुख्य परीक्षा में सम्मिलित होने की पात्रता नहीं रहेगी एवं महाविद्यालय की अन्य सुविधाओं जैसे छात्रवृत्ति आदि की पात्रता नहीं रहेगी जिसकी संपूर्ण जिम्मेदारी छात्रा की होगी ।

छात्रवृत्ति सम्बंधी जानकारी

1. राष्ट्रीय छात्रवृत्ति के आवेदन पत्र प्राप्त छात्रों को छ.ग. माध्यमिक शिक्षा मण्डल / विश्वविद्यालय द्वारा उनके घर के पते पर योग्यता सूची के अनुसार भेजे जाते है। इन आवेदन पत्रों को छात्रों द्वारा संस्था प्रमुख के माध्यम से आयुक्त उच्च शिक्षा, रायपुर को भेजना जाना चाहिये ।
2. स्नातक शिष्यवृत्तियां आयुक्त उच्च शिक्षा के आबंटन के आधार पर महाविद्यालय द्वारा स्वीकृत की जाती है ।
3. अधिवेश सभी छात्रवृत्तियों के लिये आवेदन पत्र महाविद्यालय के माध्यम से आयुक्त उच्च शिक्षा, रायपुर को निर्धारित तिथि पर भेजा जाना चाहिये ।
4. राष्ट्रीय छात्रवृत्ति को छोड़कर शेष सभी छात्रवृत्तियों हेतु आवेदन पत्र महाविद्यालय से प्राप्त हो सकेंगे । पोस्ट मेट्रिक छात्रवृत्ति एवं अल्पसंख्यक छात्रवृत्ति आनलाईन भरकर निर्धारित तिथि पर प्रस्तुत करना होगा ।
5. महाविद्यालय में आवेदन पत्र प्रस्तुत करने हेतु तिथियॉ महाविद्यालय द्वारा समय–समय पर घोषित की जावेगी ।

खेलकूद :

महाविद्यालय में निम्नलिखित खेलों के लिये सुविधायें हैं –

1. फुटबाल	2. हॉकी	3. बालीबाल	4. बैडमिंटन	5. टेबलटेनिस	6. क्रिकेट
7. कबड्डी	8. शतरंज	9. एथलेटिक्स	10. खो–खो	11. कैरम	

पुस्तकालय :

महाविद्यालय के पुस्तकालय में विभिन्न विषयों के लगभग 12 हजार से अधिक पुस्तकें हैं । संदर्भ पुस्तक भी पुस्तकालय में पर्याप्त मात्रा में उपलब्ध है ।

अ. स्नातक कक्षा के विद्यार्थियों को सप्ताह में एक बार दो पुस्तकें निर्गमित की जाती है ।
ब. वाचनालय कक्ष में उत्तम पत्र–पत्रिकायें को सप्ताह में एक बार दो पत्रिकाएँ निर्गमित की जाती है।

नोट : पुस्तकालय सामग्री को नुकसान पहुँचाने वाले विद्यार्थियों के विरूद्ध कठोर अनुशासनात्मक कार्यवाही की जायेगी ।

बुक बैंक :

शासन की सहायता से निर्धन एवं पिछड़े वर्ग के विद्यार्थियों के लिये बुक बैंक का गठन किया गया है । जिससे विद्यार्थियों को सम्पूर्ण सत्र के लिये पुस्तकें दी जाती है ।

नोट – ऐसे छात्र जो बुक बैंक से पुस्तकें लेने का पात्रता रखते हैं वे विवरणिका में संलग्न फार्म भरकर पुस्तकालय अधिकारी को पर्याप्त प्रमाण सहित देंगे ।

पुस्तकालय के उपयोग के लिये परिचय पत्र लाना आवश्यक है। जुलाई माह में फीस कार्ड और प्रवेश कार्ड भी प्रस्तुत करना आवश्यक हैं ।

विद्यार्थी सहायता कोष :

1. यू.जी.सी. द्वारा बनाये गये नियमों और निर्देशों के अनुसार इस कोष की स्थापना की गई है । इसका उद्देश्य निर्धन तथा जरूरतमंद विद्यार्थियों को पुस्तक आदि के रूप में लघु आवश्यकताओं की पूर्ति हेतु वित्तीय सहायता देना है ।
2. निर्धन छात्राओं को (जिन्हें अन्य छात्रवृत्तियाँ नहीं मिलती है), महाविद्यालय से छात्र सहायता मिलती है ।
3. जिन छात्राओं को छात्रवृत्ति नहीं मिलती है, छात्र सहायता निधि रेडक्रास यह सहायता प्रदान करती है ।

भैषजिक परीक्षा :

महाविद्यालय के प्रत्येक छात्रा को भैषजिक परीक्षण कराना होगा, यह जॉच किसी चिकित्सक द्वारा नियत तिथि को होगी । इसमें अनुपस्थिति होने पर अर्थदण्ड का प्रावधान है ।

अनुशासन व्यवस्था एवं प्राक्टोरियल बोर्ड :

महाविद्यालय में अनुशासन व्यवस्था और अनुशासनहीनता के मामलों की जॉच एवं निर्णय के लिये प्राक्टोरियल बोर्ड रहेगा ।

विभिन्न प्रकोष्ठ :

राष्ट्रीय सेवा योजना इकाई :

इस महाविद्यालय में एन.एस.एस. की एक इकाई कार्यरत है। इस योजना के अंतर्गत विद्यार्थियों को शहरी बस्तियों और ग्रामीण क्षेत्र में समाजसेवा के कार्य करने का प्रशीक्षण एवं अनुभव प्रदान किया जाता है जिसके अंतर्गत श्रमदान, वृक्षारोपण, प्रौढ़शिक्षा, स्वच्छता, रक्तदान, अल्पबचत, प्राथमिक उपचार एवं अन्य जन जागरूकता के कार्यक्रम आयोजित किये जाते है, जिसमें छात्राओं की भागीदारी रहती है ।

240 घंटे की सेवा करने पर विश्वविद्यालय से 'बी' प्रमाण–पत्र प्राप्त होता है ।

अनुसूचित जाति / जनजाति कल्याण एवं विकास प्रकोष्ठ :

छात्राओं को प्रवेश, छात्रवृत्ति, बुकबैंक, पुस्तकालय, निशुल्क स्टेशनरी आदि शासन की योजनाओं से अवगत कराना तथा लाभान्वित कराना। छात्राओं की अतिरिक्त कक्षायें लेकर उनकी शैक्षणिक समस्यायें का निदान करना साथ ही उनके व्यक्तित्व विकास हेतु मार्गदर्शन प्रदान करना ।

भारतीय रेड क्रास समिति :

छात्राओं में पोषण एवं स्वास्थ्य संबंधी जागरूकता लाना, उनका स्वास्थ्य परीक्षण करवाना एवं समय–समय पर व्याख्यान एवं प्रश्नोत्तरी के माध्यम से उन्हें नवीनतम जानकारियों से अवगत कराना । ग्रामीण अंचल में स्वास्थ्य शिविर आयोजित करना आदि पर्यावरण स्वच्छता एवं सौंदर्यीकरण हेतु छात्राओं में रूचि विकसित करना ।

मार्गदर्शन एवं परामर्श प्रकोष्ठ :

यह प्रकोष्ठ छात्राओं को व्यक्तिगत, सामाजिक, शैक्षणिक एवं व्यवसायिक मार्गदर्शन एवं परामर्श देने का कार्य करता है। समय–समय पर विशेषज्ञों के व्याख्यान आयोजित किये जाते है ।

[illegible]

छत्तीसगढ़ के शासकीय महाविद्यालय में विद्यार्थियों के लिये आचरण - संहिता

सामान्य नियम :

छत्तीसगढ़ के शासकीय महाविद्यालय में प्रवेश लेने वाले विद्यार्थियों को महाविद्यालय के नियमों का अक्षरथः पालन करना होगा । इनका पालन न करने पर वह शासन द्वारा निर्धारित दण्डात्मक कार्यवाही का भागीदारी होगा ।

1. विद्यार्थी शालीन वेशभूषा में महाविद्यालय में आयेगा । किसी भी स्थिति में उसकी वेशभूषा उत्तेजक नहीं होना चाहिये ।
2. प्रत्येक विद्यार्थी अपना पूर्ण ध्यान अध्ययन में लगायेगा, साथ ही महाविद्यालय द्वारा आयोजित पाठ्येत्तर गतिविधियों को भी पूरा सहयोग प्रदान करेगा ।
3. महाविद्यालय परिसर में वह शालीन व्यवहार करेगा, अभद्र व्यवहार असंसदीय भाषा का प्रयोग वाली गाली–गलौच, मारपीट या आग्नेय अस्त्रों का प्रयोग नहीं करेगा ।
4. प्रत्येक विद्यार्थी अपने शिक्षकों, अधिकारियों एवं कर्मचारियों से नम्रता एवं भद्रता का व्यवहार करेगा।
5. महाविद्यालय परिसर को स्वस्छ बनाये रखना प्रत्येक विद्यार्थी का नैतिक कर्तव्य है, वह सरल निर्व्यसन और मितव्ययी जीवन निर्वाह करेगा ।
6. महाविद्यालय की सीमाओं में किसी भी प्रकार के मादक पदार्थो का सेवन सर्वथा वर्जित रहेगा ।
7. महाविद्यालय में इधर–उधर थूकना, दीवालों को गंदा करना या गंदी बातें लिखना सख्त मना है। विद्यार्थी असमाजिक तथा अपराधिक गतिविधियों में संलिप्त पाये जाने पर कठोर कार्यवाही की जायेगी।
8. विद्यार्थी अपनी मांगो का प्रदर्शन आंदोलन हिंसा या आतंक फैलाकर नहीं करेगा । विद्यार्थी अपने आप को दलगत राजनीति से दूर रखेगा तथा अपनी मांगों को मनवाने के लिये राजनीतिक दलों, कार्यकर्ताओं अथवा समाचार पत्रों का सहारा नहीं लेगा ।
9. महाविद्यालय परिसर में मोबाईल का उपयोग पूर्ण प्रतिबंधित रहेगा ।

अध्ययन संबंधी नियम :

1. प्रत्येक विषय में विद्यार्थी की 75प्रतिशत उपस्थिति अनिवार्य होगी तथा यह एन.सी.सी./एन.एस. एस. में भी लागू होगी अन्यथा उसे वार्षिक परीक्षा में बैठने की पात्रता नहीं होगी ।
2. विद्यार्थी प्रयोगशाला में उपकरणों का उपयोग सावधानी पूर्वक करेगा । उनकों स्वच्छ रखेगा ।
3. ग्रंथालय द्वारा स्थापित नियमों का पूर्ण पालन करेगा, उसे निर्धारित संख्या में सही पुस्तकें, प्राप्त होगी तथा समय से न लौटाने पर निर्धारित दण्ड देना होगा ।
4. अध्ययन से सम्बन्धित किसी भी कठिनाई के लिये वह गुरूजनों के समक्ष अथवा प्राचार्य के समक्ष शांतिपूर्वक ढंग से अभ्यावेदन प्रस्तुत करेगा ।
5. व्याख्यान कक्षों, प्रयोगशालाओं या वाचनालय में पंखे, लाईट, फर्नीचर, इलेक्ट्रिक फिटिंग आदि का तोड़फोड़ करना दण्डात्मक आचरण माना जायेगा ।

परीक्षा सम्बंधी नियम :

1. विद्यार्थी को सत्र के दौरान होने वाली सभी इकाई परीक्षाओं, त्रैमासिक तथा अर्द्धवार्षिक परीक्षाओं में सम्मिलित होना अनिवार्य है ।
2. अस्वस्थतावश आंतरिक परीक्षाओं में सम्मिलित न होने की स्थिति में विद्यार्थी शासकीय चिकित्सक से मेडिकल सर्टिफिकेट प्रस्तुत करेगा तथा स्वस्थ होने के उपरांत परीक्षा देगा ।
3. परीक्षा में या उसके सम्बंध में किसी प्रकार के अनुचित लाभ होने या अनुचित साधनों का प्रयोग करने का प्रयत्न गंभीर दुराचरण माना जायेगा ।

महाविद्यालय प्रशासन का अधिकार क्षेत्र –

1. यदि छात्र अनैतिकता मूलक या गंभीर अपराध में अभियुक्त पाया गया तो उसका प्रवेश तत्काल निरस्त कर दिया जायेगा ।
2. यदि छात्र रैगिंग में लिप्त पाया गया तो छत्तीसगढ़ शौक्षणिक संस्थानों में प्रताड़ना प्रतिषेध अधिनियम 2001 के अनुसार रैगिंग किये जाने पर अथवा रैगिंग के लिये प्रेरित करने पर पॉच साल तक कारावास की सजा या पॉच हजार रूपये जुर्माना अथवा दोनों से दण्डित किया जा सकता है।
3. यदि विद्यार्थी समय–सीमा में शुल्क का भुगतान नहीं करता तो उसका नाम काट दिया जायेगा ।
4. यदि विद्यार्थी कसी भी प्रार्थना पत्र अथवा आवेदन में तथ्यों को छिपायेगा अथवा गलत प्रस्तुत करेगा तो उसका प्रवेश निरस्त कर उसे महाविद्यालय में पृथक कर दिया जायेगा।
5. महाविद्यालय में प्रवेश लेने हेतु विद्यार्थी द्वारा प्रस्तुत किये गये आवेदन पत्र में उसके पालक अभिभावक का घोषणा पत्र पर हस्ताक्षर करना अनिवार्य है और यह हस्ताक्षर प्रवेश समिति से सम्मुख करेंगे ।

रैगिंग

माननीय सर्वोच्य न्यायालय के आदेश दिनांक 27.11.06 संदर्भ एस.एल.पी. 2495/06 केरल विश्वविद्यालय विरूद्ध महाविद्यालय प्राचार्य की परिषद तथा एस.एल.पी. क्र. 24296-24299/ 2004 डब्ल्यू.पी. (सी.आर.सी) 173/2006 तथा एस.एल.पी. क्र. 14356/2005 के अनुसार रैगिंग एक दण्डनीय अपराध है। महाविद्यालय या अन्यत्र कही भी रैगिंग लेना पूरी तरह प्रतिबंधित है। रैगिंग के लिये दोषी विद्यार्थी को महाविद्यालय से निष्काषित किया जाकर उसके विरूद्ध कठोर निषेधात्मक वैधानिक कार्यवाही की जावेगी। वरिष्ठ विद्यार्थी इसका ध्यान रखे ।

रैगिंग संबंधी परिनियम

महाविद्यालय परिसर में रैगिंग रोकने के लिये विशेष परिनियम :

1. यह विशेष विश्वविद्यालय और संबद्ध महाविद्यालय के परिसर में रैगिंग कुप्रथा समाप्त करने के लिये स्थापित किया जा रहा है।

2. इस परिनियम में निहित अनुदेश विश्वविद्यालय अथवा महाविद्यालय परिसर और संबद्ध छात्रावास परिसर में होने वाली किसी घटना के लिये लागू होंगे । परिसर के बाहर की घटनाओं के लिये यह परिनियम प्रचलन में नहीं होगा ।

3. रैगिंग में निम्नलिखित अथवा इनमें से एक व्यवहार अथवा कार्य शामिल होगा :

   अ. शारीरिक आघात जैसे चोट पहुंचाना, चॉटा मारना, पीटना अथवा कोई दण्ड देना ।

   ब. मानसिक आघात जैसे मानसिक कलेश पहुचॉना, छेड़ना, अपमानित करना, डांटना ।

   स. अश्लील अपमान जैसे असभ्य चुटकुले सुनाना, असभ्य व्यवहार करना अथवा ऐसा करने के लिये बाध्य करना ।

   द. सहपाठियों, साथियों या पूर्व छात्रों अथवा बाहरी असमाजिक तत्वों के द्वारा अनियंत्रित तत्वों के द्वारा अनियंत्रित व्यवहार जैसे हुल्लड़ मचाना, चीखना-चिल्लाना आदि ।

4. ऐसी किसी घटना की जानकारी प्राप्त होने पर अथवा ऐसी किसी घटना का अवलोकन करने पर महाविद्यालय के प्राचार्य को अथवा विश्वविद्यालय के कुलपति को कोई भी विद्यार्थी, शिक्षक, कर्मचारी, अभिभावक या कोई नागरिक अपनी शिकायत दर्ज करा सकेगा । ऐसी शिकायत को प्राचार्य महाविद्यालय और कुलपति विश्वविद्यालयों में गठित प्रॉक्टोरियल बोर्ड को सौपेंगे। इस में चार वरिष्ठ शिक्षक, दो वरिष्ठ विद्यार्थी और दो अभिभावक सदस्य के रूप में प्राचार्य/कुलपति द्वारा मनोनित किया जायेंगे । इस हेतु प्रॉक्टोरियल बोर्ड की विशेष बैठक आहूत की जायेगी । बैठक की सूचना, सूचना बोर्ड में मनोनित वरिष्ठतम प्राध्यापक द्वारा सभी सदस्यों को दी जायेगी । यह वरिष्ठतम प्राध्यापक मुख्य प्रॉक्टर कहलायेंगे ।

5. प्रॉक्टोरियल बोर्ड प्रकरण की छानबीन करेगा और अपनी अनुशंसा महाविद्यालय के प्राचार्य/विश्वविद्यालय के कुलपति आवश्यकतानुसार कार्यवाही कर सकेंगे ।

6. प्रॉक्टोरियल बोर्ड की अनुशंसा पर महाविद्यालय के प्राचार्य/विश्वविालय के कुलपति आवश्यकतानुसार कार्यवाही कर सकेंगे। दोषी पाये जाने पर संबंधित छात्रा को निम्नानुसार दंड दिया जा सकेगा ।

   1. महाविद्यालय से एक या दो वर्ष के लिये निष्कासन ।

   2. राज्य के किसी भी महाविद्यालय या/एवं विश्वविद्यालय में दो वर्ष तक प्रवेश पर रोक।

   3. दोषी छात्र को दंड के विरूद्ध अपील करने का अधिकार होगा । यह अपील महाविद्यालय के प्राचार्य/विश्वविद्यालय के कुलपति को संबोधित होगा ।

   4. महाविद्यालय के प्राचार्य/विश्वविद्यालय के कुलपति और प्रॉक्टोरियल बोर्ड की ऐसी किसी भी घटना को विस्तृत जांच संस्थित करने का पूर्ण अधिकार होंगे और इस हेतु उच्च स्तर से स्वीकृति लेना आवश्यक नहीं होगा लेकिन की गई कार्यवाही की सूचना राज्य शासन को देना अनिवार्य होगा ।

   5. कोई भी न्यायालय (उच्च न्यायालय को छोड़कर) इस प्रकार की कार्यवाही में प्राचार्य/कुलपति की सहमति के बिना हस्तक्षेप नहीं कर सकेगा ।

   6. यदि रैगिंग का कृत्य किसी पूर्व छात्रा अथवा अछात्रा द्वारा किया गया है तो ऐसे व्यक्ति को पुलिस की सुपुर्द करने का अधिकार प्राचार्य/विश्वविद्यालय के कुलपति को होगा ।

      इनकी शिकायत पर पुलिस को दोषी व्यक्ति को हिरासत में लेना और एफ.आई.आर. दर्ज करवाना आवश्यक होगा।

महिला उत्पीड़न तथा यौन शोषण संबंधी कानून

1. ऐसे सभी व्यवहार जो प्रत्यक्ष रूप से या अप्रत्यक्ष रूप से शामिल हो, जो अरूचि कर यौन भावना से प्रेरित हो ।
2. शारीरिक संपर्क एवं निकट आने का प्रयत्न ।
3. यौन अनुग्रह की मांग ।
4. यौन अर्थ से रंजित फब्तियाँ ।
5. अश्लील चित्र दिखाना ।
6. कोई अन्य अरूचिकर यौन भाव वाला शारीरिक, मौखिक अथवा गैर मौखिक संपर्क
7. ऐसा यौन उत्पीड़न जो अपमान, स्वास्थ्य या सुरक्षा का भय दिखाकर किया जाये ।
8. ऐसा यौन उत्पीड़न जो हानिकारक परिणामों को चेतावनी, धमकी देकर किया जायये ।
9. ऐसा यौन उत्पीड़न जो देश या माहौल दूषित होने की संभावना दिखाकर किया जाये ।
10. छेड़खानी करना ।
11. किसी स्त्री की स्वतंत्रता को भंग करने का प्रयत्न करना ।
12. भद्दा मजाक करना ।
13. फोन पर अश्लील बातचीत करना ।
14. इच्छा के विरूद्ध करना, उसकी निजता का उल्लंघन करना ।
15. किसी भी प्रकार की ज्यादती करना ।

आदि संबंधी अपराधन होने पर प्रमुख निकटस्थ पुलिस थाना, महिला थाना तथा राज्य महिला आयोग को सूचित करें ।

''राज्य महिला आयोग, रायपुर, छत्तीसगढ़

द्वारा महिलाओं के हित में प्रसारित''

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5	Smt. Shobha Mahishwar (Asstt. Professor)	Dept. of Home Sciences
6	Dr. Shashikala Singh (Asstt. Professor)	Dept. of History
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Application form of one course of study shall not be transfered for another course of study.

Îày§ýu tàmàÎàr ÊãÂwãÂa§ýÂuàt Ñêâwùàvu, yãqmÊæpÞâvàyqÊ(²pªà)

GOVT. MATA SHABARI NAVEEN GIRLS' COLLEGE, SEEPAT ROAD, BILASPUR (C.G.)

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1. qàºpÜS§Pº / §ýÕàãk yt ÞZawîçàj àãÑuç.....
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17. yÞvªÂaqÇàæÞ§ýL yåã: (ysãyÞvªÂaqÞÇaÊàk qâÇàm¡ã §ýâÊãõàÊàÐnààçmÑàçà

1. âq²þãqÊãÇàæ¡ àæ§ýL¡ Þ§ýåã uàé(Marksheets of last exams)
2. kÂ màÊãn §ýâqÞà/âqÇà/ Àywã§ýL¡ Þ§ýåã (Date of birth certificate / Marksheet of class 10th)
3. kàâm/ wªâqÞà/â qÇà (Cast / Category certificate)
4. âÂàwày qÞà/â qÇà (Leaving Certificate)
4. tùu ÐnàÂàæmÊ/âwj áÊÇàqÞà/â qÇà (T.C. & Character)
5. Îàçn qÇà (Affidavit) if necessary
6. qÞk Âaqà/â qÇà (Migration Certificate)
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tâæçÑæàwÀÜàv u §ýçâÂut àçÞíuwÐnà¡ àçÞv¡ ãj Ê/âyÐÑmàçà§ýâ¡ Áu uÂà§ýÊâv uàÑæmàçqÞmÇàæ§ýÊmãÑÆ§ýtæ Á uuÂà§ýÊmíÊÑ§ýL¡ qÂà§ýÙáéuàçÞ mmàt Ñæâwùàv u §ýçâÂut àçÞwÁuwÐnà¡ àçÞ§ýâqàv Âà§ýÊmãÊÑÆàmmàt Ñæâwùàv u t çÞnwàrâÑÊ¥wÞqÊãÇàæ¡ àçÞçÞ§ýãs ãÍuwÐnàu¡ Âæàæày ÂàÑæÂmà¥wÞ ÂÑÞæ¼§ýÞ§ýâuæàÑæt çÞqÞÇàuàqÊãÇàÙýq ysçà³àÂàÑæÂv tæàñ t æqÞ§ýt àt v ç tçÞqÞ¡ àuê Ñæàu §ýçâÂu/æê à§ýâqàv Âà§ýÙÞæàñ t æuÑi àç½æà§ýÊmãÑÆ§ýtæâç âÇý ãs ãmçu §ýâçàr þàÂàæÂÑæÑæ¡ æÊÂàÑãj y¾k àÂà§ýÊãÀãÑæ£qÊãÇýqÐmÇàæ§ýç£Ì v ÞÂà§ýÊÂà§ýL ÐnàmtçÞqÞ¡ àuê§ýâçqâêê¡ ã §ýÊÑæçàæà§ýwçtãçÀÞÞn §ýÊy §ýmçÑæmàæÂÆ§ýâêxms ã§ýÊy §ýmçÑæàk y §ýLqúvêy åÂàæt ãçuàt Êçqàv §ý§ýâçÀâêà¡ àwÌu§ýÂàÑæÑæuÀt æÑæàwùàv u t çÞêçàÞæt tçÞ Ãmqàæçàæâêmàç tãçÑæàwùàv u y çâÆÆ§ýâêymâ§ýuàk àwçñ

âÀÂæçý..... **¡ àwçà§ý §ýçÑÐmàÇÐÊ**

âqmà/ ¡ âs s àw§ý§ýâi àç½æà qÇà

tæàçà½æà§ýÊmà/ §ýÊmãÑÆ§ýt ÊãqÆÇà qÆÆà/ qàluàõàÊàcy ¡ àwçà¤qÇàt çÞãªàcêy t Ðmk àÂ§ýâÊãy¾Ñæt æÑæàwùàv u t çÞy §ýç¡ ãj Ê/â §ýâuàF£qÐnàâmmàÀÆÇÀÂàõqÞâm¡ æÊÍuwÑæÊ§ýç ÈÞt tçÞwÌàçà Áu àÂàÀæàmà£y §ýçâv ucçâêêm £ÙæÊÀàuãÊÑmçÞBçt Ñæâwùàv u §ýâçqâêêy Ñuàçà Àçmà ÊÑÆæà¡ æÊt Ñæâwùàv u §ýâçÀçy t Ðmì àæ§ýç§ýL£æÊÀàu¾v§ýâwÑæ§ýÙÞæàñuÀt ÊãqÆÆà/ qàluà§ýçâÚý- Êçàæà§ýLÌà§ýâumqÞÃmÑæàmàç£y ç tÑæâwùàv u y çâÆÆ§ýâêxmâ§ýuàk à¥ñ¢y t tçÞâêy Ñt âmÑæçàñ

âqmà/ ¡ âs s àw§ý§ýçÑÐmàÇÐÊ

Êæàæày Þ Þðãi àç½æà qÇà

tæ§ýâ ..... ¡ à¾kàóã ..... §ýÇàæ ..... §ýLÂàuât m² þÆàÑæZàwçàÑçñà¡ àwçÂàqÇàk t à§ýLÑæuÑi àç½æà§ýÊmãÑÆ§ýtæ§ýãs ã² þÆà§ýyàn Êæàæà ÂÑæA væà¡ æÊÂàÑãcy §ýâuÑçmãã§ýãâ§ýâqy Ñuàçà Àæàñ

uÀt æcy qÞ§ýÊ§ýç§ýâæu t tçÞvªÂaqàuãk àÊÞæàmàçº þðêãy ªàðxÞpÞãÇàæ/â§ýç Ðnà¡ àçÞtçÞqÞæðÞàæ (Êæàæà) §ýâqÞmxç¡ âoâÂut 2001 §ý¡ Âæu ãÊÎàæy Âu/ t Ñæâwùàv u õàÊàt Êçqàwçý- k à§ãã§ýâuæàÑæÑæçàæt ãçà Àu Ñæçàæñ

..... **ÑÐmàÇÐÊ(² þÆàæ)** - .....

ÑÐmàÇÐÊ (¡ âs s àw§ý) âÀÂæçý - .....

£qÐnâmy Þ Þðãi Îàçnqçà

tæ..... §ýÇàæ..... wxê..... uÑÎàçn v çãÑÆ§ýâÂuât m² þÆà§ýÙýq t tçÞy ys§ýt 75 qÞmÎàm§ýL£qÐnâmy âÂæÎj m§ýÊmãÑÆ§ý¡ Âu nà§ýLÐnmãt çÞêãqÊãÆàk ÈtçÞàÊãÑæçàæñ

.....

qàv §ýç âqmà **s wÀãu à**

§ÿauäêuäßa£quäçàÑçrä

¡ àwçÀÂa q¦ý§ÿLyt Ðmqßwãf þäçß§ÿLkäçP §ÿÊvã ªàuãÑèmà£ÃÑçß§ýqàuªàuàñ£ÂßatçêÂßäÊÂßâvãhm¡ qßäêàuçêmàäÂßäÊÂßâvãhm qPä/à-qÇaÿyÞªÂßaÂßäÑãÄß§ÿúçªàuçÑèñ

1- _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ 2- _

3 _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

qPäÀßa v þ §ý

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qPçàyâ âm§ÿL¡ ÀßäÊäà/ ãþÃq½ãa

1. ¡ àwçß§ý§ÿçäÂßäÊÂßâvãhmZäâmrÞäçß§ÿL¡ ÀßäÊäçPà§ÿLkàmãÑèñ §ÿÇà.....

   âwxu .....

2. ¡ àwçß§ý§ÿçäÂßäÊÂßâvãhmqßmrÞäçqÊqPçàâÀuàkàwç-

   ¡) âwxu qáÊwmßa.....

   r) ¡ àwçÀßaqÇa§ÿLâÂßäÊÂßâvãhm¡ àqâmêà§ÿLkàwç-

   .....

3. ¡ àwçÀßaqÇa¡ ÐwãßýÃm§ÿuàkàmàÑèñ

yÞäçß§ý qPçàyâ âm

---

qßçàuê§ÿa¡ àÀçà

ó ã/ §ÿ/ ó ãt mã..... §ÿçç£qÊÀÎàäuPäçàçê§ÿÇäàt çêÂßäÑmÎàmàF§ÿ¡ Þªäçàmqçà âÀuàkàwçñ

âÀÂßäçß§ý..... qßçàu()

Îäà§ýÎäãnà

qPçà§ÿtäçß§ý..... âÀÂßäçß§ý.....

Êyã À§ÿtäçß§ý..... âÀÂßäçß§ý.....

Ûýquç..... (ÎàÀßäçÞ þ) Ûýquç..... qßÃmâ§ÿúàñ

Îäà§ýâvâq§ý §ýÑÐmàÇäÊ

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§ÿtäçß§ý..... qPçàqÇaäÂßäçàt mâ§ÿúàªàuà¡ àwçÀßaqÇa¡ ÐwãßýäæÃßq§ÿLyÃßäÂßä§ÿLªàçcñ

qPçàâvâq§ý qPäÀßâvþ§ý

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qPçà Ðwã§ßää / ¡ Ðwã§ýää

qßçàuê

संलग्न – 1

छात्रा का शपथ पत्र

1. मैं .....(छात्रा का नाम प्रवेश/पंजीयन/नामांकन सहित) पुत्री/श्रीमती..... शासकीय माता शबरी नवीन कन्या महाविद्यालय, सीपत रोड, जिला–बिलासपुर (छ.ग.) में प्रवेश हो गया है को उच्च शिक्षण संस्थानों में रैगिंग के अपराध को समाप्त करने के लिए यू.जी.सी. नियमावली 2009 प्राप्त की. उसको सावधानी पूर्वक पढ़ा और पूर्णतः समझा।

2. मैंने विशेषतः नियमों की कंडिका–3 का अध्ययन किया और रैगिंग किस प्रकार की होती है के प्रति सजग हुआ।

3. मैंने कंडिका 7 और 9.1 के नियमों का भी विशेष अध्ययन किया और मैं प्रशासकीय कार्यवाही से अवगत हूँ जिसके अंतर्गत यदि मैं रैगिंग को बढ़ावा देती हूँ अथवा प्रत्यक्ष/अप्रत्यक्ष रूप से सहयोग करती हूँ या षड्यंत्र करती हूँ तो मेरे विरूद्ध कार्यवाही हो सकती है।

4. मैं सत्य निष्ठा से संकल्प लेती हूँ कि –

   (अ) मैं ऐसा कोई भी कार्य नहीं करूँगी जो कि कंडिका–3 के नियम के अंतर्गत रैगिंग की श्रेणी में आता हो।

   (ब) मैं ऐसे किसी भी कार्य में प्रतिभागी नहीं बनूँगी जो कंडिका–3 के अंतर्गत अपराध को बढ़ावा देता हो या (लोकप्रिय) फैलाता हो।

5. मैं सत्य निष्ठा से वचन देती हूँ कि यदि मैं रैगिंग में लिप्त पाई जाती हूँ तो मेरे विरूद्ध उक्त नियमों की कंडिका 9.1 के अंतर्गत बिना किसी पूर्व न्यायिक कार्यवाही के अपराधिक कार्यवाही की जा सकती है।

6. मैं घोषणा करती हूँ कि देश की किसी भी संस्था से ना तो निकाला गया और ना ही प्रवेश के लिए वर्जित किया गया न ही रैगिंग जैसे अपराध को बढ़ावा देने सहायता करने या षड्यंत्र में अपराधी पाई गई हूँ। मैं अच्छी तरह जानता हूँ कि यदि मेरी ये घोषणा असत्य पाई जाती है तो मेरा प्रवेश निरस्त किया जा सकता है।

घोषणा का दिनांक..... माह..... वर्ष.....

शपथकर्ता के हस्ताक्षर

नाम .....
कक्षा .....
मो.नं. .....

सत्यापन

मैं सत्यापित करती हूँ कि उक्त शपथ पत्र में उल्लिखित सभी तथ्य मेरी जानकारी से सत्य है और कोई भी तथ्य गलत नहीं है तथा कुछ भी छिपाया नहीं गया है।

सत्यापन का (स्थान) ..... (दिन).....(माह).....(वर्ष).....

शपथकर्ता के हस्ताक्षर

उपस्थिति में शपथ पत्र में उल्लिखित नियमों का अध्ययन कर (दिन).....माह.....वर्ष..... को हस्ताक्षर आत्मिक स्वीकृति दी गई।

शपथ आयुक्त

संलग्न – 2

माता–पिता/अभिभावक का शपथ पत्र

1. मैं श्री/श्रीमती .....(माता–पिता/अभिभावक का नाम) श्रीमती/कु. .....(छात्रा का पूरा नाम, प्रवेश,पंजीयन/नामांकन सहित) शासकीय माता शबरी नवीन कन्या महाविद्यालय, सीपत रोड, जिला–बिलासपुर (छ.ग.) में प्रवेश हो चुका है, पुष्टि करता हूँ कि मुझे रैगिंग अपराध को समाप्त करने हेतु यू.जी.सी. की नियमावली 2009 प्राप्त हुई जिसे मैंने सावधानी पूर्वक पढ़ा और पूर्णतः समझा।

2. मैंने विशेषतः नियमों की कंडिका–3 का अध्ययन किया और रैगिंग क्या है से अवगत हुआ।

3. मैंने उक्त नियमों की कंडिका – 7 और 9.1 का विशेष अध्ययन किया और मैं पूर्ण रूप से अवगत हूँ कि यदि मेरा पुत्री रैगिंग को बढ़ावा देने में प्रत्यक्ष या अप्रत्यक्ष रूप से सहयोग करने में अपराधी पाया जाता है तो उसके विरूद्ध प्रशासनिक कार्यवाही की जा सकती है।

4. मैं सत्य निष्ठा से संकल्प लेता हूँ कि –

   (अ) मेरा पुत्री किसी भी प्रकार के रैगिंग अपराध में सम्मिलित नहीं होगा जो कि कंडिका–3 के अंतर्गत आता है।

   (ब) मेरा पुत्री किसी भी ऐसे कार्य में प्रतिभागी नहीं बनेगा तो कंडिका–3 के अंतर्गत रैगिंग अपराध की श्रेणी में आता हो।

5. मैं सत्यनिष्ठा से वचन देता हूँ कि यदि मेरा पुत्री रैगिंग अपराध में लिप्त पाया जाता है तो उसके विरूद्ध उक्त नियमों की कंडिका 9.1 के अंतर्गत बिना किसी पूर्व न्यायिक कार्यवाही के सजा हो सकती है।

6. मैं घोषणा करता हूँ कि मेरा पुत्री रैगिंग के अपराध के कारण देश की किसी संस्था से न तो निष्कासित किया गया न ही प्रवेश से वंचित किया गया।

घोषणा का दिनांक ..... माह ..... वर्ष .....

शपथकर्ता के हस्ताक्षर

नाम.....
पता.....
फोन/मोबाइल नंबर.....

सत्यापन

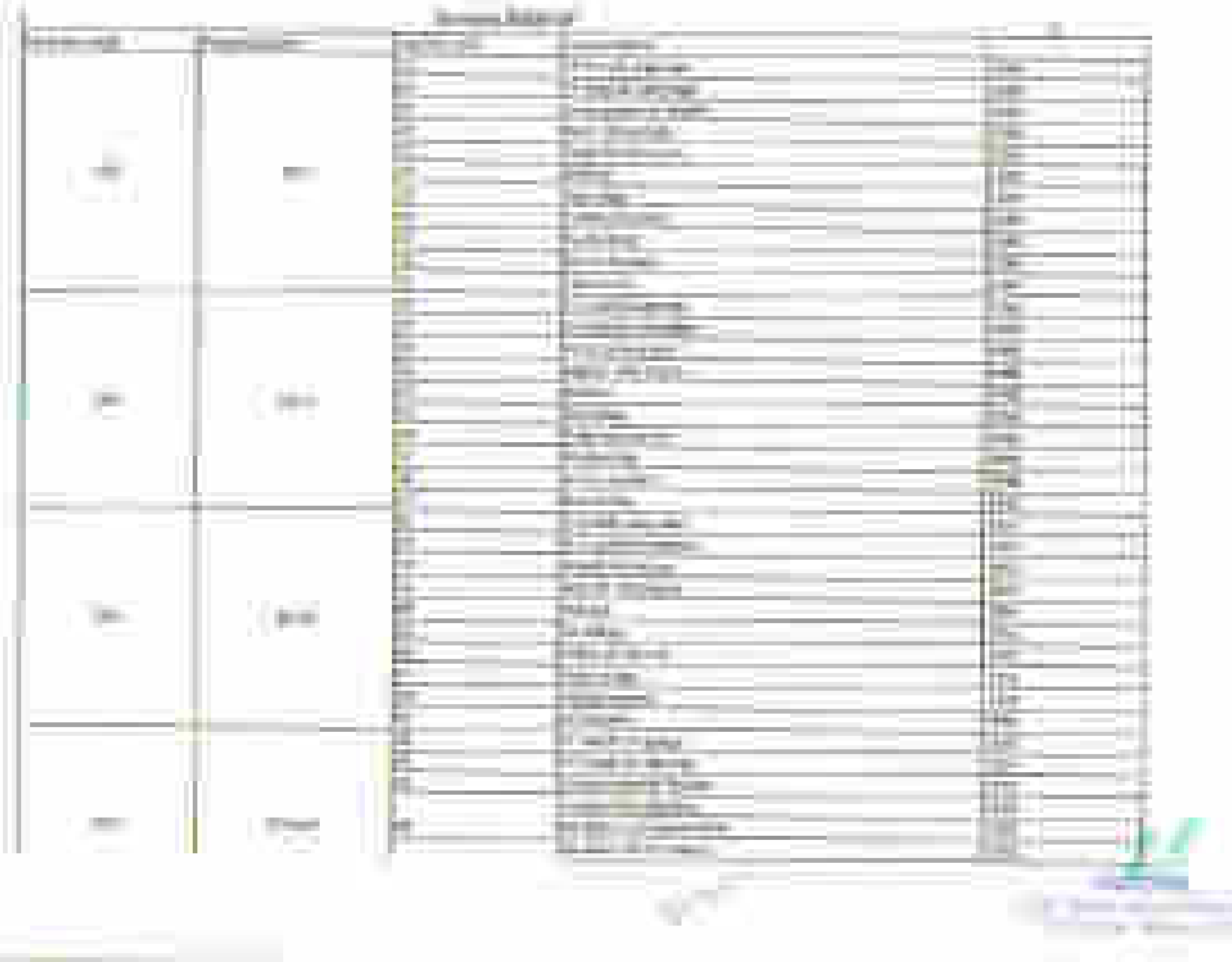
मैं सत्यापित करता हूँ कि उक्त शपथ पत्र में उल्लिखित सभी तथ्य मेरे स्वयं के ज्ञान व विश्वास के अनुसार सत्य है और कुछ भी छिपाया नहीं गया है।

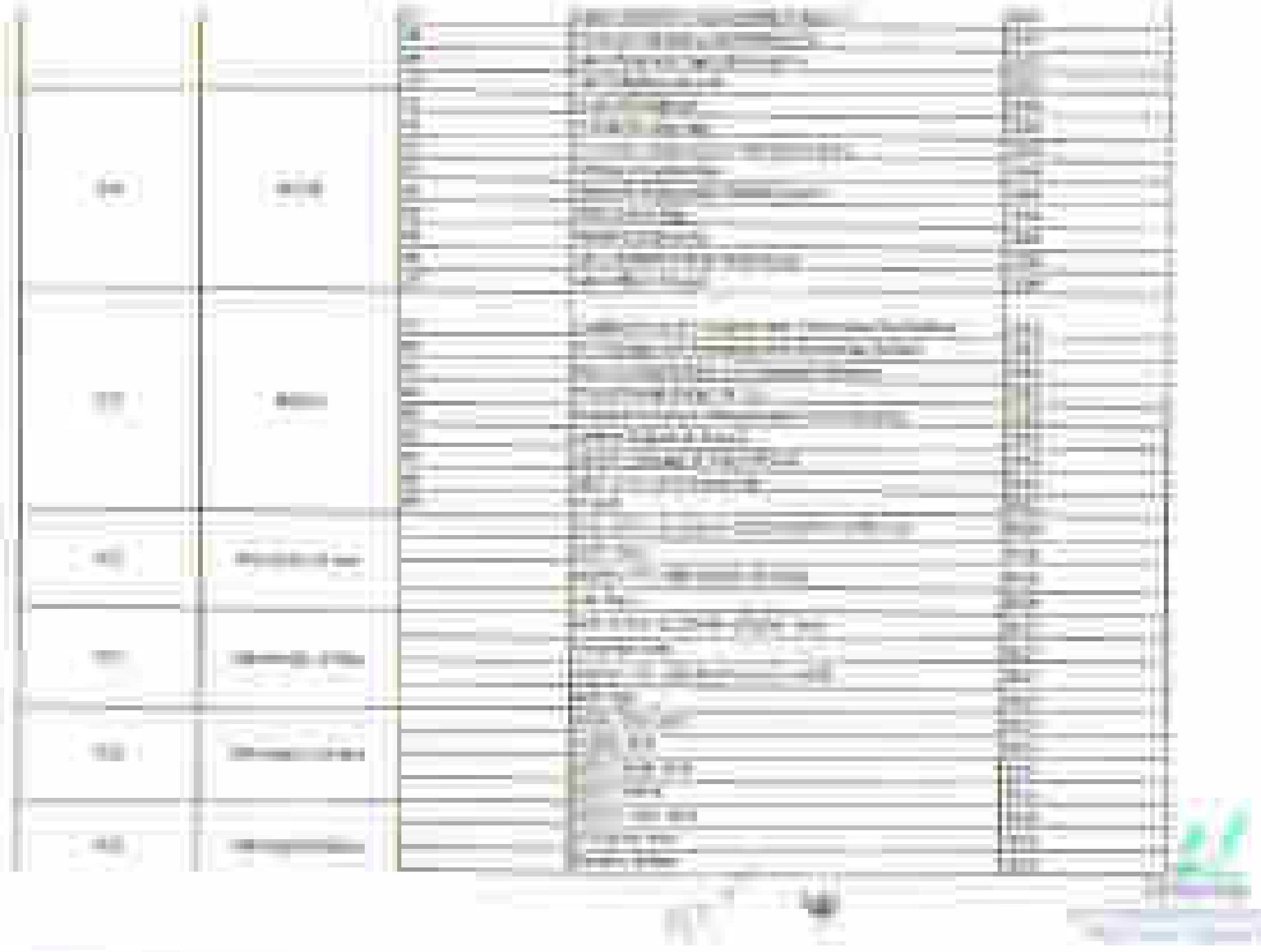
सत्यापन का (स्थान)..... (दिन).....(माह)..... (वर्ष).....

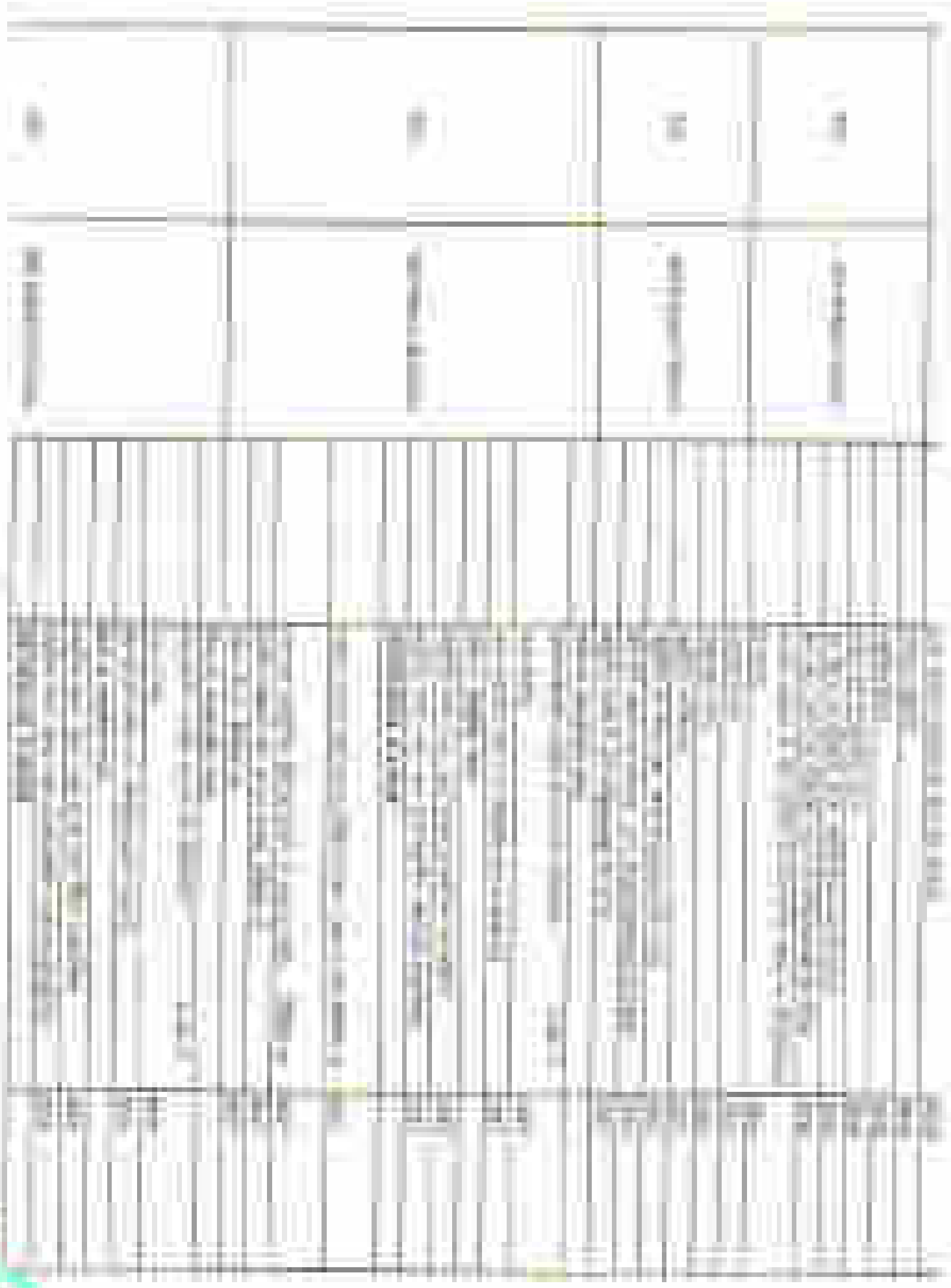
शपथकर्ता के हस्ताक्षर

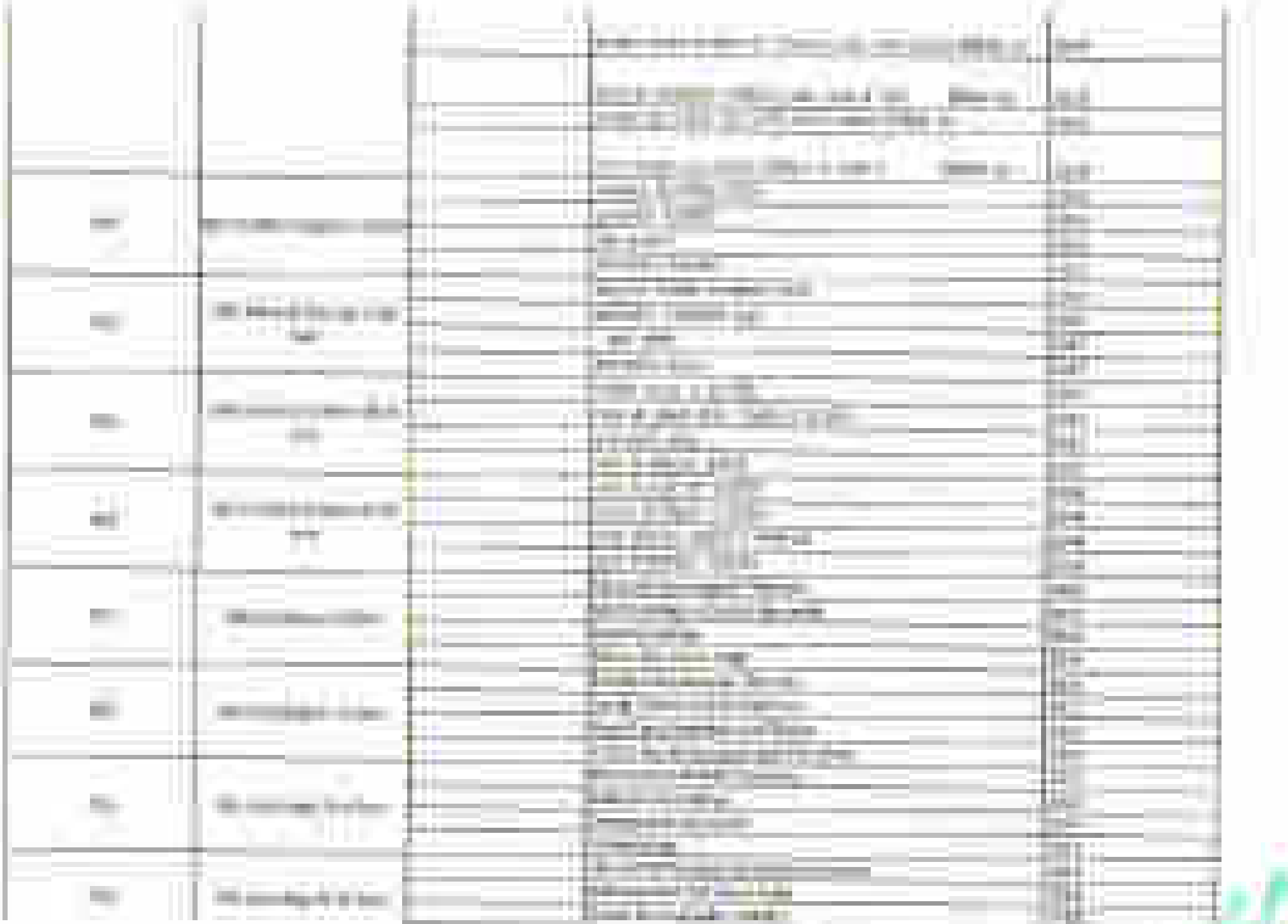
मेरी उपस्थिति में शपथ–पत्र में उल्लिखित नियमों का अध्ययन कर (दिन).....माह.....वर्ष..... को हस्ताक्षर कर आत्मिक स्वीकृति दी गई।

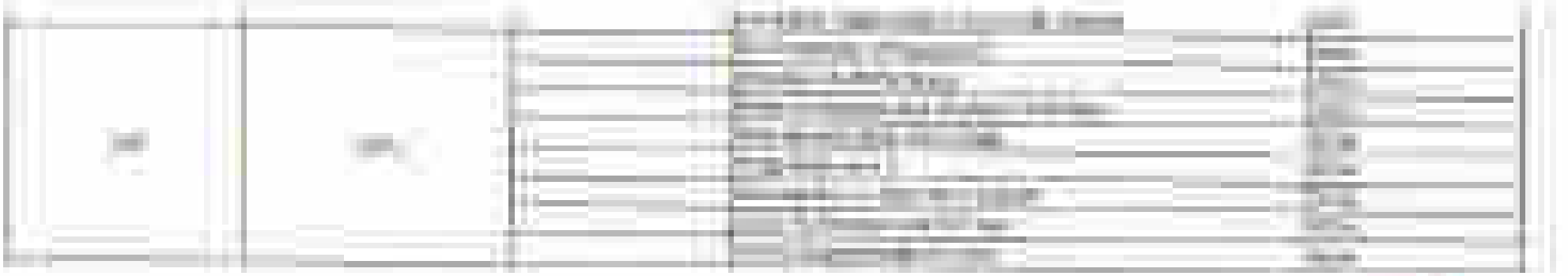
शपथ आयुक्त

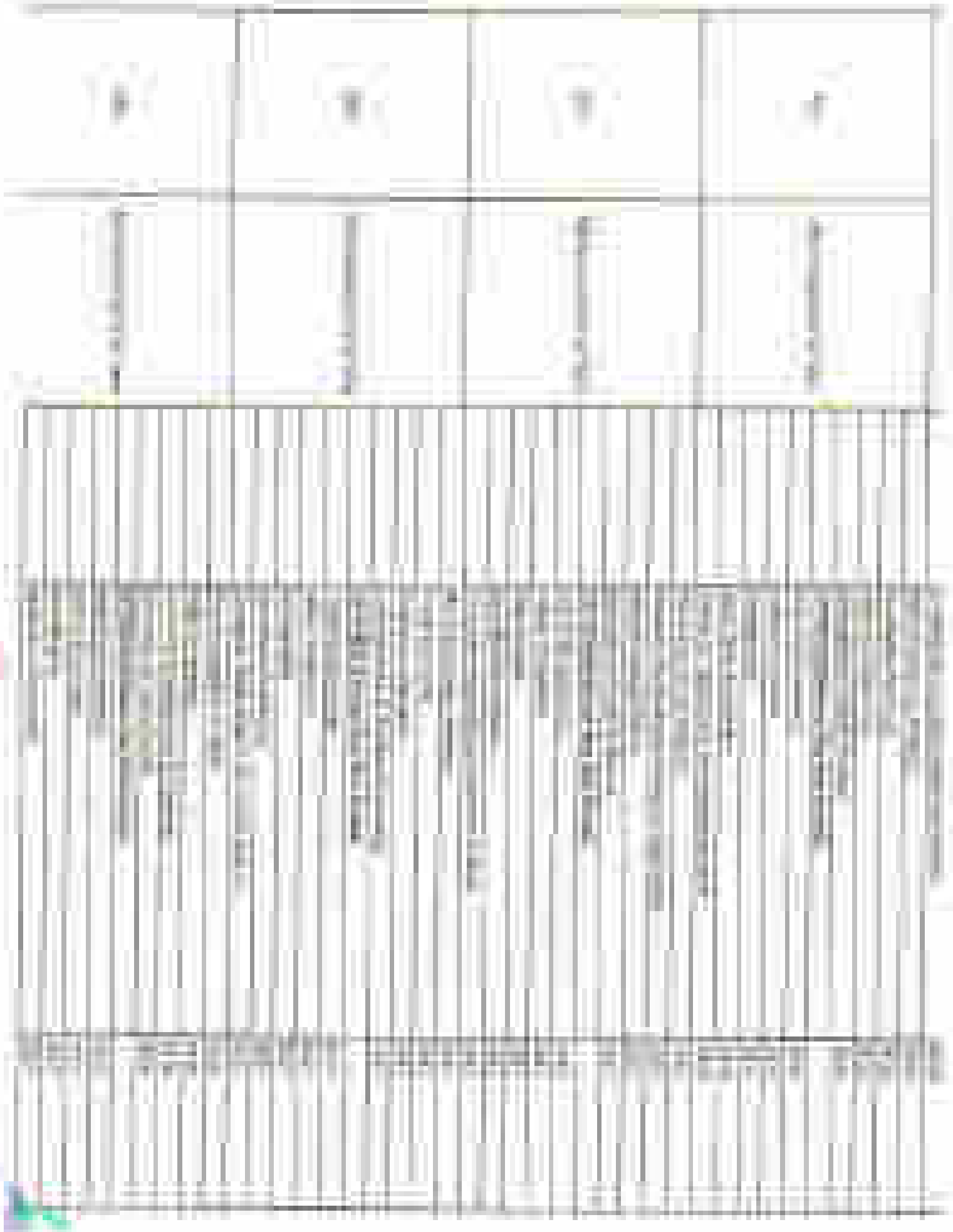


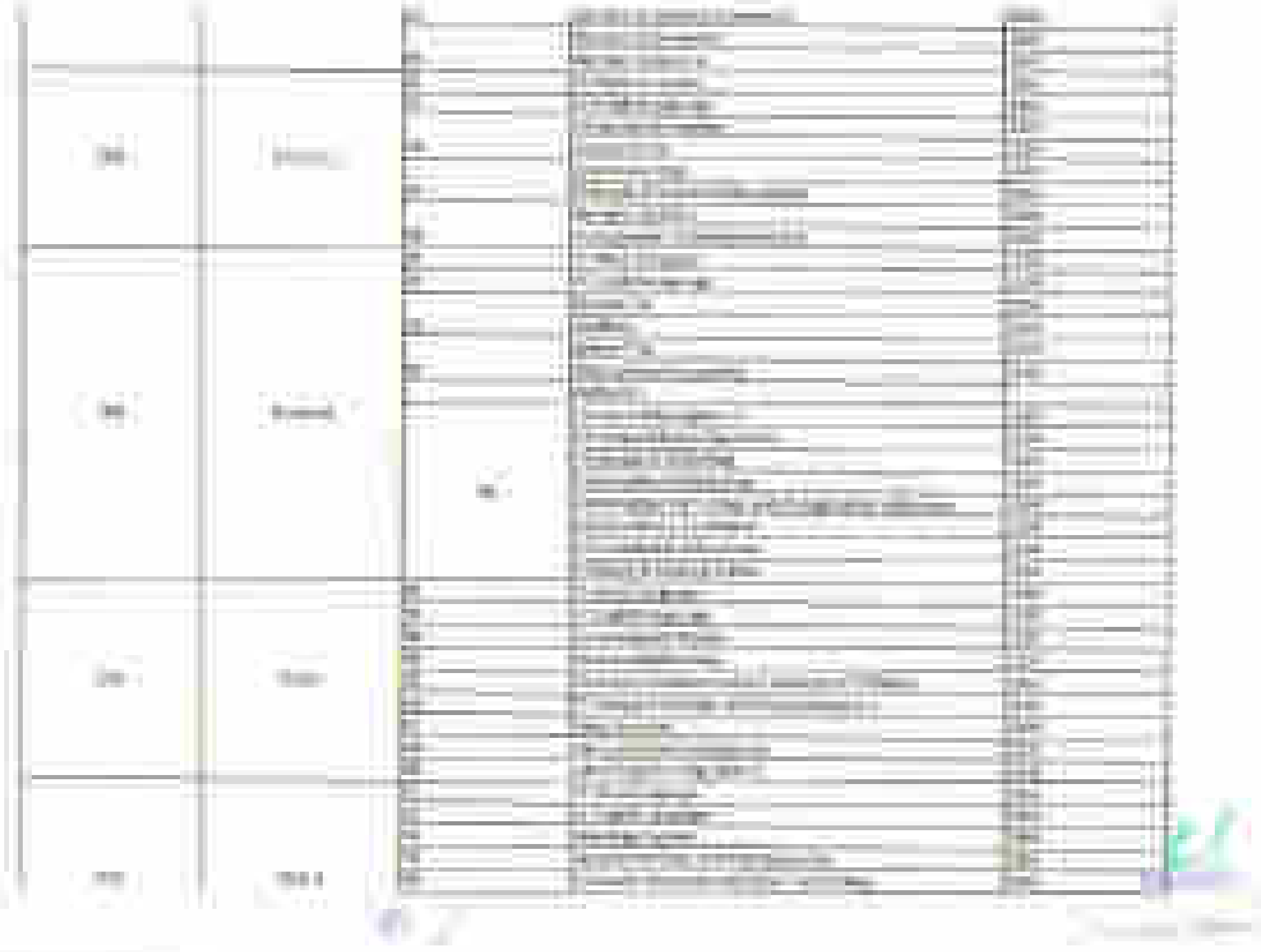


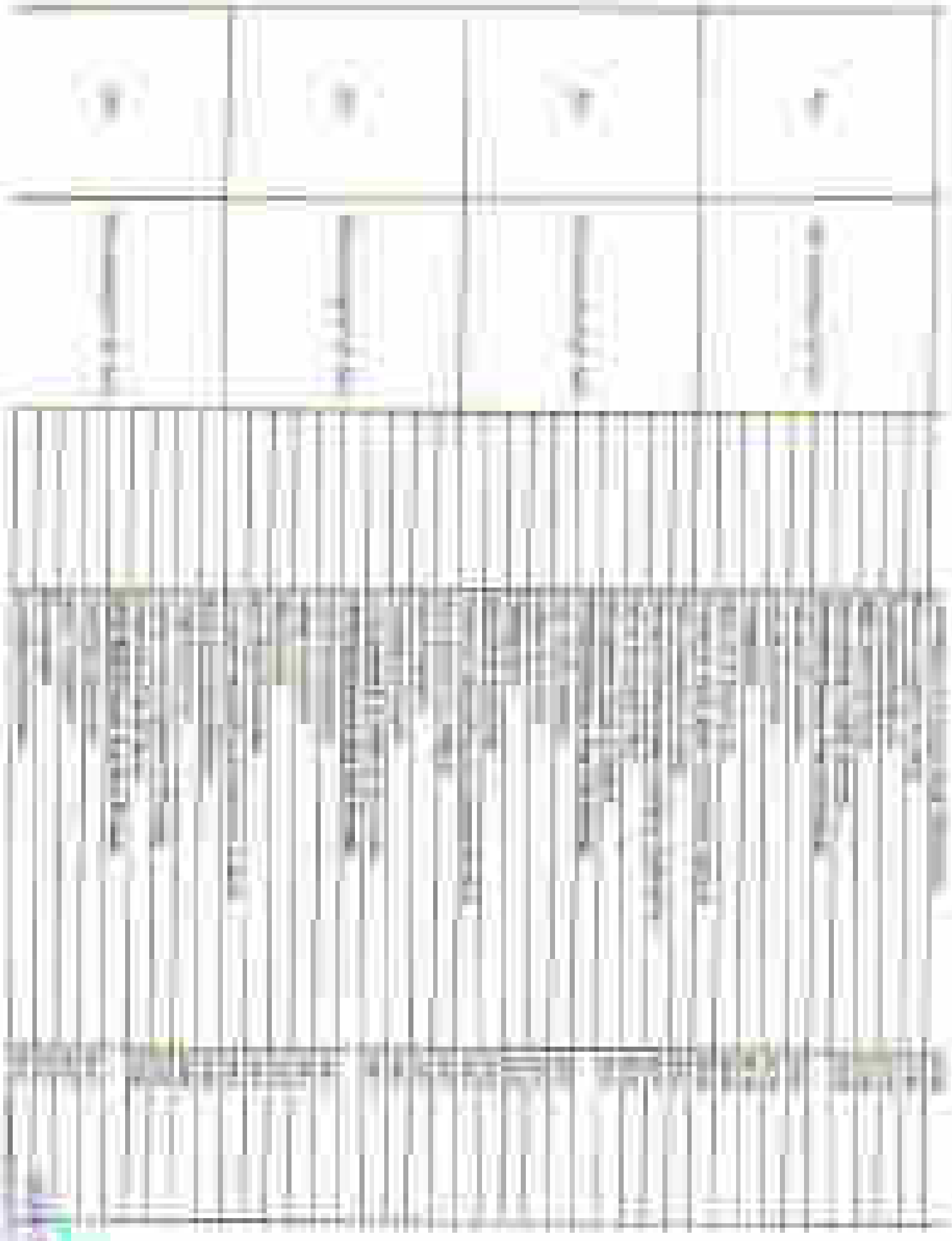


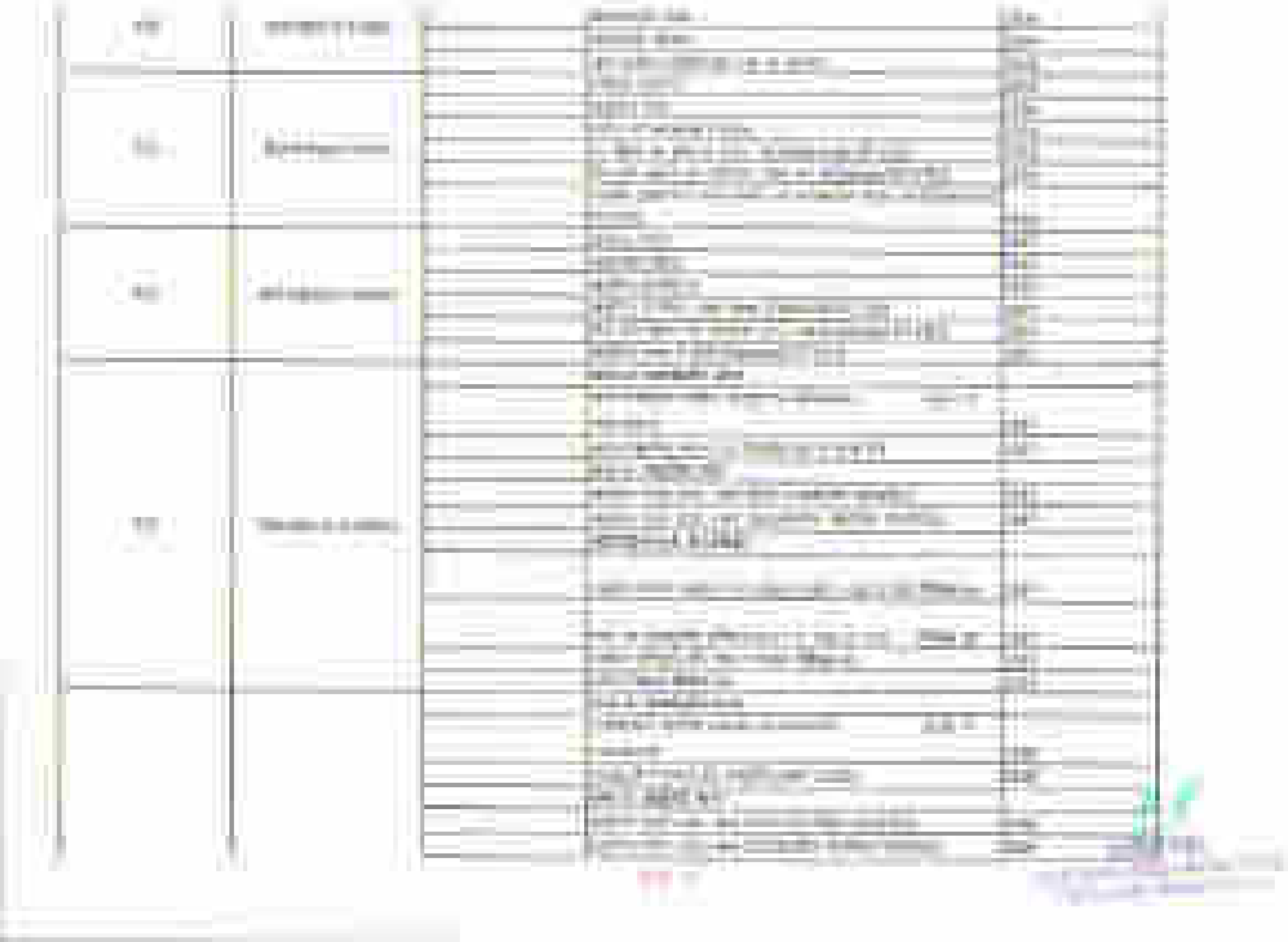


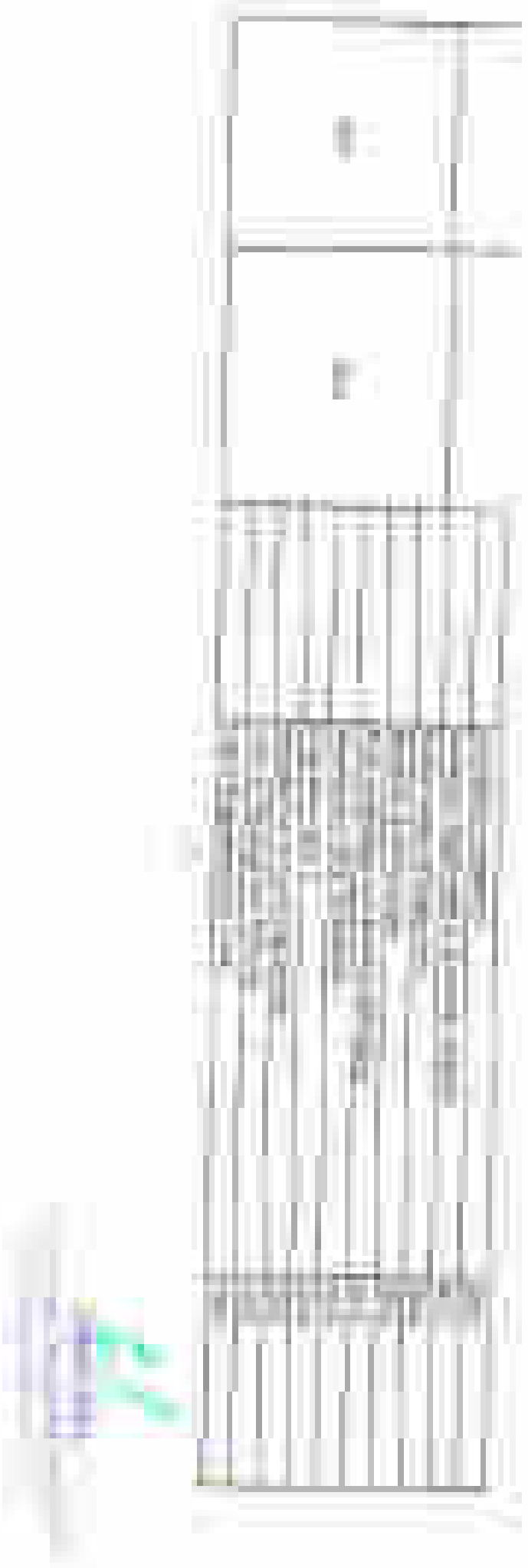


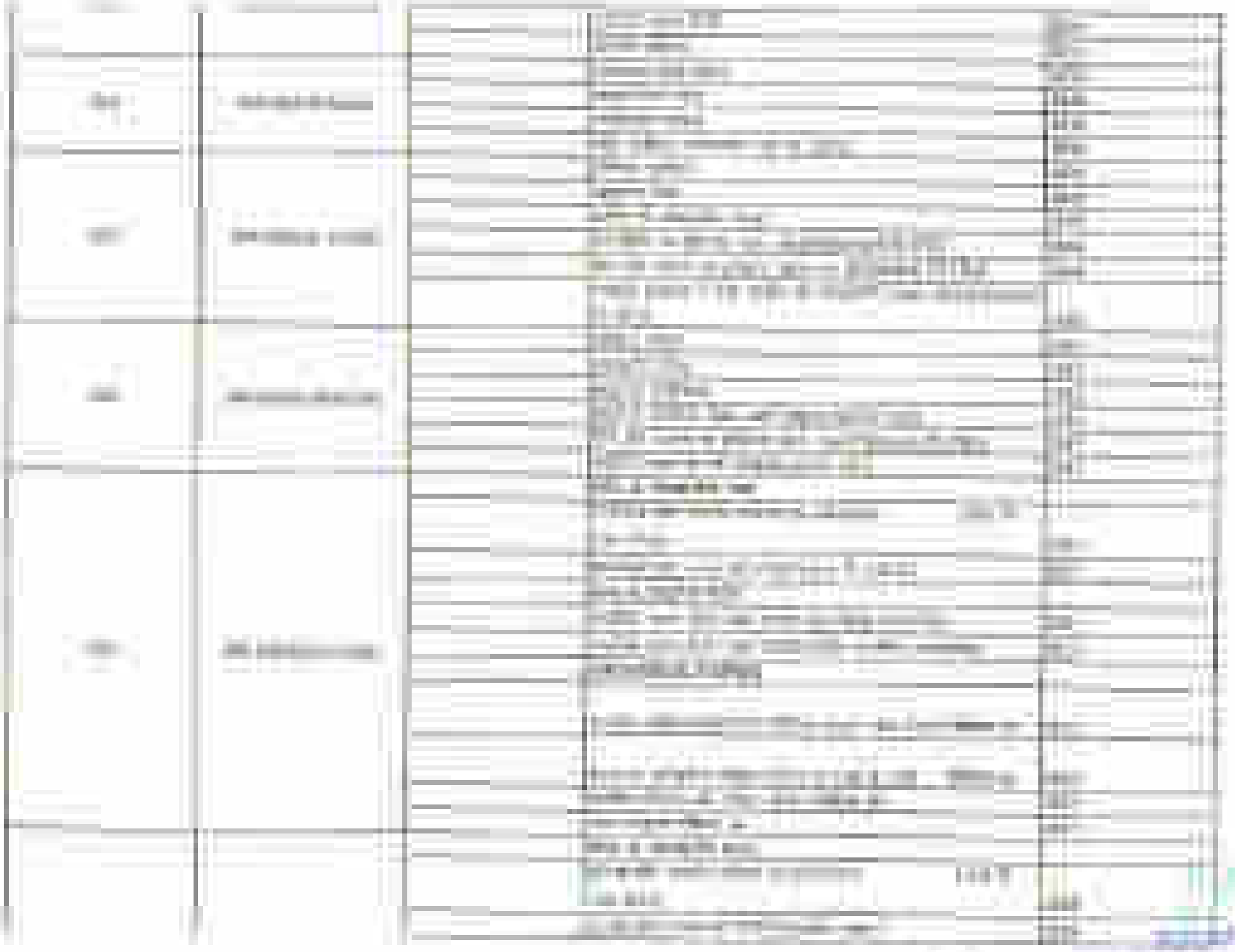


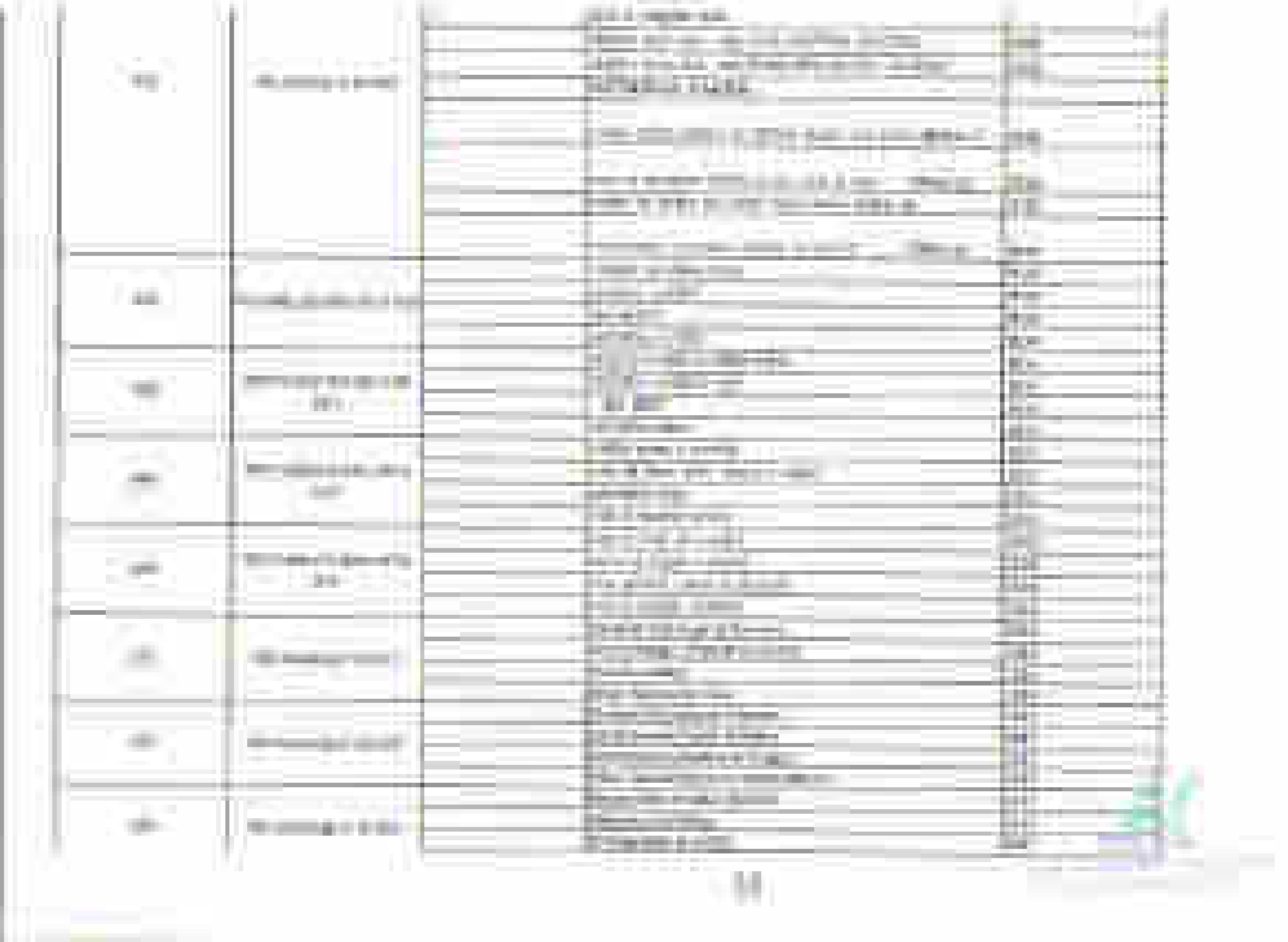


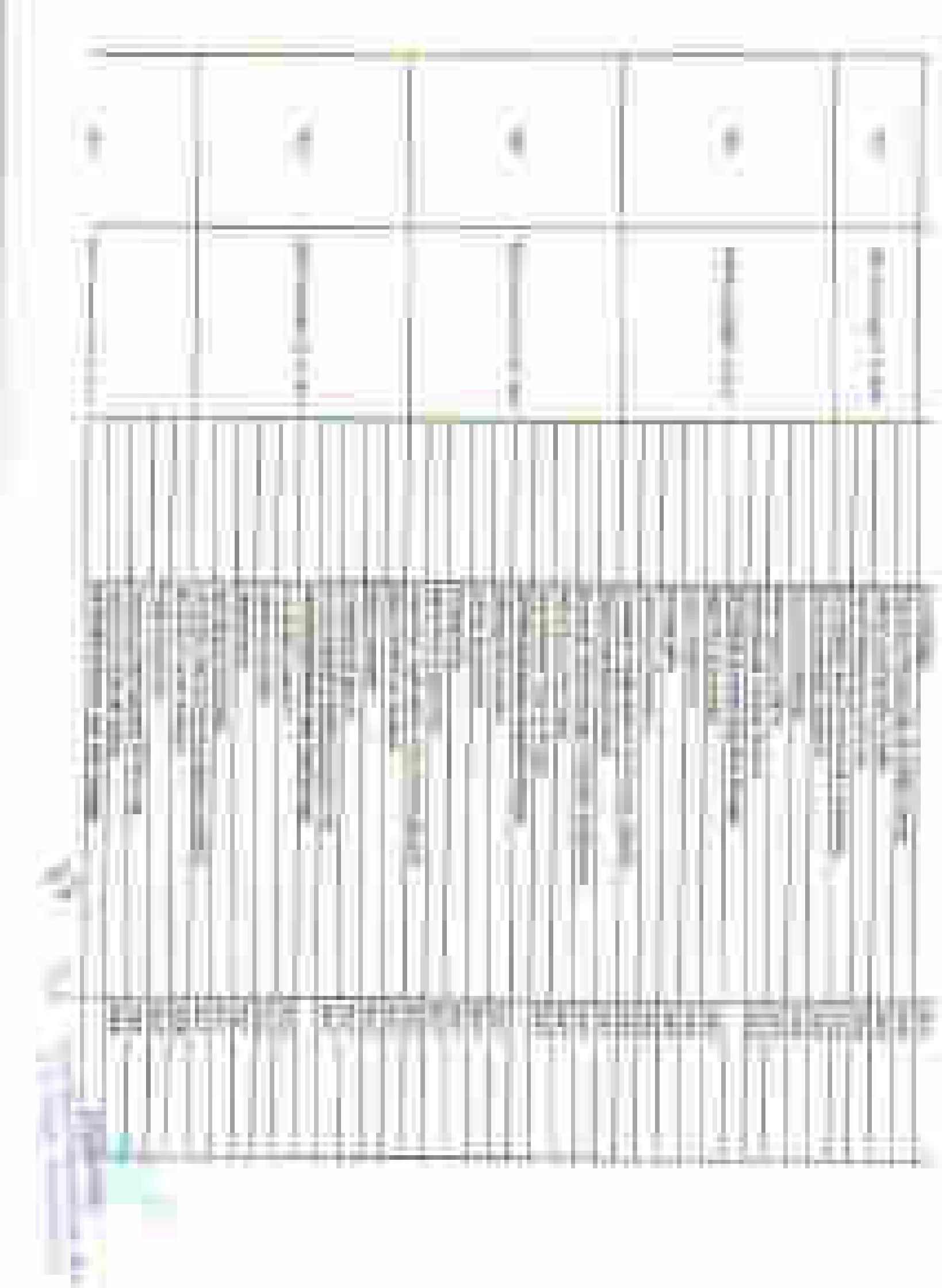


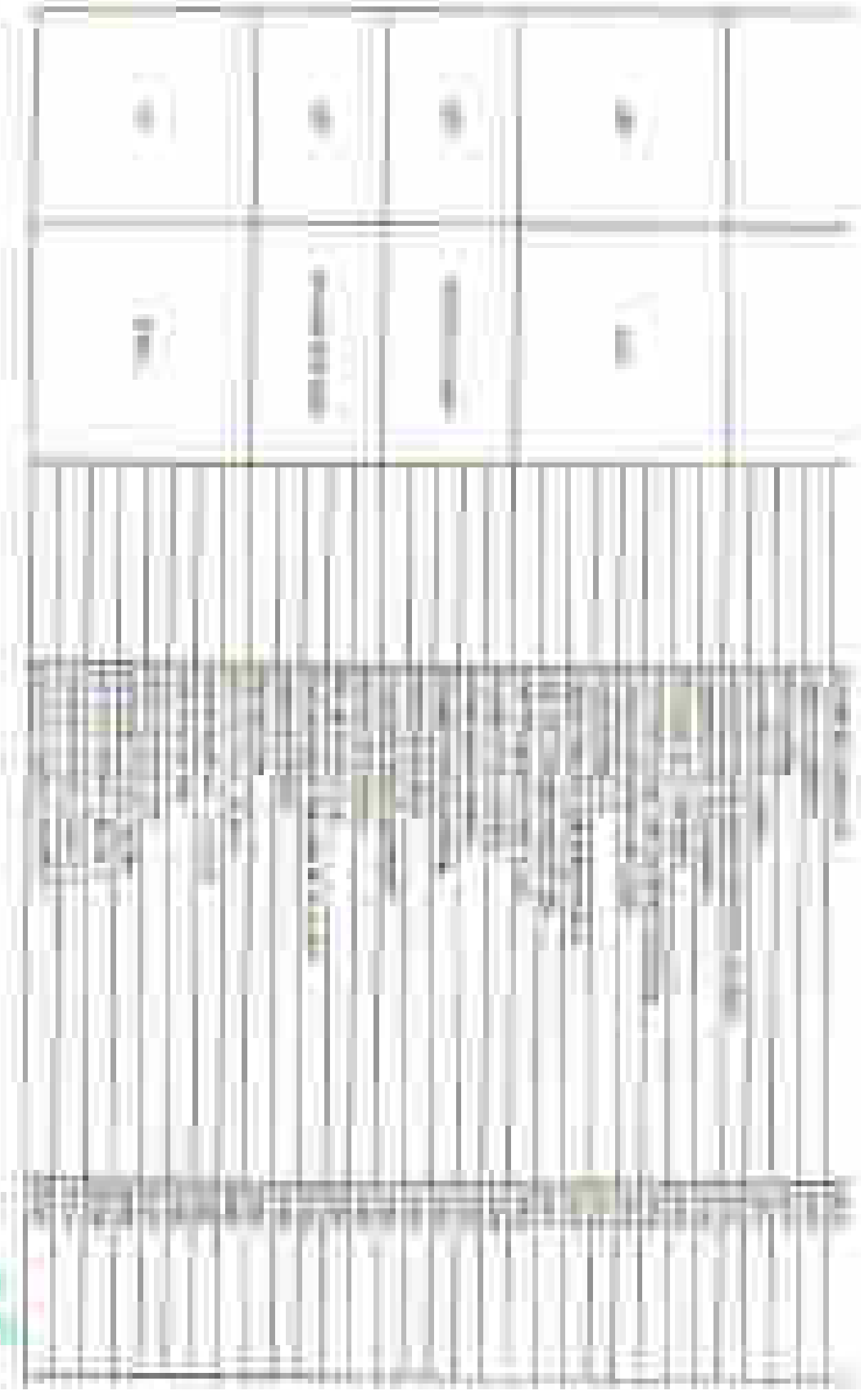












SYLLABUS
B.COM. PART-I

GROUPING OF SUBJECTS AND SCHEME OF EXAMINATION

Subject		Max.	Min.
i) Environmental Studies	**75**	**100**	**33**
Field Work	**25**		
A. Foundation Course			
I. Hindi Language		**75**	**26**
II. English Language		**75**	**26**
B. Three Compulsory Groups			
Group-I			
I. Financial Accounting	**75**	**150**	**50**
II. Business Communication	**75**		
Group-II			
I. Business Mathematics	**75**	**150**	**50**
II. Business Reg. Framework	**75**		
Group-III			
I. Business Environment	**75**	**150**	**50**
II. Business Economics	**75**		

B.Com Part- I

Compulsory

Group – I Paper – I - Financial Accounting

OBJECTIVE – To Impart basic accounting knowledge as applicable to business.

Present Syllabus	Proposed Syllabus	Remark
UNIT –I Meaning and Scope of Accounting : Need, development and definition, objectives of accounting, difference between Book-keeping and accounting; Branches of accounting; Accounting Principles. Accounting Standard : International Accounting Standard only outlines, Accounting Standard in India. Accounting Transaction : Accounting Cycles Journal Rules of debit & Credit. Compound Journal Entry opening Entry Relationship between Journal & ledger, Capital & Revenue: Classification of Income & Expenditure entries.	**UNIT –I** Accounting :An Introduction: Development, Definition, Needs, objectives; Branches of accounting; Basic Accounting Principles, Concepts & Conventions. Accounting Standard : International Accounting Standard only outlines, Accounting Standard in India.. Accounting Transaction : Concept of Double Entry System, Concept of Capital & Revenue , Book of original records : Journal; Ledger; Sub-Division of Journal : Cashbook.	Addition of Sub Division of journal
UNIT –II Final Accounts; Trial balance; Manufacturing account; Trading account; Profit & loss account; Balance sheet; Adjustment entries. Rectification of errors; Classification of errors; Location of errors; Rectification of errors; Suspense account; Effect on profit.	**UNIT –II** Final Accounts; Trial balance; Manufacturing account; Trading account; Profit & loss account; Balance sheet; Adjustment entries. Rectification of errors; Classification of errors; Location of errors; Rectification of errors; Suspense account; Effect on profit.	No Change
UNIT –III Depreciation, Provisions, and Reserves; Concept of depreciation; Causes of deprecation; Depreciation, depletion amortization, Depreciation accounting; Methods of recording depreciation; Methods for providing depreciation; Depreciation of different assets; Depreciation of Replacement cost; Depreciation policy; as per Indian accounting Standard : provisions and Reserves. Accounts of Non-Trading Institutions.	**UNIT –III** Depreciation, Provisions, and Reserves; Concept of depreciation; Causes of deprecation; Depreciation, depletion amortization, Depreciation accounting; Methods of recording depreciation; Methods for providing depreciation; Depreciation of different assets; Depreciation of Replacement cost; Depreciation policy; as per Indian accounting Standard : provisions and Reserves. Accounts of Non-Trading Institutions.	No Change

Present Syllabus	Proposed Syllabus	Remark
UNIT –IV Special Accounting Areas : Branch Account : Dependent Branch : Debtors system, stock and debtor system : Hire-purchase and installment purchase system ; Meaning of hire-purchase contract, Legal provision regarding hire-purchase contract; Accounting for goods of substantial sale values, and accounting records for goods for small values ; Installment purchase system ; After sales Service. **UNIT –V** a. Partnership Account : Essential characteristics of partnership: Partnership deed; Final accounts; Adjustment after closing the accounts ; Fixed fluctuating capital ; Goodwill ; AS- 10 ; Joint Life Policy ; Change in Profit Sharing Ratio. b. Reconstitution of a partnership firm-Admission of a partner ; Retirement of a partner ; Death of a partner; Dissolution of a firm ; Accounting entries; Insolvency of partnership firm-Modes of dissolution of a firm; Accounting entries ; Insolvency of partners distribution.	**UNIT –IV** Special Accounting Areas : Hire-purchase and installment purchase system : Meaning of hire-purchase contract, Legal provision regarding hire-purchase contract; Accounting for goods of substantial sale values, and accounting records for goods for small values ; Installment purchase system ; After sales Service. **UNIT –V** Partnership Account : Dissolution of a Partnership Firm, Amalgamation of Partnership Firms, Conversion of Partnership Firm into Joint Stock Company.	Ommission of Branch Accounting Ommission of Fundamental of Partnership, Admission, Retirement and Death of partner. Addition of Amalgamation of Partnership Firms, Conversion of Partnership Firm into Joint Stock Company.

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अनिवार्य

समूह–1 प्रश्नपत्र – 1 – वित्तीय लेखांकन

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 1 लेखांकन का अर्थ एवं क्षेत्र : आवश्यकता, विकास एवं परिभाषा, लेखांकन के उद्देश्य , पुस्तपालन एवं लेखांकन में अन्तर , लेखांकन की शाखाएं। लेखांकन सिद्धांत , लेखांकन मानक : अन्तर्राष्ट्रीय लेखांकन मानक (सिर्फ रूपरेखा) : भारत में लेखांकन मानक। लेखांकन व्यवहार : लेखांकन चक्र : पंजी (जर्नल) : डेबिट (विकलन) एवं क्रेडिट (समाकलन) के नियम, संयुक्त पंजी (जर्नल) प्रविष्टि, प्रारम्भिक प्रविष्टि : जर्नल एवं खाताबाही में सम्बन्ध, पूँजी एवं आगम : आय , व्यय एवं प्राप्तियों का वर्गीकरण। **इकाई – 2** तलपट , अन्तिम खाते : निर्माणी खाता, व्यापार खाता, लाभ–हानि खाता, चिट्ठा एवं समायोजन प्रविष्टियॉ। अशुद्धियों का सुधार या संशोधन, अशुद्धियों का वर्गीकरण, अशुद्धियों की स्थिति, अशुद्धियों का सुधार, उचंत खाता लाभ पर प्रभाव। **इकाई – 3** मूल्य ह्रास (अवक्षयण), आयोजन एवं संचय ;ह्रास की अवधारणा , ह्रास के कारण, ह्रास रिक्तता, अपलेखन ह्रास लेखांकन, ह्रास अभिलेखन की विधियाँ; विभिन्न सम्पत्तियों पर ह्रास आयोजन की विधियाँ; प्रतिस्थापन लागत पर ह्रास , भारतीय लेखांकन मानक के अनुसार लेखांकन नीतियाँ, आयोजन एवं संचय ;गैर–व्यापारिक संस्थाओं के खाते। **इकाई – 4** विशेष लेखांकन क्षेत्रः (क) शाखा खाते : आश्रित शाखा, देनदार पद्धति , स्कन्ध एवं देनदार पद्धतिं। (ख) किराया क्रय एवं किस्त क्रय पद्धति : किराया क्रय अनुबन्ध का अर्थ, किराया क्रय अनुबन्ध संबंधित प्रॉवधान, अधिक मूल्य की वस्तुओं के लिए लेखांकन अभिलेख , किस्त क्रय पद्धति एवं क्रय पश्चात् सेवा।	**इकाई – 1** लेखांकन का परिचय : विकास, परिभाषा, आवश्यकता, उद्देश्य , लेखांकन की शाखाएं ;लेखांकन के सिद्धांत , अवधारणा एवं परंपराएं। लेखांकन मानक : अन्तर्राष्ट्रीय लेखांकन मानक (सिर्फ रूपरेखा) : भारत में लेखांकन मानक। लेखांकन व्यवहार ;दोहरी प्रविष्टि प्रणाली की अवधारणा। पूँजी एवं आगम की अवधारणा, मूल प्रविष्टि की पुस्तकेंः जर्नल, खाताबही, जर्नल का विभाजन : रोकड़ पुस्तक । **इकाई – 2** तलपट , अन्तिम खाते : निर्माणी खाता, व्यापार खाता, लाभ–हानि खाता, चिट्ठा एवं समायोजन प्रविष्टियॉ। अशुद्धियों का सुधार या संशोधन, अशुद्धियों का वर्गीकरण, अशुद्धियों की स्थिति, अशुद्धियों का सुधार, उचंत खाता लाभ पर प्रभाव। **इकाई – 3** मूल्य ह्रास (अवक्षयण), आयोजन एवं संचय ;ह्रास की अवधारणा , ह्रास के कारण, ह्रास रिक्तता, अपलेखन ह्रास लेखांकन, ह्रास अभिलेखन की विधियाँ; विभिन्न सम्पत्तियों पर ह्रास आयोजन की विधियाँ; प्रतिस्थापन लागत पर ह्रास , भारतीय लेखांकन मानक के अनुसार लेखांकन नीतियाँ, आयोजन एवं संचय ;गैर–व्यापारिक संस्थाओं के खाते। **इकाई – 4** विशेष लेखांकन क्षेत्रः किराया क्रय एवं किस्त क्रय पद्धति : किराया क्रय अनुबन्ध का अर्थ, किराया क्रय अनुबन्ध संबंधित प्रॉवधान, अधिक मूल्य की वस्तुओं के लिए लेखांकन अभिलेख , किस्त क्रय पद्धति एवं क्रय पश्चात् सेवा। **इकाई – 5** साझेदारी खाते : साझेदारी फर्म का विघटन, साझेदारी फर्मो का एकीकरण, साझेदारी

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 5 (क) साझेदारी खाते : साझेदारी की सारभूत विशेषताएँ, साझेदारी संलेख ; अन्तिम खाते , खाते बंद होने के पश्चात् समायोजन; स्थिर एवं परिवर्तनशील पूँजी, ख्याति–लेखांकन मानक 10 संयुक्त जीवन बीमा पॉलिसी, लाभ विभाजन अनुपात में परिवर्तन, (ख) साझेदारी फर्म का पुनर्निर्माण ;फर्म में साझेदार का प्रवेश; साझेदार का अवकाश ग्रहण;साझेदार की मृत्यु, फर्म का विघटन, लेखांकन प्रविष्टियाँ, साझेदारी फर्म का दिवालिया होना, फर्म के विघटन की विधियाँ, लेखांकन प्रविष्टियाँ, साझेदार का दिवलिया होना, वितरण ।	फर्म की संयुक्त स्कन्ध प्रमण्डल में परिवर्तन।

Suggested Readings:

1. Gupta, R.L. and Radhaswamy. M; Financial Accounting ; Sultan Chand and Sons, New Delhi. (Both Hindi and English medium)
2. Monga J.R. Ahuja Girish, and Sehgal Ashok : Financial Accounting ; Mayur Paper Back, Noida.
3. Shukla. M.C., Grewal T.S. and Gupta, S.C. : Advanced Accounts; S. Chand & Co.. New delhi.
4. Singh B.K. ; Financial Accounting; Wisdom Publishing House, Varanasi.
5. S.M. Shukla; Financial Accounting ; Sahitya Bhawan Publication ; Agra. (Both Hindi and English medium)
6. Karim & Khanuja ; Financial Accounting ; SBPD Publishing House ; Agra. (Both Hindi and English medium)
7. Agrawal & Mangal ; Financial Accounting; Universal Publication. (Both Hindi and English medium)

B.Com Part- I

Compulsory

Group – II Paper – I - Business Mathematics

OBJECTIVE – To enable the students to have such minimum knowledge of mathematics as is applicable to business and economic situations.

Present Syllabus	Proposed Syllabus	Remark
UNIT –I Calculus (problems and theorems involving trigonometrical ratios are not to be done) Differentiation : Partial derivatives up to second order ; Homogeneity of functions and Euler's theorem. Maxima And Minima; Cases of one variable involving second or higher order derivatives: logarithm's **UNIT –II** Matrices and Determinants : Definition of a matrix ; Type of a matrices ; Algebra of matrices ; Properties of determinants ; Calculation of values of determinants upto third order ; Adjoint of a matrix, elementary of row or column operations; Finding inverse of a matrix through adjoint and elementary row or column operations; Solution of a system of linear equations having unique solution and involving not more than three variables. **UNIT –III** Linear Programming –Formulation of LLP : Graphical method of solution ; Problems relating to two variables including the case of mixed constraints ; Cases having no solution, multiple solutions : unbounded solutions and redundant constraints. Transportation Problem , Ratio & Proportion. **UNIT –IV** Compound interest and Annuities : Certain different types of interest rates ; Concept of present value and amount of a sum ; Types of annuities ; Present value and amount of an annuity, including the case of continuous compounding ; Valuation of simple loans and debentures; Problems relating to sinking funds. **UNIT –V** Average, Percentages, Commission Brokerage, Profit and loss.	**UNIT –I** Simultaneous Equations– Meaning, Characteristics, Methods of Solving Equations in Two Variables– Graphical, Substitution, Elimination and Cross Multiplication. Linear Programming –Formulation of LLP : Graphical method of solution ; Problems relating to two variables including the case of mixed constraints . **UNIT –II** Matrices and Determinants : Definition of a matrix ; Type of a matrices ; Algebra of matrices ; Properties of determinants ; Calculation of values of determinants upto third order ; Logarithm's & Antilogarithm's. **UNIT –III** Simple interest and Compound Interest . Annuties : Types of annuities ; Present value and amount of an annuity, including the case of continuous compounding ; Valuation of simple loans and debentures; Problems relating to sinking funds. **UNIT –IV** Ratio & Proportion. Average, Percentage. **UNIT –V** Commission, Brokerage, Discount, Profit and loss.	Omittion of Calculus - Differentiation . Addition of Chapter Simultaneous Equation. Omittion of Adjoint, elementary of row or column operations; inverse of a matrix.

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समूह–2 प्रश्नपत्र – 1 – व्यावसायिक गणित

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 1 कलन : अवकलन : आंशिक अवकलज– द्वितीय क्रम तक, फलनो की समघातीयता एवं यूलर प्रमेय, उच्चिठ एवं निम्निष्ठ – एक चर के द्वितीय या उच्च क्रम से जुड़े सवाल । लघुगणक। **इकाई – 2** आव्यूह एवं सारणिक : आव्यूह की परिभाषा , आव्यूह के प्रकार, आव्यूह बीजगणित, सारणिक के गुण, तृतीयक्रम के सारणिकों के मान की गणना, आव्यूह का सहखण्डज , पंक्ति या स्तम्भ मूल क्रियाएं, मूल पंक्ति या स्तम्भ क्रियाओं द्वारा आव्यूह का व्युत्क्रम ज्ञात करना , अद्वितीय हल रखने वाली तथा तीन से अधिक चर न रखने वाली युगपत् समीकरणों का हल। **इकाई – 3** रेखीय प्रक्रमन : रेखीय प्रक्रमन समस्या को गणितीय रूप मे लिखना : ग्राफीक विधि से हल, समस्या का कोई सम्भव हल नही, अनेक हल, असीम समस्या का हल, व्यर्थ निबाध। परिवहन समस्या , अनुपात एवं समानुपात। **इकाई – 4** चक्रवृद्धि ब्याज एवं वार्षिकी : विभिन्न प्रकार की ब्याज दरें, वर्तमान मूल्य एवं मिश्रधन की गणना, वार्षिकी के प्रकार , वार्षिकी का वर्तमान मूल्य एवं मिश्रधन, ब्याज का सतत संयोजन, साधारण ऋण एवं ऋणपत्र का मूल्यांकन , शोधन निधि के प्रश्न। **इकाई – 5** औसत, प्रतिशतता, कमीशन एवं दलाली, लाभ एवं हानि	इकाई – 1 – युगपद् समीकरण – अर्थ, विशेषताऐं, दो चर वाले समीकरण को हल करने की विधियॉ – रेखीय विधि,प्रतिस्थापन विधि, विलोपन विधि, वज्रगुणन विधि। रेखीय प्रक्रमन : रेखीय प्रक्रमन समस्या को गणितीय रूप मे लिखना : ग्राफीक विधि से हल, द्विचर से संबंधित मिश्रित निबाध समस्याएं। **इकाई – 2** आव्यूह एवं सारणिक : आव्यूह की परिभाषा , आव्यूह के प्रकार, आव्यूह बीजगणित, सारणिक के गुण, तृतीयक्रम के सारणिकों के मान की गणना। लघुगणक एवं प्रतिलघुगणक। **इकाई – 3** साधारण ब्याज एवं चक्रवृद्धि ब्याज । वार्षिकी : वार्षिकी के प्रकार , वार्षिकी का वर्तमान मूल्य एवं मिश्रधन, ब्याज का सतत संयोजन, साधारण ऋण एवं ऋणपत्र का मूल्यांकन , शोधन निधि के प्रश्न। **इकाई – 4** अनुपात एवं समानुपात। औसत : साधारण, भारित एवं सांख्यकीय औसत (समान्तर माध्य)। प्रतिशतता। **इकाई – 5** कमीशन, दलाली, बट्टा, लाभ एवं हानि। परिवहन समस्या।

Suggested Readings:

1. Dr. Amarnath Dikshit, Dr. Jinendra Kumar Jain; Business Mathematics ;Himalaya Publishing House, Mumbai. (Both Hindi and English medium)
2. N.K. Nag : Business Mathematics; Kalyani publication, New Delhi. .
3. Dr. V.K. Shukla. : Business Mathematics; Madhya Pradesh hindi Granth Academy: Bhopal.
4. S.M. Shukla; Business Mathematics; Sahitya Bhawan Publication ; Agra. (Both Hindi and English medium)
5. Dr. Karim & Agrawal ; Business Mathematics; SBPD Publishing House ; Agra. (Both Hindi and English medium)
6. Dr. Ramesh Mangal; Business Mathematics; Satish Printer and Publishers, Indore.

B.Com Part- I

Compulsory

Group – I Paper – II - BUSINESS COMMUNICATION

OBJECTIVE – To develop effective business communication skills among the students.

Present Syllabus	Proposed Syllabus	Remark
UNIT –I Introducing Business Communication : Definitions, concept and Significance of communication, Basic forms of communicating ; Communication models and process principles of effective communication; Theories of communication; Audience analysis. Self Development and Communication ; Development of positive personal attitudes, SWOT analysis; Vote's model of interdependence ; Whole Communication. **UNIT –II** Corporate Communication : Formal and Informal communication networks; Grapevine; Miscommunication (Barriers) ; improving communication Practices in business communication ; Group discussions ; Mock interviews, Seminars; Effective listening exercises, Individual and group presentations and report writing. **UNIT –III** Writing skill : Planning business messages; Rewriting and editing; The first draft; Reconstructing the final draft; Business letters and memo formats; Appearance request letters; Good news and bad new letters; Persuasive letters; Sales letters; Collection letters; Office memorandum. **UNIT –IV** Report Writing : Introduction to a proposal, Short report and formal report , report preparation. Oral Presentation : Principles of oral presentation, factor affecting presentation, sales presentation, training presentation, conducting surveys, speeches to motivate, presentation skill.	**UNIT –I** Introducing Business Communication : Definitions, concept and Significance of communication, Basic forms of communicating ; Communication models and process; principles of effective communication; Theories of communication; Self-Development and Communication ; Development of positive personal attitudes, SWOT analysis; **UNIT –II** Corporate Communication : Formal and Informal communication networks; Grapevine; Miscommunication (Barriers) ; improving communication. Practices in business communication ; Group discussions ; Seminars; Effective Listening : Principles of effective listening; Factor affective listening exercises; Oral, Written, and video session, Audience analysis and feedback**.** **UNIT –III** Writing skill : Business letters – Defination, concepts ,structure, advantages disadvantage, need and kinds of business letter ,Essentials of effective business letter. Good news and bad new letters; Office memorandum. Writing Resume and Letter of Job Application. **UNIT –IV** Report Writing : Introduction to a proposal, Short report and formal report , report preparation. Oral Presentation : Principles of oral presentation, factor affecting presentation, sales presentation, training presentation, conducting surveys, speeches to motivate, presentation skill.	Omission of Vote's model of interdependence. Balancing of Syllabus and omitted repeatation .

Present Syllabus	Proposed Syllabus	Remark
UNIT –V Non-Verbal Aspects of Communicating. Body Language : Kinesics, Proxemics, Para Language. Effective listening : Principles of effective listening; Factor affective listening exercises; Oral, Written, and video session. Interviewing skills : Appearing in interviews; Conducting interviews; writing resume and letter of application . Modern Forms of Communicating : Fax; E-Mail; video conferencing; etc. International Communication ; Cultural sensitiveness and cultural context ; Writing and presenting in international situations; Inter cultural factors in interactions; Adapting to Global business.	**UNIT –V** Non-Verbal Aspects of Communicating. Body Language : Kinesics, Proxemics, Para Language. Interviewing skills : Appearing in interviews; Conducting interviews; mock interview. Modern Forms of Communicating : Fax; E-Mail; video conferencing; etc. International Communication for global business.	

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अनिवार्य

समूह–1 प्रश्नपत्र – 2 – व्यावसायिक संचार

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 1 व्यावसायिक संचार परिचय : परिभाषा , अवधारणाएं एवं संचार का महत्व, संचार के आधारभूत प्रकार एवं मॉडल एवं प्रभावी संचार के सिद्धांत , प्रक्रिया , श्रोता विश्लेषण। आत्म विकास एवं संचार , सकारात्मक व्यक्तिगत दृष्टिकोण का विकास , स्वॉट विश्लेषण , मतो की परस्पर निर्भरता का प्रतिरूप।	**इकाई – 1** व्यावसायिक संचार परिचय : परिभाषा , अवधारणाएं एवं संचार का महत्व, संचार के आधारभूत प्रकार एवं मॉडल, प्रक्रिया एवं प्रभावी संचार के सिद्धांत । आत्म विकास एवं संचार , सकारात्मक व्यक्तिगत दृष्टिकोण का विकास , स्वॉट विश्लेषण ।
इकाई – 2 व्यावसायिक संस्था का संचार तंत्र :– औपचारिक एवं अनौपचारिक संचार तंत्र, अंगूरी लता संचार, संचार की बाधाएं एवं सुधार। व्यवहार में व्यावसायिक संचार :– सामूहिक परिचर्चा, साक्षात्कार, संगोष्ठी , प्रभावपूर्ण सूनना , व्यक्तिगत एवं सामुहिक प्रस्तुतीकरण एवं रिर्पोट लेखन।	**इकाई – 2** व्यावसायिक संस्था का संचार तंत्र :– औपचारिक एवं अनौपचारिक संचार तंत्र, अंगूरी लता संचार, संचार की बाधाएं एवं सुधार। व्यवहार में व्यावसायिक संचार :– सामूहिक परिचर्चा, संगोष्ठी , प्रभावपूर्ण सूनना : प्रभावपूर्ण सूनने के सिद्धांत, प्रभावपूर्ण सूनने के कारक, मौखिक , लिखित एवं विडियो सत्र का व्यवहारिक अध्ययन, श्रोता विश्लेषण एवं प्रतिपुष्टी।
इकाई – 3 लेखन कुशलता : व्यावसायिक संदेश की योजना एवं उसे संशोधित करना, प्रथम मसौदा, अंतिम मसौदा का पुनर्निर्माण , व्यावसायिक पत्र एवं ज्ञापन, प्रारूप : निवेदन पत्र , अनुकुल एवं प्रतिकुल संवाद पत्र, प्रेरक पत्र, विक्रय संबंधी पत्र, तकादे का पत्र या संग्रहण पत्र ,कार्यालयीन ज्ञापन व पत्र ।	**इकाई – 3** लेखन कुशलता : व्यावसायिक पत्र – परिभाषा, अवधारणा, संरचना, गुण दोष , आवश्यकता एवं विभिन्न प्रकार के व्यावसायिक पत्र , प्रभावी व्यापारिक पत्र व्यवहार के मूल तत्व। अनुकुल एवं प्रतिकुल संवाद पत्र, कार्यालयीन ज्ञापन व पत्र । जीवनवृत लेखन एवं नौकरी के लिए आवेदन पत्र।
इकाई – 4 रिर्पोट लेखन – एक प्रस्ताव का परिचय , लघु रिर्पोट एवं औपचारिक रिर्पोट ,रिर्पोट लेखन की तैयारी। मौखिक प्रस्तुती : मौखिक प्रस्तुती के सिद्धांत , प्रस्तुतीकरण को प्रभावित करने वाले कारक, विक्रय प्रस्तुतीकरण , प्रशिक्षण प्रस्तुतीकरण, सर्वेक्षण आयोजित करना, प्रेरक भाषण, प्रभावी प्रस्तुती कौशल।	**इकाई – 4** रिर्पोट लेखन – एक प्रस्ताव का परिचय , लघु रिर्पोट एवं औपचारिक रिर्पोट ,रिर्पोट लेखन की तैयारी। मौखिक प्रस्तुती : मौखिक प्रस्तुती के सिद्धांत , प्रस्तुतीकरण को प्रभावित करने वाले कारक, विक्रय प्रस्तुतीकरण , प्रशिक्षण प्रस्तुतीकरण, सर्वेक्षण आयोजित करना, प्रेरक भाषण, प्रभावी प्रस्तुती कौशल।

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 5 अशाब्दिक संचार के पहलू – दैहिक भाषा : समय एवं पार्श्व भाषा , प्रभावपूर्ण सूनना : प्रभावपूर्ण सूनने के सिद्धांत, प्रभावपूर्ण सूनने के कारक, मौखिक , लिखित एवं विडियो सत्र का व्यवहारिक अध्ययन। साक्षात्कार कुशलता : साक्षात्कार में शामिल होना, साक्षात्कार का आयोजन, जीवनवृत – सारांश लेखन एवं आवेदन पत्र। संचार के आधुनिक रूप – फैक्स , ई मेल, वीडियो कॉन्फ्रेसिंग आदि अंतराष्ट्रीय संचार : सांस्कृतिक संवेदनशीलता एवं सांस्कृतिक संदर्भ , अंतराष्ट्रीय स्थितियों मे लेखन और प्रस्तुतीकरण करना : अंतराष्ट्रीय क्रियाओं में अंतराष्ट्रीय सांस्कृतिक कारक , वैश्विक व्यापार के संदर्भ में।	**इकाई – 5** अशाब्दिक संचार के पहलू – दैहिक भाषा , समय एवं पार्श्व भाषा , साक्षात्कार कुशलता : साक्षात्कार में शामिल होना, साक्षात्कार का आयोजन, मॉक साक्षात्कार। संचार के आधुनिक रूप – फैक्स , ई मेल, वीडियो कॉन्फ्रेसिंग आदि अंतराष्ट्रीय संचार : सांस्कृतिक संवेदनशीलता एवं सांस्कृतिक संदर्भ , भूमण्डलीय व्यावसाय के लिए अंतराष्ट्रीय संप्रेषण।

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2. Balasubramanyam: Business Communication; Vikas Publishing House, Delhi. (English medium)
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5. Patri VR : Essentials of Communication ; Greenspan Publications, New Delhi. (English medium)
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7. Dr. Mishra , Shukla & Patel ; Business Communication ; SBPD Publishing House, Agra. (Both Hindi and English medium)

B.Com Part- I

Compulsory

Group – II Paper – II – BUSINESS REGULATORY FRAMEWORK

OBJECTIVE – To provide a brief idea about the framework of Indian business laws.

Present Syllabus	Proposed Syllabus	Remark
UNIT –I Law of Contract (1872) : Nature of contract ; Classification ; Offer and acceptance; Capacity of parties to contract, free consent, Considerations, Legality of object; Agreement declared void; Performance of contract; Discharge of contract; Remedies for breach of contract. **UNIT –II** Special contracts; Indemnity ; Guarantee; Bailment and pledge; Agency. **UNIT –III** Sale of Goods Act (1930) ;Formation of contracts of sale ;Goods and their classification, price, Conditions and warranties; Transfer of property in goods; Performance of the contract of sales; Unpaid seller and his rights; sale by auction; Hire purchase agreement. **UNIT –IV** Negotiable Instrument Act (1881) : Definition of negotiable instrument; Feature; Promissory note; Bill of exchange & cheque; Holder and holder in the due course; Crossing of a cheque, types of crossing; Negotiation; Dishonuor and discharge of negotiable instrument. **UNIT –V** The Consumer Protection Act 1986 : Sailent features; Definition of consumer ; Grievance redressal machinery; Foreign Exchange Management Act 2000 : Definition and main provisions, Right to Information Act 2005(Main Provision)	**UNIT –I** Law of Contract (1872) –I : Nature of contract ; Classification ; Offer and acceptance; Capacity of parties to contract, free consent, Considerations, Legality of object; Agreement declared void. **UNIT –II** Law of Contract (1872) - II : Performance of contract, Discharge of contract; Remedies for breach of contract. Special contracts; Indemnity ; Guarantee; Bailment and pledge; Agency. **UNIT –III** Sale of Goods Act (1930) ;Formation of contracts of sale ;Goods and their classification, price, Conditions and warranties; Transfer of property in goods; Performance of the contract of sales; Unpaid seller and his rights; sale by auction; Hire purchase agreement. **UNIT –IV** Negotiable Instrument Act (1881) : Definition of negotiable instrument; Feature; Promissory note; Bill of exchange & cheque; Holder and holder in the due course; Crossing of a cheque, types of crossing; Negotiation; Dishonor and discharge of negotiable instrument. **UNIT –V** The Consumer Protection Act 1986 : Main Provision, Definition of consumer ,Consumer Disputes , Grievance redressal machinery ; Indian Partnership Act 1932. Limited Liabilities Partnership Act 2008. Introduction of Intellectual Property Right Act – Copyright, Patent & Trademark.	Balancing of Syllabus Replaced FEMA & RTI with Partnership act, LLP Act 2008 and Intellectual property right act.

बी,कॉम. भाग – एक
अनिवार्य
समूह–2 प्रश्नपत्र – 2 – व्यावसायिक नियमन रूपरेखा

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 1 भारतीय अनुबंध अधिनियम (1872) : अनुबंध की प्रकृति : वर्गीकरण , प्रस्ताव तथा स्वीकृति, अनुबंध के योग्य पक्षकार , पक्षकारो की स्वतंत्र सहमति , प्रतिफल, उद्देश्य की वैधता , व्यर्थ घोषित ठहराव : अनुबंध का निष्पादन , अनुबंधो की समाप्ति , अनुबंध भंग के उपाय एवं परिणाम। **इकाई – 2** विशिष्ट अनुबंध : क्षतिपूर्ति , प्रतिभूति, निक्षेप, गिरवी अनुबंध, एजेंसी।	**इकाई – 1** भारतीय अनुबंध अधिनियम (1872) : अनुबंध की प्रकृति : वर्गीकरण , प्रस्ताव तथा स्वीकृति, अनुबंध के योग्य पक्षकार , पक्षकारो की स्वतंत्र सहमति , प्रतिफल, उद्देश्य की वैधता , व्यर्थ घोषित ठहराव । **इकाई – 2** अनुबंध का निष्पादन ;अनुबंधो की समाप्ति , अनुबंध भंग के उपाय एवं परिणाम। विशिष्ट अनुबंध : क्षतिपूर्ति , प्रतिभूति, निक्षेप , गिरवी अनुबंध, एजेंसी।
इकाई – 3 वस्तु विक्रय अधिनियम (1930) : वस्तु विक्रय अनुबंध का निर्माण , माल का वर्गीकरण , कीमत, शर्ते और आश्वासन , माल के स्वामित्व का हस्तांतरण, विक्रय अनुबंध का निष्पादन , अदत्त विक्रेता के अधिकार , नीलाम द्वारा विक्रय , किराया क्रय ठहराव।	**इकाई – 3** वस्तु विक्रय अधिनियम (1930) : वस्तु विक्रय अनुबंध का निर्माण , माल का वर्गीकरण , कीमत, शर्ते और आश्वासन , माल के स्वामित्व का हस्तांतरण, विक्रय अनुबंध का निष्पादन , अदत्त विक्रेता के अधिकार , नीलाम द्वारा विक्रय , किराया क्रय ठहराव।
इकाई – 4 विनिमय साध्य विलेख अधिनियम (1881) : परिभाषाएं, विशेषताएं , प्रतिज्ञा पत्र, विनिमय विपत्र और धनादेश (चैक) : धारक तथा यथाविधिधारी , रेखांकित चैक, रेखांकन के प्रकार, परक्रामण, विनिमय साध्य विलेख का अनदारण व मुक्ति।	**इकाई – 4** विनिमय साध्य विलेख अधिनियम (1881) : परिभाषाएं, विशेषताएं , प्रतिज्ञा पत्र, विनिमय विपत्र और धनादेश (चैक) : धारक तथा यथाविधिधारी , रेखांकित चैक, रेखांकन के प्रकार, परक्रामण, विनिमय साध्य विलेख का अनदारण व मुक्ति।
इकाई – 5 उपभेक्ता संरक्षण अधिनियम (1986) : मुख्य विशेषताएं , उपभोक्ता की परिभाषा , उपभोक्ता विवाद निवारण अभिकरण। मुख्य प्रावधान , सूचना का अधिकार अधिनियम (2005) – मुख्य प्रावधान।	**इकाई – 5** उपभेक्ता संरक्षण अधिनियम (1986) : मुख्य विशेषताएं , उपभोक्ता की परिभाषा , उपभोक्ता विवाद निवारण अभिकरण। भारतीय साझेदारी अधिनियम 1932। सीमित दायित्व वाली साझेदारी अधिनियम 2008। बौद्धिक संपदा अधिकार अधिनियम का परिचय – कॉपीराईट, पेटेन्ट एवं ट्रेडमार्क।

Suggested Readings:

1. Kuchal M.C. ; Business Law ; Vikas Publishing House, Delhi. (English medium)
2. Kapoor N.D. : Business Law ; Sultan Chand & Sons, New Delhi. (English medium)
3. Chandha P.R. : Business Law; Galgotia ,New Delhi. (English medium)
4. Dr. J.K. Vaishnav : Business Law; Sahitya Bhawan publication, Agra. (English medium)
5. Prof. R. C. Agrawal; Business Regulatory Framework; SBPD Publishing House, Agra. (Hindi medium)
6. K.R. Bulchandani; Business Law; Himalaya Publishing House , Mumbai. (Both Hindi and English medium)
7. R.L. Navlakha; Business Law; Ramesh Book depot, Jaipur. (Both Hindi and English medium)
8. Arun Kumar Gangele; Business Regulatory Framework; Ram Prasad & Sons, Agra. (Hindi medium)

B.Com Part- I

Compulsory

Group – III Paper – I– BUSINESS ENVIRONMENT

OBJECTIVE – To acquainting the students with the emerging issues in business at the national and international level in the light of the policies of liberalization and globalization.

Present Syllabus	Proposed Syllabus	Remark
UNIT –I Indian Business Environment : Concept, components and importance Economic Trends (overview) : Income : Saving and investment ; industry; Trade and balance of payment, Money ; Finance ; Prices.	**UNIT –I** Business Environment : Concept, Components and Importance ,Economic Trends (overview) : Income : Saving and investment ; Trade and balance of payment, Money and Finance .	
UNIT –II Problems of Growth : Unemployment ; Poverty ; Regional imbalances ; social injustice; Inflation ; Parallel economy ; Industrial sickness.	**UNIT –II** Problems of Growth : Unemployment ; Poverty ; Regional imbalances ; Social Injustice;Inflation ; Parallel economy ; Industrial sickness.	
UNIT –III Role of Government ; Monetary and fiscal policy ; Industrial policy ; Industrial licensing. Privatization ; Devaluation; Export-Import policy; Regulation of foreign investment; Collaborations in the light of recent changes.	**UNIT –III** Role of Government ; Monetary and fiscal policy ; Industrial policy ; Industrial licensing. Privatization ; Liberalisation, Globalisation Devaluation; Demonitisation; Export-Import policy.	Addition of Liberalization, Globalization and Demonitisation.
UNIT –IV Review of Previous Plans, the current five year Plan, major policy, Resources Allocation.	**UNIT –IV** Economic Planning in India : Need, objectives, Strategy; Review of Previous Plans, Planning Commission. Foreign Exchange Management Act 2000 : Basic Concept and Main Provisions.	Addition of Planning Commission and omitted current five year plan.
UNIT –V International Environment ; international trading environment (overview); Trends in World trade and the problems of developing countries; Foreign trade and economic growth; International economic groupings ; International economic institutions – GATT. WTO World Bank. IMF; FDI; Counter trade.	**UNIT –V** International Environment ; Trends in World trade and the problems of developing countries; Foreign trade and economic growth; International economic groupings – GATT. ,WTO ,UNCTAD, World Bank, IMF; FDI.	Addition of UNCTAD and omitted international trading environment.

बी,कॉम. भाग – एक
अनिवार्य
समूह–3 प्रश्नपत्र – 1 – व्यावसायिक पर्यावरण

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 1 भारतीय व्यावसायिक पर्यावरण : अवधारणा, संघटक व महत्व। आर्थिक प्रवृत्तियॉ : आय, बचत एवं विनियोग, औद्योगिक प्रवृत्तियॉ; व्यापार एवं भुगतान सन्तुलन, मुद्रा , वित्त तथा कीमत। **इकाई – 2** विकास की समस्याऍ : बेरोजगारी ,निर्धनता एवं क्षेत्रीय असन्तुलन, सामाजिक अन्याय, मुद्रास्फीति, समान्तर अर्थव्यवस्था , औद्योगिक रूग्णता। **इकाई – 3** शासन की भूमिका : मौद्रिक एवं राजकोषीय नीति, औद्योगिक नीति, औद्योगिक लाइसेंसिंग नीति ,निजीकरण , अवमूल्यन, निर्यात–आयात नीति, विदेशी विनियोग का नियमन । **इकाई – 4** पुर्व योजनाओं की समीक्षा , चालू पंचवर्षीय योजना : मुख्य रणनीति, संसाधनों आबंटन। **इकाई – 5** अंतराष्ट्रीय पर्यावरण : अंतराष्ट्रीय व्यापारिक पर्यावरण , विश्व व्यापार की प्रवृत्ति एवं विकासशील देशों की समस्याऍ, विदेशी व्यापार एवं आर्थिक विकास , अंतराष्ट्रीय आर्थिक समूह– अंतराष्ट्रीय अर्थव्यवस्था की संस्थाये, विश्व व्यापार संगठन , व्यापार एवं प्रशुल्क एवं व्यापार संबंधि सामान्य समझौता (गैट) , विश्व बैंक , अंतराष्ट्रीय मुद्रा कोष , अंतराष्ट्रीय पुनर्निमाण एवं विकास बैंक, प्रति व्यापार , एफ. डी. आई.।	**इकाई – 1** व्यावसायिक पर्यावरण : अवधारणा, संघटक व महत्व, आर्थिक प्रवृत्तियॉ : आय, बचत एवं विनियोग; व्यापार एवं भुगतान सन्तुलन, मुद्रा एवं वित्त । **इकाई – 2** विकास की समस्याऍ : बेरोजगारी ,निर्धनता एवं क्षेत्रीय असन्तुलन, सामाजिक अन्याय, मुद्रास्फीति, समान्तर अर्थव्यवस्था , औद्योगिक रूग्णता। **इकाई – 3** शासन की भूमिका (वर्तमान परिदृश्य में) : मौद्रिक एवं राजकोषीय नीति, औद्योगिक नीति, औद्योगिक लाइसेंसिंग नीति ,निजीकरण , उदारीकरण, भूमण्डलीकरण, अवमूल्यन, विमुद्रिकरण निर्यात–आयात नीति, विदेशी विनियोग का नियमन । **इकाई – 4** भारत में आर्थिक नियोजन : आवश्यकता , उद्देश्य एवं व्यूहरचना, पुर्व पंचवर्षीय योजनाओं की समीक्षा , चालू पंचवर्षीय योजना । विदेशी विनिमय प्रबंध अधिनियम 2000 : अवधारणा एवं मुख्य प्रवधान। **इकाई – 5** अंतराष्ट्रीय पर्यावरण : विश्व व्यापार की प्रवृत्ति एवं विकासशील देशों की समस्याऍ, विदेशी व्यापार एवं आर्थिक विकास , अंतराष्ट्रीय आर्थिक समूह– प्रशुल्क एवं व्यापार संबंधि सामान्य समझौता (गैट) , विश्व व्यापार संगठन, विश्व बैंक , अंतराष्ट्रीय मुद्रा कोष ,प्रत्यक्ष विदेशी निवेश, संयुक्त राष्ट्र व्यापार एवं विकास संगठन (अंकटाड़)।

Suggested Readings:

1. Agarwal A. N. : Indian Economy, Vikas Publishing House Delhi. (English medium)
2. Khan Faroog A : Business and Society; S. Chand , Delhi. (English medium)
3. Dutt R. and Sundharam K. Pm. ; Indian Economy; S. Chand , Delhi. (English medium)
4. Misra S.K. and Puri V.K. : Indian Economy; Himalaya Publishing House, New Delhi. (English medium)
5. Dr. V.C. Sinha; Business Environment; SBPD Publishing House, Agra . (Both Hindi and English medium)
6. Dr. J. K. Jain; Business Environment; Madhya Pradesh hindi Granth Academy: Bhopal. (Hindi medium)
7. Gupta & Pathak; Business Environment; Ram Prasad & Sons, Raipur. (Hindi medium)
8. S.K. Singh; Business Environment; SBPD Publishing House, Agra . (Both Hindi and English medium)

B.Com Part- I

Compulsory

Group – III – Business Economics Paper – II– BUSINESS ECONOMICS

OBJECTIVE – To acquaint the students with the principles of Business Economics as are applicable in business.

Present Syllabus	Proposed Syllabus	Remark
UNIT –I Introduction : Basic problems of an economy ; Working of price mechanism. Elastcity of Demand ; Concept and measurement of elasticity of demand ; Price, income and cross elasticity ; Average revenue , marginal revenue, and elasticity of demand; Determinates of elasticity of demand; Importance of elasticity of demand.	**UNIT –I** Introduction : Definition ,Nature and Scope of Economics, Difference Between Micro and Macro Economics, Method of Economic Study : Inductive and Deductive Methods. Basic problem of Economy, Working of Price Mechanism. Utility Analysis: Measurements of Utility, Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility.	Addition of Introduction of Economics, Method of Economic study & Utility Analysis.
UNIT –II Production Function ; Law of variable proportions ; Iso-quants; Expansion path; Returns to scale; Internal and external economies and diseconomies.	**UNIT-II** Law of demand: Meaning and Definitions, Effecting Factors, Types ; Exception of Law of demand. Elasticity of Demand : Concept, Definitions, Importance, Types and Measurement of Elasticity of Demand, Factors affecting the Elasticity of Demand.	Addition of Law of Demand.
UNIT –III Theory of Costs : Short-run and long-run cost curves – traditional and modern approaches. Market Structures l Market structures and business decisions ; Objectives of a business firm. (a) Perfect Competition ; Profit maximization and equilibrium of firm and industry; Short-run and long-run supply curves; Price and output determination, Practical applications. (b) Monopoly : Determination of price under monopoly ; Equilibrium of a firm ; Comparison between perfect competition and monopoly; Multi-plant monopoly ; Price Discrimination. Practical applications.	**UNIT –III** Production : Factors of Production ,their characteristics and importance. Production Functions : Law of Variable Proportions, Return to scale and Equal Product Curve Analysis. Internal and external economies and diseconomies.	Addition of Factor of Production.

Present Syllabus	Proposed Syllabus	Remark
UNIT –IV Market Structure (a) Monopolistic competition : Meaning and Characterstics; Price and output determination under monopolistic competition ; Product differentiations; Selling costs; Comparision with perfect competition; Excess capacity under monopolistic competition. (b) Oligopoly : Characteristics, indeterminate pricing and output Classical models of oligopoly ; Price leadership ; Collusive oligopoly. **UNIT –V** Factor Pricing-1 : Marginal Productivity theory and demand for factors; Nature of supply of factor inputs; Determination of wage rates under perfect competition and monopoly; Exploitation of labour. Factor pricing-II : Rent concept, Recardian and modern theories of Rent quasirent. Interests concept and theories of interest ; Profit-nature , concept and theories of profit.	**UNIT –IV** Market Structure – Concept , Characteristics, Classification. Determination of Price under condition of Perfect Competition, Imperfect Competition and Monopoly, Monopolistic Competition, Oligopoly and Duopoly. **UNIT –V** Theories of distribution, Marginal Productivity theory of distribution, Concept and theories of Wages, Rent, Interest & Profit.	

बी,कॉम. भाग – एक
अनिवार्य
समूह–3 प्रश्नपत्र – 2 – व्यावसायिक अर्थशास्त्र

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 1 परिचय : अर्थशास्त्र की मुख्य समस्याएं , कीमत संयंत्र के कार्य, मांग की लोच , मांग की लोच मापने की विधियां एवं अवधारणाएं : कीमत , आय तथा आडी लोच, औसत आगम, सीमान्त आगम एवं मांग की लोच , मांग की लोच का निर्धारण तथा मांग की लोच का महत्व। **इकाई – 2** उत्पादन फलन, परिवर्तन अनुपात का नियम , समोत्पाद , विस्तार पथ, पैमाने के प्रतिफल , आंतरिक एवं बाह्य मितव्ययिता एवं अपमितव्ययिता। **इकाई – 3** लागत अवधारणाएं , अल्पकालीन एवं दीर्घकालीन लागत वक्र, परम्परागत एवं आधुनिक विचारधारा। बाजार संरचना तथा व्यावसायिक निर्णयन, व्यावसायिक फर्म के उद्देश्य। (अ) पूर्ण प्रतियोगिता , लाभ अधिकतमीकरण तथा फर्म का साम्य , औद्योगिक अल्पकालीन एवं दीर्घकालीन पूर्ति वक्र, कीमत एवं उत्पाद निर्धारण। (ब) एकाधिकार : एकाधिकार मे मूल्य निर्धारण , फर्म का साम्य , पूर्ण प्रतियोगिता एवं एकाधिकार में अन्तर ,एकाधिकार के अंर्तगत कीमत विभेद। **इकाई – 4** बाजार संरचनाः (अ)एकाधिकृत प्रतियोगिता : आशय एवं विशेषतांए , कीमत एंव उत्पाद निर्धारण , उत्पाद विभेद , विक्रय लागत, पूर्ण प्रतिस्पर्धा से तुलना , अतिरिक्त क्षमता सिद्धांत। (ब) अल्पाधिकार : विशषताएं , कीमत एवं उत्पाद निर्धारण , परंपरागत मॉडल, कीमत नेतृत्व , कपटपूर्ण अल्पाधिकार।	**इकाई – 1** परिचयः अर्थशास्त्र की परिभाषा, प्रकृति एवं क्षेत्र, व्यष्टि एवं समष्टि अर्थशास्त्र में भेद, आर्थिक अध्ययन की प्रणालियां : निगमन एवं आगमन । अर्थव्यवस्था की मूल समस्याएं, कीमत संयंत्र का कार्यकरण। उपयोगिता विश्लेषण – उपयोगिता की माप, सीमांत उपयोगिता ह्रास नियम , समसीमांत उपयोगिता नियम । **इकाई – 2** मांग का नियम : अर्थ, परिभाषा , प्रभावित करने वाले धटक, मांग के रूप, मांग के नियम के अपवाद। मांग की लोच : अवधारणा, परिभाषा, महत्व, प्रकार एवं मापन की विधियां, मांग की लोच को प्रभावित करने वाले धटक। **इकाई – 3** उत्पादन : उत्पादन के कारक ,उनकी विशषताएं एवं महत्व। उत्पादन फलन : परिवर्तनशील अनुपातों का नियम , पैमाने का प्रतिफल ,समोत्पाद वक्र विश्लेषण। आंतरिक एवं बाह्य मितव्ययिता एवं अपमितव्ययिता। **इकाई – 4** बाजार संरचनाः अवधारणा, परिभाषाएं, विशेषताएं एवं वर्गीकरण। पूर्ण प्रतियोगिता, अपूर्ण प्रतियोगिता, एकाधिकारी प्रतियोगिता, एकाधिकृत प्रतियोगिता ,अल्पाधिकार एवं द्वयाधिकार में कीमत निर्धारण। **इकाई – 5**

वर्तमान पाठ्यक्रम	प्रस्तावित पाठ्यक्रम
इकाई – 5 कीमत कारक– I सीमान्त उत्पादकता सिद्धांत तथा मांग कारक, पूर्ति की प्रकृति, पूर्ण प्रतियोगिता एवं एकाधिकार में मजदूरी दर का निर्धारण ,श्रम का शोषण। कीमत कारक – II – लगान अवधारणा , रिकार्डो का लगान सिद्धांत तथा लगान का आधुनिक सिद्धांत , ब्याज अवधारणा तथा ब्याज का सिद्धांत लाभ की प्रकृति , अवधारणा तथा लाभ के सिद्धांत।	वितरण का सिद्धांत : सीमान्त उत्पादकता का सिद्धांत , मजदूरी, लगान, ब्याज एवं लाभ की अवधारणा एवं सिद्धांत ।

Suggested Readings:

1. John P. Gould, Jr. and Edward P. Lazear: Micro economic theory; All India Traveller, Delhi. (English medium)
2. Koutsoyianni A. : Modern Microeconomics: Macmillan, New Delhi. (English medium)
3. Khan Faroog A : Business and Society; S. Chand , Delhi. (English medium)
4. Misra S.K. and Puri V.K. : Indian Economy; Himalaya Publishing House, New Delhi. (English medium)
5. M. L. Jhingan : Micro Economics, Vrinda publication, Delhi. (Both English and Hindi medium)
6. Dr. J. K. Jain; Business Economics; Madhya Pradesh hindi Granth Academy: Bhopal. (Hindi medium)
7. Dr. V.C. Sinha; Business Economics; SBPD Publishing House, Agra. (Both English and Hindi medium)
8. Dr. Jai Prakash Misra; Business Economics; Sahitya Bhawan Publication, Agra. (Hindi medium)

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Practical

SYLLABUS
B.COM. PART-II

GROUPING OF SUBJECTS AND SCHEME OF EXAMINATION

Subject		Max.	Min.
A. Foundation Course			
I. Hindi Language		**75**	**26**
II. English Language		**75**	**26**
B. Three Compulsory Groups			
Group-I			
I. Corporate Accounting	**75**	**150**	**50**
II. Company Law	**75**		
Group-II			
I. Cost Accounting	**75**	**150**	**50**
II. Principles of Bus. Management	**75**		
Group-III			
I. Business Statistics	**75**	**150**	**50**
II. Fundamental of Entrepreneurship	**75**		

B.Com.II year

C O M P U L S O R Y

Group - I PAPER – I (CORPORATE ACCOUNTING)

OBJECTIVE

This course enable the students to develop awareness about corporate accounting in conformity with the provisions of companies Act.

(As per company act 2013)

Current Syllabus	Proposed Syllabus	Remark
UNIT-I Issue, Forfeiture, and Re-issue of Shares : Redemption of preference shares; Issue and redemption of debentures.	**UNIT-I** Issue, Forfeiture, and Re-issue of Shares : Redemption of preference shares; Issue and redemption of debentures.	
UNIT-II Final Accounts; Excluding computation of managerial remuneration, and disposal of profit, Liquidation of Company.	**UNIT-II** Final Accounts (as per company act 2013) Liquidation of Company.	Ommission of managerial remuneration, and disposal of profit
UNIT-III Valuation of Goodwill and Shares.	**UNIT-III** Valuation of Goodwill and Shares.	
UNIT-IV Accounting for Amalgamation of Companies as per Indian Accounting Standard 14; Accounting for internal reconstruction - excluding intercompany holdings and re-construction schemes.	**UNIT-IV** Accounting for Amalgamation of Companies as per Indian Accounting Standard 14; Accounting for internal reconstruction - excluding intercompany holdings and re-construction schemes.	
UNIT-V Consolidated Balance Sheet of holding companies with one subsidiary only. Final Account of Banking Companies.	**UNIT-V** Consolidated Balance Sheet of holding companies with one subsidiary only.	Ommission Final Account of Banking Companies.

SUGGESTED READINGS :

1. Dr. S.M. Shukla, Sahitya Bhawan Agra.
2. Dr. Mangal Mehta & Agrawal Published - Indore.
3. Dr. Karim Khanuja - Published - Agra.
4. Gupta R.L., Radhaswamy M; Company Accounts; Sultan Chand & Sons, New Delhi.

Group - II PAPER – I (COST ACCOUNT)

OBJECTIVE

This course exposes the students to the basic concepts and the tools used in cost accounting.

Current Syllabus	Proposed Syllabus	Remark
UNIT-I Introduction : Nature and scope of cost accounting ; Cost concepts and classfication; Methods and techniques; Installation of costing system; Concept of cost audit. Accounting for Material : Material Control; Concept and techniques; Pricing of material issues; Treatment of material losses.	**UNIT-I** Introduction : Nature and scope of cost accounting ; Cost concepts and classfication; Methods and techniques; Installation of costing system; Concept of cost audit. Accounting for Material : Material Control; Concept and techniques; Pricing of material issues; Treatment of material losses.	
UNIT-II Accounting for Labour : Labour cost control procedure; Labour turnover; Idle time and overtime; Methods of wage payment - time and piece rates; Incentive schemes. Accounting for overheads; Classification and departmentalization; Absorption of overheads; Determination of overhead rates; Under and over absorption, and its treatment.	**UNIT-II** Accounting for Labour : Labour cost control procedure; Labour turnover; Idle time and overtime; Methods of wage payment - time and piece rates; Incentive schemes. Accounting for overheads; Classification and departmentalization; Absorption of overheads; Determination of overhead rates; Under and over absorption, and its treatment.	
UNIT-III Cost Ascertainment : Unit costing; Job, batch and contract costing.	**UNIT-III** Cost Ascertainment : Unit costing; Job, batch and contract costing.	
UNIT-IV Operating costing; Process Costing - excluding inter - process profits, and joint and by - products.	**UNIT-IV** Operating costing; Process Costing - excluding inter - process profits, and joint and by - products.	
UNIT-V Cost Records : Intergal and non - integral system; Reconciliation of cost and financial accounts; Break Even Point.	**UNIT-V** Cost Records : Intergal and non - integral system; Reconciliation of cost and financial accounts; Break Even Point.	

SUGGESTED READINGS :

1. M.L. Agrawal : Sahitya Bhawan Agra.
2. Maheshwari S.N. : Advanced Problems and Solutions in Cost Accounting; Sultan Chand, New Delhi.
3. Arora M.N. : Cost Accounting - Principles and Practice; Vikas, New Delhi.
4. Jain S.P. and Narang K.L. : Cost Accounting; Kalyani New Delhi.

Group - II - PAPER - II
PRINCIPLES OF BUSINESS MANAGEMENT

OBJECTIVE

This Course familiarizes the students with the basics of principles of management.

Current Syllabus	Proposed Syllabus	Remark
UNIT-I Introduction : Concept, nature, process, and significance of management; manage-ment roles (Mintzberg); An overview of functional areas of management; Development management thought; Classical and neo-classical systems; Concept approaches.	**UNIT-I** Introduction : Concept, nature, process, and significance of management; manage-ment roles (Mintzberg); An overview of functional areas of management; Development management thought; Classical and neo-classical systems; Concept approaches.	
UNIT-II Planning : Concept, process and types. Decision making - concept and Bounded rationality; Management by objectives; Corporate planning; Environment analysis and diagnosis; Strategy formulation.	**UNIT-II** Planning : Concept, process and types. Decision making - concept and Bounded rationality; Management by objectives; Corporate planning; Environment analysis and diagnosis; Strategy formulation.	
UNIT-III Organizing : Concept, nature, process and significance; Authority and resident relationships; Centralization and decentralization; Departmentation; Organization structure - forms and contingency factors.	**UNIT-III** Organizing : Concept, nature, process and significance; Authority and resident relationships; Centralization and decentralization; Departmentation; Organization structure - forms and contingency factors.	
UNIT-IV Motivating and Leading People at work : Motivation - concept; Theories Herzberg, McGregor, and Ouchi; Financial and non-financial incentives. Leadership - concept and leadrship styles; Leadership theories (Tannenb Schmidt.); Likert's System Management; Communication - nature, process, networks, and barriers, Effective Communication.	**UNIT-IV** Motivating and Leading People at work : Motivation - concept; Theories Herzberg, McGregor, and Ouchi; Financial and non-financial incentives. Leadership - concept and leadrship styles; Leadership theories (Tannenb Schmidt.); Likert's System Management; Communication - nature, process, networks, and barriers, Effective Communication.	
UNIT-V Managerial Control : Concept and process; Effective control system; Technical control - traditional and modern. Management of Change : Concept, nature, and process of planned Resistance to change; Emerging horizons of management in a environment.	**UNIT-V** Managerial Control : Concept and process; Effective control system; Technical control - traditional and modern. Management of Change : Concept, nature, and process of planned Resistance to change; Emerging horizons of management in a environment.	

SUGGESTED READINGS :

1. Dr. R.C. Agrawal, Agra.
2. Dr. S.C. Saxena, Agra.
3. Weihrich and Koontz, et al : Essentials of Management; Tata McGraw Hill, New Delhi.

Group - I - PAPER - II
COMPANY LAW

OBJECTIVE

This objective of this course is to provide basic knowledge of the provisions Companies Act. 2013, along with relevant case law.

Current Syllabus	Proposed Syllabus	Remark
UNIT-I Corporate personalities; Kinds of Companies, Nature & Scope, promotion on and incorporation of companies.	**UNIT-I** Corporate personalities; Kinds of Companies, Nature & Scope, promotion on and incorporation of companies.	
UNIT-II Memorandum of Association; Articles of Association; Prospectus, Shares; share capital - transfer and transmission.	**UNIT-II** Memorandum of Association; Articles of Association; Prospectus, Shares; share capital - transfer and transmission.	
UNIT-III Capital management - borrowing powers, mortgages and charges, debentures. Directors - Managing Director, whole time director, Appointment, Remuneration, and duties.	**UNIT-III** Capital management - borrowing powers, mortgages and charges, debentures. Directors - Managing Director, whole time director, Appointment, Remuneration, and duties.	
UNIT-IV Company meetings - kinds, Notice, quorum, voting, proxy, resolutions, minutes.	**UNIT-IV** Company meetings - kinds, Notice, quorum, voting, proxy, resolutions, minutes.	
UNIT-V majority powers and minority rights; Prevention of oppression and mismanagement. Winding up - kinds and conduct.	**UNIT-V** majority powers and minority rights; Prevention of oppression and mismanagement. Winding up - kinds and conduct.	

SUGGESTED READINGS :

1. Singh Avtar : Company Law; Eastern Book Co., Lucknow.
2. Dr. S.M. Shukla, Shahitya Bhawan Agra.
3. Dr. R.C. Agrawal, Shahitya Bhawan Agra.
4. Kapoor N.D. : Company Law - Incorporating the Provisions of the comanies Amendment Act, 2013 Chand & Sons, New Delhi.

Group - III - PAPER - I

BUSINESS STATISTICS

O BJECTIVE

It enable the students to gain understanding of statistical techniques as are applicable to business.

Current Syllabus	Proposed Syllabus	Remark
UNIT-I Introduction : Statistics as a subject; Descriptive Statistics - compared to Inferential Statistics; Types of data; Summation operation; Rules of Sigma E operations, Analysis of University Data; Construction of a frequency distribution; Concept of central tendency.	**UNIT-I** Introduction : Statistics as a subject; Descriptive Statistics - compared to Inferential Statistics; Types of data; Summation operation; Rules of Sigma E operations, Analysis of University Data; Construction of a frequency distribution; Concept of central tendency.	
UNIT-II Dispersion - and their measures; Partition values; Moments; Skewness and measures; Kurtosis and measures.	**UNIT-II Dispersion - and their measures; Partition values; Skewness and measures;**	Omission of movements & Kurtosis
UNIT-III Analysis of Bivariate Data : Linear regression two variables and correlation.	**UNIT-III Analysis of Bivariate Data : Linear regression two variables and correlation.**	
UNIT-IV Index Number; Meaning, types, and uses; Methods of Constructing price and quantity indices (simple and aggregate); Tests of adequacy; Chain - base index numbers; Base shifting, splicing and deflating; Problems in constructing index numbers; Consumer price index. Analysis of Time Series : Cause of Variation in time series data; Components of a time series; Decomposition - Additive and Multiplicative models; Determination of trend - Moving Averages Method and method of least squares (including linear, second degree, parabolic, and exponential trend); Computation of seasonal indices by simple averages, ratio - to - trend, ratio - to - moving average, and link relative methods.	**UNIT-IV** Index Number; Meaning, types, and uses; Methods of Constructing price and quantity indices (simple and aggregate); Tests of adequacy; Chain - base index numbers; Base shifting, splicing and deflating; Problems in constructing index numbers; Consumer price index. Analysis of Time Series : Cause of Variation in time series data; Components of a time series; Decomposition - Additive and Multiplicative models; Determination of trend - Moving Averages Method and method of least squares (including linear, second degree, parabolic, and exponential trend); Computation of seasonal indices by simple averages, ratio - to - trend, ratio - to - moving average, and link relative methods.	
UNIT-V Forecasting and Methods : Forcasting - concept, types and importance; General approach to forecasting; Methods of forecasting; demand; Industry Vs Company sales forecast; Factors affecting company sales. Theory of Probability : as a concept; The three approaches to defining probability; Addition and multiplication laws of probability; Conditional Probability; Bayes' Theorem; Expectation and Variance of a random variable.	**UNIT-V** Forecasting and Methods : Forcasting - concept, types and importance; General approach to forecasting; Methods of forecasting; demand; Industry Vs Company sales forecast; Factors affecting company sales. Theory of Probability : as a concept; The three approaches to defining probability; Addition and multiplication laws of probability; Conditional Probability; Bayes' Theorem; Expectation and Variance of a random variable.	

SUGGESTED READINGS :

1. S.M.Shukla, Shahitya Bhawan,Agara.
2. Statistical Analysis, Dr. Rajesh Shukla and J.B. Agrawal

Group - III PAPER - II

FUNDAMENTALS OF ENTREPRENEURSHIP

OBJECTIVE

It Provides exposure to the students to the entrepreneurial culture and industrial growth so as to preparing them to set up and manage their own small units.

Current Syllabus	Proposed Syllabus	Remark
UNIT-I Introduction : The entrepreneur; Definition; Emergence of entrepreneurial class; Theories of entrepreneurship; Role of socio - economic environment; Characteri-stics.	**UNIT-I** Introduction : The entrepreneur; Definition; Emergence of entrepreneurial class; Theories of entrepreneurship; Role of socio - economic environment; Characteri-stics.	
UNIT-II Promotion of a Venture; Opportunities analysis; External environmental analysis economic, social and technological; Competitive factors; Legal requirements for establishment of a new unit, and raising of funds; Venture capital sources and documentation required.	**UNIT-II** Promotion of a Venture; Opportunities analysis; External environmental analysis economic, social and technological; Competitive factors; Legal requirements for establishment of a new unit, and raising of funds; Venture capital sources and documentation required.	
UNIT-III Entrepreneurial Behavior : Innovation and entrepreneur; Entrepreneurial behavior and Psycho - Theories, Social responsibility.	**UNIT-III** Entrepreneurial Behavior : Innovation and entrepreneur; Entrepreneurial behavior and Psycho - Theories, Social responsibility.	
UNIT-IV Entrepreneurial Development Programs (EDP) : EDP, their role, relevance, and achievements; Role of Government in organizing EDPs; Critical evaluation.	**UNIT-IV** Entrepreneurial Development Programs (EDP) : EDP, their role, relevance, and achievements; Role of Government in organizing EDPs; Critical evaluation.	
UNIT-V Role of Entrepreneur : Role of an entrepreneur in economic growth as an innovator, generation of employment opportunities, complementing and supplementing economic growth, bringing about social stability and balanced regional development of industries; Role in export promotion and import substitution, forex earnings, and augmenting and meeting local demand.	**UNIT-V** Role of Entrepreneur : Role of an entrepreneur in economic growth as an innovator, generation of employment opportunities, complementing and supplementing economic growth, bringing about social stability and balanced regional development of industries; Role in export promotion and import substitution, forex earnings, and augmenting and meeting local demand.	

SUGGESTED READINGS :

3. Srivastava S.B. : A Practical Guide to industrial Entrepreneurs; Sultan Chand and Sons, New Delhi.
4. Tandon B.C. : Environment and Entrepreneur; Chugh Publications, Allahabad.
5. Prasanna Chandra : Project Preparation, Appraisal, Implementation; Tata McGrow Hill, New Delhi.

COMPUTER APPLICATION

MARKS DISTRIBUTION PAPER - I

INTERNET APPLICATION & E-COMMERCE

Current Syllabus	Proposed Syllabus	Remark
UNIT - I Introduction to HTML **Introduction to Internet & World Wide Web** **Internet-** Indian and the Internet, Profile of Indian Surfer, History of the Internet, Indian Internet History, Technological Foundation of Internet, Application in Internet Environment, Movement of files/data between two computers, TCP/IP, IP Addresses, Domain Name System, Domain Name Services, allocation of second level domains in India, Internet & India. **World Wide Web (WWW) -** WWW consortium browsing and Information retrieval, exploring the WWW, address : URL.	**UNIT - I Introduction to HTML** **Introduction to Internet & World Wide Web** **Internet-** Indian and the Internet, Profile of Indian Surfer, History of the Internet, Indian Internet History, Technological Foundation of Internet, Application in Internet Environment, Movement of files/data between two computers, TCP/IP, IP Addresses, Domain Name System, Domain Name Services, allocation of second level domains in India, Internet & India. **World Wide Web (WWW) -** WWW consortium browsing and Information retrieval, exploring the WWW, address : URL.	
UNIT - II **Introduction to HTML & Designing Web Page** Concept to Website, Web standards, What is HTML, HTML documents / file, HTML Editor, Explanation of the structure of Homepage, Elements in HTML Documents, HTML Elements, HTML Tags & Basic HTML Tags, viewing the source of web page & downloading the web page source, Extensible HTML, CSS, XML, XSL. **HTML Document Structure - Head Section** IIIustration of Document Structure, Mark-up elements within the Head : BASE, ISINDEX, LINK, META, TITLE, SCRIPT.	**UNIT - II** **Introduction to HTML & Designing Web Page** Concept to Website, Web standards, What is HTML, HTML documents / file, HTML Editor, Explanation of the structure of Homepage, Elements in HTML Documents, HTML Elements, HTML Tags & Basic HTML Tags, viewing the source of web page & downloading the web page source, Extensible HTML, CSS, XML, XSL. **HTML Document Structure - Head Section** IIIustration of Document Structure, Mark-up elements within the Head : BASE, ISINDEX, LINK, META, TITLE, SCRIPT.	
UNIT - III **HTML Document Structure & HTML Forms** **Body Section -** IIIustration, Body elements,	**UNIT - III** **HTML Document Structure & HTML Forms** **Body Section -** IIIustration, Body	

Background, TEXT BODY element, ADDRESS, BLOCKQUOTE, TABLE, COMMENTS, CHARACTER Emphasis modes, Logical styles, Physical Styles, FONT, BASEFONT and CENTER. **Image, Internal and External Linking Between Web Pages -** IMG Elements, HEIGHT, WIDTH, ALT, ALLIGN, IIIustration of IMG elements, Hypertext Anchors, NAME attribute in Anchor. **HTML Forms -** Forms, Form tag, Form Structure, Input types, Drop down menu or select menu tags, image buttons.	elements, Background, TEXT BODY element, ADDRESS, BLOCKQUOTE, TABLE, COMMENTS, CHARACTER Emphasis modes, Logical styles, Physical Styles, FONT, BASEFONT and CENTER. **Image, Internal and External Linking Between Web Pages -** IMG Elements, HEIGHT, WIDTH, ALT, ALLIGN, IIIustration of IMG elements, Hypertext Anchors, NAME attribute in Anchor. **HTML Forms -** Forms, Form tag, Form Structure, Input types, Drop down menu or select menu tags, image buttons.	
UNIT - IV **Introduction to E-Commerce & Business Strategy in Electronic Age** **E-Commerce -** Scope & definition of language, E-commerce & Trade cycle, E-markets, E-Data Interchange, Internet Commerce, E-commerce in Perspective. **Business Strategy -** The value chain, competitive advantage, business strategy, Case-Study : e-commerce in Passenger Air Transport.	**UNIT - IV** **Introduction to E-Commerce & Business Strategy in Electronic Age** **E-Commerce -** Scope & definition of language, E-commerce & Trade cycle, E-markets, E-Data Interchange, Internet Commerce, E-commerce in Perspective. **Business Strategy -** The value chain, competitive advantage, business strategy, Case-Study : e-commerce in Passenger Air Transport.	
UNIT - V **B to B e-Commerce & B to C e-Commerce** **Business to Business e-Commerce -** Inter-organisational Transactions, Electronic markets, Electronic Data Interchange (EDI) - the nuts and bolts, EDI and business, Inter roganizational e-Commerce. **Business to Consumer e-Commerce -** Consumer trade transactions. **The elements of e-Commerce -** elements, e-visibility, e-shop online payments, delivering the goods, after sales service, Internet e-Commerce Security A web site evaluation model. **e-Business -** Introduction, Internet Bookshops, Software Supplies & support, e-newspapers, internet banking, virtual auctions, online share dealing, gambling on net, e-diversity.	**UNIT - V** **B to B e-Commerce & B to C e-Commerce** **Business to Business e-Commerce -** Inter-organisational Transactions, Electronic markets, Electronic Data Interchange (EDI) - the nuts and bolts, EDI and business, Inter roganizational e-Commerce. **Business to Consumer e-Commerce -** Consumer trade transactions. **The elements of e-Commerce -** elements, e-visibility, e-shop online payments, delivering the goods, after sales service, Internet e-Commerce Security A web site evaluation model. **e-Business -** Introduction, Internet Bookshops, Software Supplies & support, e-newspapers, internet banking, virtual auctions, online share dealing, gambling on net, e-diversity.	

COMPUTER APPLICATION

PAPER - II

RELATIONAL DATABASE MANAGEMENT SYSTEM

Current Syllabus	Proposed Syllabus	Remark
UNIT - I **DATABASE SYSTEM CONCEPT & ENTITY RELATIONSHIP MODEL :** Operational data, why database, data independence, an Architecture for a Data base system, DDL & DML, Data Dictionary, Data Structures and Corresponding Operators, Data Models, The Relational approach, The Network approach, DBMS storage structure and access method. Entity-Relationship model as a tool for conceptual design-entities attributes and relationaships. ER diagrams; strong and weak entities Generatization; Specialization and aggregation. Converting and ER-model into relational.	**UNIT - I** **DATABASE SYSTEM CONCEPT & ENTITY RELATIONSHIP MODEL :** Operational data, why database, data independence, an Architecture for a Data base system, DDL & DML, Data Dictionary, Data Structures and Corresponding Operators, Data Models, The Relational approach, The Network approach, DBMS storage structure and access method. Entity-Relationship model as a tool for conceptual design-entities attributes and relationaships. ER diagrams; strong and weak entities Generatization; Specialization and aggregation. Converting and ER-model into relational.	
UNIT - II **Relational Database Management System** **Relational Model** : Structure to Relational Database, Relational Algebra, The Domain Relational, Calculus, Extended Relational- Algebra Operation, Modification of database, Views. **Relational Database Design :-** Pitfalls in Relational Database Design, Decomposition, Functional Dependencies, Normalization : INF, 2NF, BCNF, 3NF, 4NF, 5NF operations not involving cursors, Operations involving cursors, dynamic statements, security & intergrity security specification in SQL.	**UNIT - II** **Relational Database Management System** **Relational Model** : Structure to Relational Database, Relational Algebra, The Domain Relational, Calculus, Extended Relational-Algebra Operation, Modification of database, Views. **Relational Database Design :-** Pitfalls in Relational Database Design, Decomposition, Functional Dependencies, Normalization : INF, 2NF, BCNF, 3NF, 4NF, 5NF operations not involving cursors, Operations involving cursors, dynamic statements, security & intergrity security specification in SQL.	

UNIT - III **RELATIONAL DATABAWSE DESIGN :** Relational Algebra, Traditional Set Operations, Attributes Names for Derived Relations, special relational operations, further normalization, functional dependence. First, second and third normal forms, BCNF Forms, relations with more than one candidate key, Good and bad decompositions, fourth normal form, fifth normal form, De-normalization.	**UNIT - III** **RELATIONAL DATABAWSE DESIGN :** Relational Algebra, Traditional Set Operations, Attributes Names for Derived Relations, special relational operations, further normalization, functional dependence. First, second and third normal forms, BCNF Forms, relations with more than one candidate key, Good and bad decompositions, fourth normal form, fifth normal form, De-normalization.	
UNIT - IV **Introduction to RDBMS Software - Oracle** **(a) Introduction :** Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL * PLUS. (b) **DDL and DML :** Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views : What is Views, Create, Drop and Retrieving data from views.	**UNIT - IV** **Introduction to RDBMS Software - Oracle** **(a) Introduction :** Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL * PLUS. (b) **DDL and DML :** Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views : What is Views, Create, Drop and Retrieving data from views.	
UNIT - V **(a) Security :** Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges. **(b) PL/SQL :** Block Structure in PL/SQL, Variable and constants, Running PL/SQL in the SQL*PLUS, Data base Access with PL/SQL, Exception Handling, Record Data type in PL/S!L, Triggers in PL/SQL.	**UNIT - V** **(a) Security :** Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges. **(b) PL/SQL :** Block Structure in PL/SQL, Variable and constants, Running PL/SQL in the SQL*PLUS, Data base Access with PL/SQL, Exception Handling, Record Data type in PL/S!L, Triggers in PL/SQL.	

[illegible]

SYLLABUS
B.COM. PART-III

GROUPING OF SUBJECTS AND SCHEME OF EXAMINATION

Subject		Max.	Min.
Foundation Course			
I. Hindi Language		**75**	**26**
II. English Language		**75**	**26**
Compulsory Groups			
Group-I			
I. Income Tax	**75**	**150**	**50**
II. Auditing	**75**		
Group-II			
I. Indirect Taxes	**75**	**150**	**50**
II. Management Accounting	**75**		
Group-III Optional			
Option Group A (Finance Area)			
I. Financial Management	**75**	**150**	**50**
II. Financial Market Operations	**75**		
Option Group B (Marketing Area)			
I. Principles of Marketing	**75**	**150**	**50**
II. International Marketing	**75**		
Option Group C (Commercial Area)			
I. Information Technology and its Applications in Business	**75**	**150**	**50**
II. Essential of e-Commerce	**75**		
Option Group D (Money Banking & Insurance Area)			
I. Fundamental of Insurance	**75**	**150**	**50**
II. Money & Banking System	**75**		

B.COM PART III

COMPULSORY CORE COURSE

TITLE OF PAPER - Group-I - PAPER – I - INCOME TAX

OBJECTIVE

It enables the students to know the basics of Income Tax Act and its implications.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Basic Concepts : Income, agricultural Income, casual income, assessment year, previous year, gross total income, total income, person. Basis of charge : Scope of total income, residence and tax liability, income which does not form part of total income.	UNIT-I Basic Concepts : Income, agricultural Income, casual income, assessment year, previous year, gross total income, total income, person. Basis of charge : Scope of total income, residence and tax liability, income which does not form part of total income.	No change
UNIT-II Heads of Income : Salaries; Income from house property.	UNIT-II Heads of Income : Salaries; Income from house property.	No change
UNIT-III Profit and gains of business or profession, including provisions relating to specific business; Capital gains, Income from other sources.	UNIT-III Profit and gains of business or profession, including provisions relating to specific business; Capital gains, Income from other sources.	No change
UNIT-IV Computation of Tax Liabilty : Set-off and carry forward of losses; Deduction from gross total income.Aggregation of income; Computation of total income and tax liability of and individual, H.U.F., and firm.	UNIT-IV Computation of Tax Liabilty : Set-off and carry forward of losses; Deduction from gross total income. Aggregation of income; Computation of total income and tax liability of individual and & HUF,	Omitted firm.
UNIT-V Tax Management : Tax deduction at source; Advance payment of tax; Assessment procedures; Tax planning for individuals. Tax evasion, Tax Avoidance and Tax planning.Tax	UNIT-V Tax Management : Tax deduction at source; Advance payment of tax; Assessment procedures; Tax planning for individuals. Tax evasion, Tax Avoidance and Tax planning.Tax	Addition of pratical work relating important

Administration : Authorities, appeals, penalties.	Administration : Authorities, appeals, penalties. Preparation of return of income -Manually and on line	forms.

Suggested Reading :

1. Singhania V.K. : Students Guide to Income Tax; Taxmann, Delhi.
2. Prasad, Bhagwati : Income Tax Law & Prectice; Wily Publication, New Delhi.
3. Mehrotra H.C. : Income Tax Law & Accounts : Sahitya Bhawan, Agra.
4. Girish Ahuja and Ravi Gupta : Systematic approach to income tax : Sahitya Bhawan Publications, New Delhi.
5. Chandra Mahesh and Shukla D.C. : Income Tax Law and Practice; Pragati Publications, New Delhi.
6. R.K. Jain : Income Tax & Law (Hindi & English) Shahitya Bhavan, Publication, Agra

B.COM PART III

COMPULSORY CORE COURSE PAPER – II

Group-II - PAPER – I - **INDIRECT TAXES WITH GST**

OBJECTIVE

This course aims at imparting basic knowlege about GST and apply the provisions of GST law to various situations.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Central Excise : Nature and scope of Central Excise; Important terms and definitions under the Central Excise Act; General procedures of central excise; Clearance and excisable goods; Concession to small scale industry under Central Excise Act.	UNIT-I Customs : Role of customs in international trade; Important terms and definitions goods; Duty; Exporter; Foreign going vessel; Aircraft goods; Import; Import Manifest; Importer; Prohibited goods; Shipping bill; Store; Bill of lading; Export manifest; Letter of credit; Kinds of duties - basic, auxillary, additional or coutervailing; Basics of levyadvalorem,specific duties; Prohibition of export and import of goods, and provisions regarding notified & specified goods; Import of goods - Free import and restricted import; Type of import - import of cargo, import of personal baggage, import ofstores.Clearance Procedure - For home consumption, for warehousing for re-export; Clearance procedure for import by post; Prohibited exports; Canalised exports; Export against licensing; Type of exports export of cargo, export of baggage; Export of cargo by land, sea, and air routes.	Due to – Constitutional amendment (change in tax structure)
UNIT-II State Excise, CENVAT. Detail study of State Excise during calculation of Tax.	UNIT-II State Excise, CENVAT. Detail study of State Excise during calculation of Tax.	
UNIT-III Customs : Role of customs in international	UNIT-III INTRODUCTION TO GOODS AND	

trade; Important terms and definitions goods; Duty; Exporter; Foreign going vessel; Aircraft goods; Import; Import Manifest; Importer; Prohibited goods; Shipping bill; Store; Bill of lading; Export manifest; Letter of credit; Kinds of duties - basic, auxillary, additional or coutervailing; Basics of levyadvalorem,specific duties; Prohibition of export and import of goods, and provisions regarding notified & specified goods; Import of goods - Free import and restricted import; Type of import - import of cargo, import of personal baggage, import ofstores.Clearance Procedure - For home consumption, for warehousing for re-export; Clearance procedure for import by post; Prohibited exports; Canalised exports; Export against licensing; Type of exports export of cargo, export of baggage; Export of cargo by land, sea, and air routes.	SERVICES TAX (GST) -Objectives and basic scheme of GST, Meaning – Salient features of GST – Subsuming of taxes –Benefits of implementing GST , Structure of GST (Dual Model) – Central GST – State / Union Territory GST – Integrated GST GST Council: Structures Power and Functions. Provisions fro amendments.	
UNIT-IV Central Sales Tax : Important terms and difinitions under the Central Sales Tax Act 1956 - Dealer, declared good, place of business, sale, sale price, turnover, year, appropriate authority ; Nature and scope of Central Sales Tax Act; Provisions relating to inter-state sales; Sales in side a state; Sales/purchase in the course of imports and exports out of India. Registration of dealers and procedure thereof; Rate of tax; Exemption of subsequent sales; Determination of	UNIT-IV Registration under GST: Procedure for registration, Persons liable for registration, Persons not liable for registration, Compulsory registration. Exempted goods and services - Rates of GST. Procedure relating to Levy: (CGST & SGST): Scope of supply, Tax liability on Mixed and Composite supply, Time of supply of goods and services, Value of taxable supply. Eway-Billing	

turnover.		
UNIT-V State Commercial Tax (Chhattisgarh) Definition, Registration, Tax liability, Procedure of Computation & Collection of Tax, Penalties & Prosicution calculation of Tax. VAT Preliminary Knowledge.	UNIT-V ASSESSMENT AND RETURNS - Input text Credit: Eligibility, Apportionment, Inputs on capital goods, Distribution of credit by Input Service Distributor (ISD) Furnishing details of outward supplies and inward supplies, First return, Annual return and Final return.	

Suggested Reading :

1. Deloitte: GST Era Beckons, Wolters Kluwer.
2. Madhukar N Hiregange: Goods and Services Tax, Wolters Kluwer.
3. All About GST: V.S Datey - Taxman's.
4. Guide to GST: CA. Rajat Mohan,
5. Goods & Services Tax – Indian Journey: N.K. Gupta & Sunnania Batia, Barat's Publication
6. Goods & Services Tax – CA. Rajat Mohan,
7. Goods & Services Tax: Dr. Sanjiv Agrawal & CA. Sanjeev Malhotra.
8. GST - Law & Practice: Dr. B.G. Bhaskara, Manjunath. N & Naveen Kumar IM,
9. Understanding GST : Kamal Garg, Barat's Publication

B.COM PART III

COMPULSORY CORE COURSE
TITLE OF PAPER - Group-II - PAPER – II -MANAGEMENT ACCOUNTING
OBJECTIVE
This course provides the students an understanding of the application of accounting techniques for management.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Management Accounting : Meaning, nature, scope, and functions of management Accounting ; Role of managment accounting in decision making; Management accounting vs financial accounting; Tools and techniques of management accounting ;Financial statement; Objectives and methods of financial statements analysis; Ratio analysis; Classification of ratios - Profitability ratios, turnover ratios, liquidity ratios,turnover ratios; Advantages of ratio analysis; Limitations of accounting ratios.	UNIT-I Management Accounting : Meaning, nature, scope, and functions of management Accounting ; Role of managment accounting in decision making; Management accounting vs financial accounting; Tools and techniques of management accounting ;Financial statement; Objectives and methods of financial statements analysis; Ratio analysis; Classification of ratios - Profitability ratios, turnover ratios, liquidity ratios,turnover ratios; Advantages of ratio analysis; Limitations of accounting ratios.	No change
UNIT-II Funds Flow Statement as per Indian Accounting Standard 3, cash flow statement.	UNIT-II Funds Flow Statement as per Indian Accounting Standard 3, cash flow statement.	
UNIT-III Absorption and Marginal Costing : Marginal and differential costing as a tool for decision making - make or buy; Change of product mix; Pricing, Break-even analysis; Exploring new markets; Shutdown decisions.	UNIT-III Absorption and Marginal Costing : Marginal and differential costing as a tool for decision making - make or buy; Change of product mix; Pricing, Break-even analysis; Exploring new markets; Shutdown decisions.	
UNIT-IV Budgeting for profit Planning and control : Meaning of budget and budgetary control;Objectives; Merits and limitations; Types of budgets; Fixed and	UNIT-IV Budgeting for profit Planning and control : Meaning of budget and budgetary control;Objectives; Merits and limitations; Types of budgets; Fixed and	

flexible budgeting; Control ratios; Zero base budgeting; Responsibility accounting; Performance budgeting.	flexible budgeting; Control ratios; Zero base budgeting; Responsibility accounting; Performance budgeting.	
UNIT-V Standard Costing and Variance Analysis : Meaning of standard cost and standard costing; Advantages and application; Variance analysis - material; Labour and overhead (Two-way analysis); Variances.	UNIT-V Standard Costing and Variance Analysis : Meaning of standard cost and standard costing; Advantages and application; Variance analysis - material; Labour and overhead (Two-way analysis); Variances.	

Suggested Reading :

1. Arora M.N. : Cost Accounting - Principles and Practice, Vikas, New Delhi.
2. Jain S.P. & Narang K.L. : Cost Accounting; Kalyani, New Delhi.
3. Anthony, Rogert & Reece, at al : Principles of Management Accounting; Richard Irwin Inc.
4. Horngren, Charles, Foster and Datar et al : Cost Accounting - A Managerial Emphasis;Prentice Hall, New Delhi.
5. Khan M.Y. and Jain P.K. : Management Accounting : Tata McGraw Hill, New Delhi.
6. Kaplan R.S. and Atkonson A.A. : Advanced Management Accounting; Printice Hall India,New Delhi.
7. J.K. Agrawal & R.K. Agrawal : Jaipur (English & Hindi).
8. Dr. M.R. Agrawal : Minakshi Prakashan Meruth.
9. Dr. S.P. Gupta - Agra (Hindi & English).

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B.COM PART III

COMPULSORY CORE COURSE
TITLE OF PAPER - Group-I - PAPER – II - AUDITING
OBJECTIVE
This course aims at imparting knowlege about the principles and methods of auditing and their applications.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Introduction : Meaning and objectives of auditing; Types of audit; Internal audit.Audit Process : Audit programme; Audit note books; Working papers and evidences.	UNIT-I Introduction : Meaning and objectives of auditing; Types of audit; Internal audit.Audit Process : Audit programme; Audit note books; Working papers and evidences.	No change
UNIT-II Internal Check System : Internal control. Audit Procedure : Vouching : Verification of assets and liabilities.	UNIT-II Internal Check System : Internal control. Audit Procedure : Vouching : Verification of assets and liabilities.	No change
UNIT-III Audit of Limited Companies : a. Company auditor - Appointment, powers, duties, and liabilities. b. Divisible profits and dividend. c. Auditor's report - standard report and qualified report. d. Special audit of banking companies. e. Audit of educational institutions. f. Audit of Insurance companies.	UNIT-III Audit of Limited Companies : a. Company auditor –Qualification, Appointment, powers, duties, Resignation and liabilities. b. Divisible profits and dividend. c. Auditor's report - standard report and qualified report. d. Special audit of banking companies. e. Audit of educational institutions. f. Audit of Insurance companies.	Added Qualification and Resignation of company auditor
UNIT-IV Investigation : Investigation; Audit of non profit companies, a. Where fraud is suspected, and b. When a running a business is proposed. c. Varifications & Valuation of assets.	UNIT-IV Investigation : Investigation; Audit of non profit companies, a. Where fraud is suspected, and b. When a running a business is proposed. c. Varifications & Valuation of assets.	No change

UNIT-V Recent Trends in Auditing : Nature and significance of cost audit; Tax audit; Management audit. Company auditing - Qualification, Appointment, Resignation and liabilities.	UNIT-V Recent Trends in Auditing : Nature and significance of cost audit; Tax audit; Management audit .	Omitted company auditing - Qualification , Appointment , Resignation and Liabilities and merge it in II unit

Suggested Reading :

1. Gupta KaPal : Contemporary Auditing : Tata Mcgraw Hill, New Delhi.
2. Tandon B.N. : Principles of Auditing : S. Chand & Co., New Delhi.
3. Pagare Dinkar : Principles and Practice of Auditing : Sultan Chand, New Delhi.
4. Sharma T.R. : Auditing Principles and Problems, Sahitya Bhawan, Agra.
5. Shukla S.M. : Auditing - Shahitya Bhavan, Agra, (Hindi)
6. Batliboy : Auditing.

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B.COM PART III

OPTIONAL GROUP A (Finance Area)

TITLE OF PAPER - FINANCIAL MANAGEMENT PAPER - I

OBJECTIVE

The objective of this course is to help students understand the conceptual framework of financial management.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Financial Management : Financial goals; Profit vs wealth maximization; Financial functions-investment, financing, and dividend decisions; Financial planning.	UNIT-I Financial Management : Financial goals; Profit vs wealth maximization; Financial functions-investment, financing, and dividend decisions; Financial planning.	No change
UNIT-II Capital Budgeting : Nature of investment decisions, Investment evaluation criteria, payback period, accounting rate of return, net present value, internal rate of return profitability index; NPV and IRR comparison.	UNIT-II Capital Budgeting : Nature of investment decisions, Investment evaluation criteria, payback period, accounting rate of return, net present value, internal rate of return profitability index; NPV and IRR comparison.	
UNIT-III Cost of Capital : Significance of cost of capital; Calculating cost of debt; Preference shares, equity capital, and retained earnings; Combined (weighted) cost of capital. Operating and financial Leverage : Their measure; Effects on profit, analyzing alternate financial plans, combined financial and operating leverage.	UNIT-III Cost of Capital : Significance of cost of capital; Calculating cost of debt; Preference shares, equity capital, and retained earnings; Combined (weighted) cost of capital. Operating and financial Leverage : Their measure; Effects on profit, analyzing alternate financial plans, combined financial and operating leverage.	
UNIT-IV Capital Structure : Theories and determinates. Dividend Policies : Issues in dividend policies; Walter's model; Gordon's model; M.M. Hypothesis, forms of dividends and stability in dividends, determinats.	UNIT-IV Capital Structure : Theories and determinates. Dividend Policies : Issues in dividend policies; Walter's model; Gordon's model; M.M. Hypothesis, forms of dividends and stability in dividends, determinats.	
UNIT-V Management of Working Capital : Nature of	UNIT-V Management of Working Capital : Nature of	

working capital, significance of working capital, operating cycle and factors determining of working capital requirements, Management of working capital - cash, recevables, and inventories.	working capital, significance of working capital, operating cycle and factors determining of working capital requirements, Management of working capital - cash, recevables, and inventories.	

Suggested Reading :

1. Van Home J.C. : Financial Management and Policy; Prentice Hall of India, New Delhi.
2. Khan M.Y. and Jain P.K. : Financial Management, Text and Problems; Tata McGrow Hill, New Delhi.
3. Prasanna Chandra L Financial Management Theory and practice; Tata McGrow Hill, New Delhi.
4. Pandey I.M. : Financial Management Vikas Publishing Hous, New Delhi.
5. Brigham E.F. Gapenski L.C., and Ehrhardt M.C. : Financial Management - Theory and Practice; Harcourt College Publishers, Singapore.
6. Bhalla V.K. : Modern Working Capital Management, Anmol Pub. Delhi.

B.COM PART III

OPTIONAL GROUP A (Finance Area)
TITLE OF PAPER - FINANCIAL MARKET OPERATIONS PAPER – II
OBJECTIVE
This course aims at acquainting the students with the working of financial markets in India.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Money Market : Indian money market's composition and structure; (a) Acceptance houses, (b) Discount houses and (c) Call money market; Recent trends in Indian money market.	UNIT-I Money Market : Indian money market's composition and structure; (a) Acceptance houses, (b) Discount houses and (c) Call money market; Recent trends in Indian money market.	No change
UNIT-II Capital Market : Security market - (a) New issue market, (b) Secondary market; Functions and role of stock exchange; listing procedure and legal requirements; Public issue - pricing and marketing; Stock exchanges - National Stock Exchange and over the counter exchanges.	UNIT-II Capital Market : Security market - (a) New issue market, (b) Secondary market; Functions and role of stock exchange; listing procedure and legal requirements; Public issue - pricing and marketing; Stock exchanges - National Stock Exchange ,Bombay stock exchange	Omitted over the counter exchanges and added Bombay stock exchange
UNIT-III Securities contract and Regulations Act : Main provgisions. Investors Protection : Grievancesconcerning stock exchange dealings and their removal; Grievance cells in stock exchanges; SEBI; Company Law Board; Press; Rmedy through courts.	UNIT-III Securities contract and Regulations Act : Main provgisions. Investors Protection : Grievancesconcerning stock exchange dealings and their removal; Grievance cells in stock exchanges; SEBI; Company Law Board; Press; Rmedy through courts.	No change
UNIT-IV Functionaries on Stock Exchanges : Brokers, sub brokers, market makers, jobbers,portfolio consultants, institutional investors, and NRIs.	UNIT-IV Functionaries on Stock Exchanges : Brokers, sub brokers, market makers, jobbers,portfolio consultants, institutional investors, and NRIs.	No change
UNIT-V Financial Services : Marchant banking -	UNIT-V Financial Services : Marchant banking -	No change

Functions and roles; SEBI guide-lines; Credit rating - concept, functions, and types.	Functions and roles; SEBI guide-lines; Credit rating - concept, functions, and types.	

Suggested Reading :

1. Chandler M.V. and Goldfeld S.M. : Economics of money and Banking, Harper and Row, New Delhi.
2. Gupta Suraj B. Monetary Economics; s. chand and Co. New Delhi.
3. Gupta Suraj B. Monetary Planning in India; Oxford, Delhi.
4. Bhole L.M. : Financial Markets and Institutions : Tata McGrow Hill, New Delhi.
5. Hooda R.P. : Indian Securities Market - Investors view point; Excell Books, New Delhi.
6. R.B.I. : Functions and Working.
7. R.B.I. : Report in Currency and Finance.
8. R.B.I. : Report of the Committee to Review the working of the Monetary system Chakravarty committee.
9. R.B.I. : Report of the Committee on the Financial System, Narsimham Committee.

B.COM PART III

OPTIONAL GROUP B (Marketing Area)

TITLE OF PAPER - PRINCIPLES OF MARKETING PAPER – I

OBJECTIVE

The Objective of this course is to help students to understand the concept of marketingand its applications.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Introduction : Nature and scope of marketing; Importnace of marketing as a business function, and in the economy; Marketing concepts - traditional and modern; Selling vs. marketing; Marketing mix; Marketing environment.	UNIT-I Introduction : Nature and scope of marketing; Importnace of marketing as a business function, and in the economy; Marketing concepts - traditional and modern; Selling vs. marketing; Marketing mix; Marketing environment.	No change
UNIT-II Consumer Behaviour and Market Segmentation : Nature, scope, and significance of consumer behaviour; Market segmentation - concept and importance; Bases for market segmentation.	UNIT-II Consumer Behaviour and Market Segmentation : Nature, scope, and significance of consumer behaviour; Market segmentation - concept and importance; Bases for market segmentation.	No change
UNIT-III Product : Concept of product, consumer, and industrial goods; Product planning and development; Packaging role and functions; Brand name and trade mark; after sales service; Product life cycle concept. Price : Importance of price in the marketing mix; Factors affecting price of a product/ Service ; Discounts and rebates.	UNIT-III Product : Concept of product, consumer, and industrial goods; Product planning and development; Packaging role and functions; Brand name and trade mark; after sales service; Product life cycle concept. Price : Importance of price in the marketing mix; Factors affecting price of a product/service; Discounts and rebates.	No change
UNIT-IV Distributions Channels and Physical Distribution; Distribution channels - Concept and role; Types of distribution channels. Factors affecting	UNIT-IV Distributions Channels and Physical Distribution; Distribution channels - Concept and role; Types of distribution channels. Factors affecting choice of a	No change

choice of a distribution channel;Retailer and holesaler; Physical distribution of goods; Transportation, Warehousing, Inverntory control; Order processing.	distribution channel; Retailer and holesaler; Physical distribution of goods; Transportation, Warehousing, Inverntory control; Order processing.	
UNIT-V Promotion : Methods of promotion; Optimum promotion mix; Advertising media – their ralative merits and limitations; Characteristics of an effective advertisement; Personal selling; Selling as a career; Classification of successful sales person; Functions of salesman.	UNIT-V Promotion : Methods of promotion; Optimum promotion mix; Advertising media – their ralative merits and limitations; Characteristics of an effective advertisement; Personal selling; Selling as a career; Classification of successful sales person; Functions of salesman. Recent development in marketing –social marketing, online marketing, Direct marketing , Services marketing, Green marketing.	Added Recent trends in marketing

Suggested Reading :

1. Philip Kotler : Marketing Management Englewood Cliffs; Prentice Hall, N.J.
2. William M. Pride and O.C. Ferrell : Marketing : Houghton - Mifflin Boston.
3. Stanton W.J. Etzel Michael J., and Walker Bruce J. Fundamentals of Marketing; McGraw Hill, New York.
4. Lamb Charies W., Hair Joseph F. and McDaniel Carl : Principles of Marketing; South- Western-Publishing, Cincinnati, Ohio.
5. Cravens David W. Hills Gerald E., Woodruff Robert B : Marketing management : Richard D. Inwin, Homewood Illinois.
6. Kotler Philip and Armstrong Gary : Principles of Marketing; Prentice Hall of India, New Delhi.
7. Dr. R.C. Agrawal, Agra.
8. Dr. S.C. Saxena Agra.
9. Dr. S.K. Jain, Hindi Granth Academi. M.P.
10. Dr. N.C. jain

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B.COM PART III

OPTIONAL GROUP B (Marketing Area)
TITLE OF PAPER - INTERNATIONAL MARKETING PAPER – II
OBJECTIVE
This course aims at acquainting student with the operations of marketing in international environment.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I International Marketing : Nature, definiton, and scope of international marketing; Domestic marketing vs. International marketing; International environment external and internal.	UNIT-I International Marketing : Nature, definiton, and scope of international marketing; Domestic marketing vs. International marketing; International environment external and internal.	No change
UNIT-II Identifying and Selecting Foreign Market : Foreign market entry mode decisions. Product Planning for international Market : Product designing; Standardization vs. adaptation ; Branding and packaging; Labeling and quality issues; After sales service. International Pricing : Factors Influenceing International price; Pricing process-process and methods; International price quotation and payment terms.	UNIT-II Identifying and Selecting Foreign Market : Foreign market entry mode decisions. Product Planning for international Market : Product designing; Standardization vs. adaptation ; Branding and packaging; Labeling and quality issues; After sales service. International Pricing : Factors Influenceing International price; Pricing process-process and methods; International price quotation and payment terms.	No change
UNIT-III Promotion of Product/Services Abroad : Methods of international promotion; Direct mail and sales literature; Advertising; Personal selling; Trade fairs and exhibitions.	UNIT-III Promotion of Product/Services Abroad : Methods of international promotion; Direct mail and sales literature; Advertising; Personal selling; Trade fairs and exhibitions.	No change
UNIT-IV International Distribution : Distribution channels and logistics decisions; Selection and appointment of foreign sales agents.	UNIT-IV International Distribution : Distribution channels and logistics decisions; Selection and appointment of foreign sales agents.	No change
UNIT-V Export Policy and Practices in India : Exim policy - an overview; Trends in India's foreign trade; Steps in	UNIT-V Export Policy and Practices in India : Exim policy - an overview; Trends in India's foreign trade;	Added Marketing

starting an export business; Product selection; Market selection; Export pricing; Export finance; Documentation; Export procedures; Export assistance and incentives.	Steps in starting an export business; Product selection; Market selection; Export pricing; Export finance; Documentation; Export procedures; Export assistance and incentives. Marketing Control Process	Control Process

Suggested Reading :

1. Bhattacharya R.L. and Varshney B. : International Mrketing Management; Sultan Chand, New Delhi.
2. Bhattacharya B. : Export Marketing Strategles for Success; Global Press, New Delhi.
3. Keegan W.J. : Multinational Marketing Management; Prentice Hall, New Delhi.
4. Kriplani V. : International marketing; Prentice Hall New Delhi.
5. Taggart J.H. and Moder Mott. M.C. : The Essence of International Business; Prentice Hall New Delhi.
6. Kotler Phillip : Principles of Marketing; Prentice Hall New Delhi.
7. Fayer Weather John : International Marketing; Prentice Hall N.J.
8. Caterora P.M. and Keavenay S.M. : Marketing an international Perspective; Erwin Homewood, Illinois.
9. Paliwala, Stanely J. The Essence of International marketing; Prentice Hall, New Delhi.

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B.COM PART III

OPTIONAL GROUP C (Commercial Area)
TITLE OF PAPER - INFORMATION TECHNOLOGY AND ITS APPLICATIONS IN BUSINESS
PAPER – I
OBJECTIVE
The objective of the course is to famillatize the students with the innovation information technology and how it affects business. An understanding of the group rules of these technologies will enable the students to appreciate the nitty-gritty Commerce.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Information Revolution and information Technology (IT) : Deployment of Business; Basic features of IT; Impact of IT on business environment and social fabric; Invention of writing; Written books; Printing Press and movable type Gutenberg's invention; Radio; telephone, wireless and satelite communication computing and dissemination of information and knowledge and convergence technologies (Internet with Wireless- WAP).	UNIT-I Information Revolution and information Technology (IT) : Deployment of Business; Basic features of IT; Impact of IT on business environment and social fabric; Invention of writing; Written books; Printing Press and movable type Gutenberg's invention; Radio; telephone, wireless and satelite communication computing and dissemination of information and knowledge and convergence technologies (Internet with Wireless-WAP).	No change
UNIT-II Fundamentals of Computer : Data, information and EDP : Data, information and concept of data and information; Levels of information from data; processing; Electronic data processing; Electronic machines; a. Number Systems and Codes : Different number systems - binary, octal decimal, hexagonal, and their conversion codes used in computers; Bed, EBCDIC, ASCII;Gray and conversions. b. Computer Arithmetic and Gates : Binary arithmetic,	UNIT-II Fundamentals of Computer : Data, information and EDP : Data, information and concept of data and information; Levels of information from data; processing; Electronic data processing; Electronic machines; a. Number Systems and Codes : Different number systems - binary, octal decimal, hexagonal, and their conversion codes used in computers; Bed, EBCDIC, ASCII;Gray and conversions. b. Computer Arithmetic and Gates : Binary arithmetic,	

complements, addition subtraction; Conversion from one system to another; Logic Gates, truthtable and applications minimisation, and K-maps. c. Computer Processing System : Definition of computer; Hardware/Software concepts; Generation of computers; Types of computers; Elements of computer;CPU and its functions, Various computer systems. d. I/O devices : Basic concepts of I/O devices; Various input devices Keyboard,mouse; MICR, OCR, microphones. e. Various output devices : VDU, printer, plotter,spooling, L.S. f. Storage Devices : Primary and secondary memory; Types of memory capacityand its enhancement; Memory devices and comparisons; Auxiliary storage,tapes, disks (magnetic and potical); various devices and their comparison. g. System Software - Roale of Software, Different System Software : O.S.,utilization element of O.S. - Its types and variations; DOS and windows. h. Computer and Networks : Need of communication; Data transmission; Baud; Bandwidth; Communication Channel; Multiplexing; Basic network concepts;O.S.I. model; Types of topologies; LAN, WAN, Client server concept.	complements, addition subtraction; Conversion from one system to another; Logic Gates, truthtable and applications minimisation, and K-maps. c. Computer Processing System : Definition of computer; Hardware/Software concepts; Generation of computers; Types of computers; Elements of computer;CPU and its functions, Various computer systems. d. I/O devices : Basic concepts of I/O devices; Various input devices Keyboard,mouse; MICR, OCR, microphones. e. Various output devices : VDU, printer, plotter,spooling, L.S. f. Storage Devices : Primary and secondary memory; Types of memory capacityand its enhancement; Memory devices and comparisons; Auxiliary storage,tapes, disks (magnetic and potical); various devices and their comparison. g. System Software - Roale of Software, Different System Software : O.S.,utilization element of O.S. - Its types and variations; DOS and windows. h. Computer and Networks : Need of communication; Data transmission; Baud; Bandwidth; Communication Channel; Multiplexing; Basic network concepts;O.S.I. model; Types of topologies; LAN, WAN, Client server concept.	
UNIT-III Computer-based Business Applications a. Word Processing : Meaning and role of word processing	UNIT-III Computer-based Business Applications a. Word Processing : Meaning and role of word processing	

in creating of documents, editing, formatting, and printing documents, using tools such as spelling check, thesaurus, etc. in word processors (MS-Word). b. Electronic Spreadsheet : Structure of spreadsheet and its applications toaccounting, finance, and marketing functions of business; Crating a dynamic/sensitive worksheet ; Concept of absolute and relative cell reference; Using builtin functions; Goal seeking and solver tool; Using graphics and formatting of worksheet; Sharing data with other desktop applications; Strategies of crating error-free worksheet (MS-Excel, Lotus 123). Practical knowledge on WingsAccounting (Software). c. Programming under a DBMS environment : The concept of data base management system; Data field, records, and files, Sorting and indexing data; Searching records, designing queries, and reports; Linking of data files ;Understanding programming environment in DBMS; Developing menu drivenapplications in query language (MS-Access).	in creating of documents, editing, formatting, and printing documents, using tools such as spelling check, thesaurus, etc. in word processors (MS-Word). b. Electronic Spreadsheet : Structure of spreadsheet and its applications toaccounting, finance, and marketing functions of business; Crating a dynamic/sensitive worksheet ; Concept of absolute and relative cell reference; Using builtin functions; Goal seeking and solver tool; Using graphics and formatting of worksheet; Sharing data with other desktop applications; Strategies of crating error-free worksheet (MS-Excel, Lotus 123). Practical knowledge on WingsAccounting (Software). c. Programming under a DBMS environment : The concept of data base management system; Data field, records, and files, Sorting and indexing data;Searching records, designing queries, and reports; Linking of data files ;Understanding programming environment in DBMS; Developing menu drivenapplications in query language (MS-Access).	
UNIT-IV Electronic Data Interchange (EDI) Introduction to EDI; Basics of EDI; EDI standards; Financial EDI (FEDI); FEDI for international trade transaction; Applications of EDI; Advantages of EDI; Future of EDI.	UNIT-IV Electronic Data Interchange (EDI) Introduction to EDI; Basics of EDI; EDI standards; Financial EDI (FEDI); FEDI for international trade transaction; Applications of EDI; Advantages of EDI; Future of EDI.	
UNIT-V The Internet and its Basic Concepts Internet-concept, history development in India; Technological foundation of internet;	UNIT-V The Internet and its Basic Concepts Internet-concept, history development in India; Technological foundation of internet;	

Distributed computing; Client-server computing; Internet protocol suite; Application of distributed computing; Client-server computing; Internet protocol suite in the internet environment; Domain Name System (DNS(; Domain Name Service (DNS); Generic top-lelvel domian (gTLD); Country code top-level domain (ccTLD); - India; Llocation of second-level doomains; IP addresses; Internet protocol; Applications of Internet in business, education, governance, etc.Information System Audit Basic idea of information audit; Difference with the traditional concepts of audit; Conduct and applications of IS audit in internet environment.	Distributed computing; Client-server computing; Internet protocol suite; Application of distributed computing; Client-server computing; Internet protocol suite in the internet environment; Domain Name System (DNS(; Domain Name Service (DNS); Generic top-lelvel domian (gTLD); Country code top-level domain (ccTLD); - India; Llocation of second-level doomains; IP addresses; Internet protocol; Applications of Internet in business, education, governance, etc.Information System Audit Basic idea of information audit; Difference with the traditional concepts of audit; Conduct and applications of IS audit in internet environment.	

Suggested Reading :

1. Agrawala Kamlesh N. and Agarwala Deeksha : Business on the Net - Introduction to Ecommerce, Macmillan India, New Delhi.
2. Agarwala Kamlesh, N. and Agarwala Deeksha : Bulls, Bears and The mouse; and introduction to On-line Service Market Trading; Macmillan India, New Delhi.
3. Agarwala Kamlesh, N. and Agarwala Prateek Amar; WAP the Net; An Introduction on Wireless Application Protocol; Macmillan India, New Delhi.
4. Bajaj Kamlesh K. and Nag Debjanl : E-Commerce; The cutting Edge of Business; Tata McGraw Hill, New Delhi.
5. Edwards, Ward and Bytheway : The Essence of Information Systems; Prentice Hall, New Delhi.
6. Garg & Srinivasan : Work Book on Systems Analysis & Design; Prentice Hall New Delhi.
7. Kanter : Managing with Information; Prentice Hall New Delhi.
8. Minoli Daniel, Minoli Emma : Web Commerce Technology Handbook; Tata McGraw Hill,

New Delhi.
9. Minoli Daniel : Internet & Internet Engineering; Tata McGrow Hill, New Delhi.
10. Yeats : Systems Analysis & Design; Macmillan India, New Delhi.
11. Goyal : Management information System; Macmillan India, New Delhi.
12. Timothi J O'Leary : Microsoft Office 2000; Tata McGrow Hill, New Delhi.

B.COM PART III

OPTIONAL GROUP C (E-Commerce Area)
TITLE OF PAPER - ESSENTIAL OF E-COMMERCE PAPER – II
OBJECTIVE
The objective of this course is to familiarize the students with the basics of e-commerce and to comprehend its potential.
M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Internet and Commerce : Business operations; E-Commerce practices; Concepts b2b,b2c, b2g, g2h; Benefits of e-commerce to organization, consumers, and society; Limitation of e-commerce; Management issues relating to e-commerce. Operations of E-Commerce : Credit card transaction; Secure Hypertext Transfer Protocol (SHTP); Electronic payment systems; Secure electronic transaction (SET); Set's encryption; Process; Cybercash; Smart cards; Indian payment models.	UNIT-I Internet and Commerce : Business operations; E-Commerce practices; Concepts b2b,b2c, b2g, g2h; Benefits of e-commerce to organization, consumers, and society; Limitation of e-commerce; Management issues relating to e-commerce. Operations of E-Commerce : Credit card transaction; Secure Hypertext Transfer Protocol (SHTP); Electronic payment systems; Secure electronic transaction (SET); Set's encryption; Process; Cybercash; Smart cards; Indian payment models.	No change
UNIT-II Applications in B2C : Consumer's shopping procedure on the internet; Impact on disintermediation and re-inermediation; Global market; Strategy of traditional department stores; Products in b2c model; Success factors of e-brokers; Broker based services on-line; Online travel tourism services; Benefits and impact of e-commerce on travel industry; Real estate market; Online stock trading and its benefits; Online	UNIT-II Applications in B2C : Consumer's shopping procedure on the internet; Impact on disintermediation and re-inermediation; Global market; Strategy of traditional department stores; Products in b2c model; Success factors of e-brokers; Broker based services on-line; Online travel tourism services; Benefits and impact of e-commerce on travel industry; Real estate market; Online stock trading and its benefits; Online	No change

banking and its benefits; Online financial services and their future; Educations benefits, implementation, and impact.	banking and its benefits; Online financial services and their future; Educations benefits, implementation, and impact.	
UNIT-III Applications in B2B; Applications of b2b, Key technologies for b2b; Architectural models of b2b; Characteristics of the supplier-oriented marketplace, buyer-oriented marketplace, and intermediary-oriented marketplace; Benefits of b2b on procurement re-engineering; Just in Time delivery in b2b; Internet-based EDI from traditional EDI; Integrating EC with back-end information systems; Marketing issues in b2b.	UNIT-III Applications in B2B; Applications of b2b, Key technologies for b2b; Architectural models of b2b; Characteristics of the supplier-oriented marketplace, buyer-oriented marketplace, and intermediary-oriented marketplace; Benefits of b2b on procurement re-engineering; Just in Time delivery in b2b; Internet-based EDI from traditional EDI; Integrating EC with back-end information systems; Marketing issues in b2b.	No change
UNIT-IV Applications in Governance : EDI in governance; E-government; E-governance applications of the internet; Concept of government to business, business to government and citizen-to-government; E-governance models; Private sector interface in e-governance.	UNIT-IV Applications in Governance : EDI in governance; E-government; E-governance applications of the internet; Concept of government to business, business to government and citizen-to-government; E-governance models; Private sector interface in e-governance.	No change
UNIT-V Emerging Business Models : Retail model; Media model; Advisory model, Mode-toorder manufacturing model; Do-it yourself model; Information service model; Emerging hybrid models; Emerging models in India.	UNIT-V Emerging Business Models : Retail model; Media model; Advisory model, Mode-toorder manufacturing model; Do-it yourself model; Information service model; Emergin hybrid models; Emerging models in India. Security and Legal aspects of E-commerce.	Added Security and Legal aspects of E-commerce.

Suggested Reading :

1. Agarwala Kamlesh. N. and Agarwala Deekhsa : Bridge to Online Storefornt; Macmillan India, New Delhi.

2. Agarwala Kamlesh. N. and Agarwala Deeksha : Business on the Net Introduction to the E-commerce; Macmillan India New Delhi.
3. Agarwala Kamlesh N. and Agarwala Deeksha : Bulls, Bears and The Mouse : An Introduction to Online Stock Market Trading; Macmillan India New Delhi.
4. Tiwari Dr. Murli D. : Eductaion and E-Governance; Macmillan India, New Delhi.
5. Minoli Daniel, Minoli Emma : Web Commerce Technology Handbook; Tata McGraw Hill, New Delhi.
6. Minoli Deniel, Internet & Internet Engineering : Tata McGrow Hill, 1999.
7. Bhatnagar Subhash and Schware Robert (Eds) : Information and Communication Technology in Development; Sage Publications India, New Delhi.
8. Amor, Daniel : E-business R evealuation, The : Living and Working in an Interconnected World; Prentice Hall, U.S.
9. Afuah, A., and Tuccu, C.: Internet usiness models and Strategies; McGraw Hill, New York.

B.COM PART III

OPTIONAL GROUP D (Money Banking & Insurance Area)
TITLE OF PAPER FUNDAMENTAL OF INSURANCE PAPER – I
OBJECTIVE
This course enables the students to know the fundamentals of insurance.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Introduction to Insurance : Purpose and need of insurance; Insurance as a social security tool; Insurance and economic development.	UNIT-I Introduction to Insurance : Purpose and need of insurance; Insurance as a social security tool; Insurance and economic development.	No change
UNIT-II Fundamentals of Agency Law : Definiton of an agent; Agents regulations; Insurance intermediaries; Agents Compensation.	UNIT-II Fundamentals of Agency Law : Definiton of an agent; Agents regulations; Insurance intermediaries; Agents compensation.	No change
UNIT-III Procedure for Becoming an Agent : Prerequisite for obtaining a license; Duration of license; Cancellation of incense; Revocation or suspension/termination of agent appointment; Code of conduct; Unfair practices. Functions of the Agent : Proposal form and other forms for grant of cover; Financial and medical underwriting; Material information; Nomination and assignment; Procedure regarding settlement of policy claims.	UNIT-III Procedure for Becoming an Agent : Prerequisite for obtaining a license; Duration of license; Cancellation of incense; Revocation or suspension/termination of agent appointment; Code of conduct; Unfair practices. Functions of the Agent : Proposal form and other forms for grant of cover; Financial and medical underwriting ; Material information; Nomination and assignment; Procedure regarding settlement of policy claims.	No change
UNIT-IV Company Profile : organizational set-up of the company; Promotion strategy; Market share; Important activities; Structure; Product; Actuarial profession; Product pricing actuarial aspects; Distribution channels.	UNIT-IV Company Profile : organizational set-up of the company; Promotion strategy; Market share; Important activities; Structure; Product; Actuarial profession; Product pricing actuarial aspects; Distribution channels.	No change
UNIT-V Fundamentals/Principles of Life insurance/ Marine /Fire /Medical/General Insurance; Contracts of various kinds; Insurable Interest.	UNIT-V Fundamentals/Principles of Life insurance/ Marine /Fire /Medical/General Insurance; Contracts of various kinds; Insurable Interest. Online insurance procedure	Added Online insurance procedure

Suggested Reading :

1. Mishra M.N. : Insurance Principle and Practice; S. Chand and Co., New Delhi.
2. Insurance Regulatory Development Act. 1999.
3. Life Insurance Corporation Act. 1956.
4. Gupta OS : Life Insurance; Frank brothers, New Delhi.
5. Vinayakam N., Radhaswamy and Vasudevan SV : Insurance - Principles and Practice,
S. Chand and Co. New Delhi.
6. Mishra MN : Life Insurance Corporation of India, Vols I, II & III; Raj Books, Jaipur.
7. Balchand Shriwastava, Agra.
8. Dr. M.L. Singhai, RAmesh Book Depot, Jaipur.

B.COM PART III

OPTIONAL GROUP D (Money Banking & Insurance Area)
TITLE OF PAPER - MONEY & BANKING SYSTEM PAPER – II
OBJECTIVE
This course enables the students to know the working of the Indian Money & banking system.

M.M. 75

Present syllabus	Proposed syllabus	Remark
UNIT-I Money : Function, Alternative Measures to money supply in India - their different components. Meaning and changing relative importance of each.	UNIT-I Money : Function, Alternative Measures to money supply in India - their different components. Meaning and changing relative importance of each.	No change
UNIT-II Indian Banking System : Structure and organization of banks; Reserve Bank of India; Apex banking Institutions; Commercial banks; Regional rural banks; Cooperative banks; Development banks.	UNIT-II Indian Banking System : Structure and organization of banks; Reserve Bank of India; Apex banking Institutions; Commercial banks; Regional rural banks; Cooperative banks; Development banks.	No change
UNIT-III Banking Regulation Act, 1947 : History; Social control; Banking Regulation Act as applicable to banking companies and public sector banks; Banking Regulation Act as applicable to Cooperative banks.	UNIT-III Banking Regulation Act, 1947 : History; Social control; Banking Regulation Act as applicable to banking companies and public sector banks; Banking Regulation Act as applicable to Cooperative banks.	No change
UNIT-IV Regional Rural and Cooperative Banks in India : Functions; Role of regional rural and cooperative banks in rural India; Progress and performance.	UNIT-IV Regional Rural and Cooperative Banks in India : Functions; Role of regional rural and cooperative banks in rural India; Progress and performance.	No change
UNIT-V Reserve Bank of India : Objectives; Organization ; Functions and working; Monetary policy; Credit control measures and their effectiveness.State Bank of India, Project History, Objectives, Functions & Organization working & progress.	UNIT-V Reserve Bank of India : Objectives; Organization ; Functions and working; Monetary policy; Credit control measures and their effectiveness. State Bank of India, Project History, Objectives, Functions & Organization working & progress. Internet banking system	Added Internet banking system

Suggested Reading :

1. Basu A.K. : Fundamentals of Banking-Theory and Practice; A Mukherjee and Co., Calcutta.
2. Sayers R.S. : Modern Banking : Oxford University Press.
3. Panandikar S.G. And Mithani D.M. : Banking in India; orient Longman.
4. Reserve Bank of India : Functions and Working.
5. Dekock : Central Banking; Crosby lockwood Staples, London.
6. Tannan M.L. : Banking - Law and Practice in India : India Law House, New Delhi.
7. Knubchandani B.S. : Practice and Law of Banking; Macmillan, New Delhi.
8. Shekhar and Shekhar : Banking Theory and Practice; Vikas Publishing House, New Delhi.
9. Harishchandra Sharma.
10. M.L. Singhai.

संशोधित पाठ्यक्रम – बी.ए. प्रथम वर्ष के अंतर्गत
विषय – नृत्य (भरत नाट्यम)

बी.ए. भाग (1) के लिये इस विषय में प्रायोगिक और सैद्धांतिक दो भाग होगें। प्रायोगिक 50 अंक एवं सैद्धांतिक 100 अंक का होगा। इस हेतु 50–50 अंक के दो प्रश्नपत्र होंगे। प्रत्येक वर्ष के पूर्णांक कुल मिलाकर 150 अंक के होगें।

क्र	विवरण		पूर्णांक	उत्तीर्णांक
1	सैद्धांतिक प्रथम प्रश्न पत्र	–	50	17
2	सैद्धांतिक द्वितीय प्रश्न पत्र	–	50	17
3	प्रायोगिक	–	50	17
		योग	**150**	**51**

सैद्धांतिक (विस्तृत पाठ्यक्रम)
प्रथम प्रश्न पत्र
शीर्षक – नृत्य का इतिहास एवं सामान्य अध्ययन
पेपर कोड (0153)

1. **नृत्य का इतिहास** – सिंधु सभ्यता, वैदिक काल, रामायण एवं महाभारत काल में नृत्य की स्थिति।
2. **पुराणों के आधार पर** – उमाशकर एवं नटवर श्री कृष्ण की नृत्य संबंधी कथायें – त्रिपुरडाह, उमा तांडव, मोहिनी–भस्मासुर, माखन लीला, कालिया दमन, रासलीला।
3. **नृत्य का अन्य ललित कलाओं से संबंध** – संगीत, साहित्य, चित्रकला एवं मूर्तिकला से संबंध।
4. **नाट्य की उत्पत्ति कथा** – भारत के नाट्यशास्त्र के प्रथम अध्याय में वर्णित।
5. **लोकधर्मी नाट्य परंपरा** – निम्न की संक्षिप्त जानकारी –
   1. रामलीला
   2. रासलीला
   3. भवाई
   4. माच

सैद्धांतिक (विस्तृत पाठ्यक्रम)
द्वितीय प्रश्न पत्र
शीर्षक – शास्त्रीय नृत्य सिद्धान्त
पेपर कोड (0154)

1.	**ताल की प्रांरभिक जानकारी**	–	1. ताल के दस प्राण। 2. लय – विलंबित, मध्य एवं द्रुत लय।
2.	**संक्षिप्त जीवन परिचय**	–	भरत मुनि, आचार्य नंदिकेश्वर।
3.	**नृत्य के अभ्यास से शारीरिक एवं मानसिक लाभ।**		
4.	**भारतीय नाट्य परंपरा में गुरूवंदना का महत्व।**		
5.	**छत्तीसगढ़ी नृत्यों का सामान्य परिचय**	–	1. करमा 2. ददरिया 3. सुवा 4. रीना, परब

<u>प्रायोगिक</u>

1. मौखिक मुद्रा प्रदर्शन – (अभिनय दर्पण के अनुसार)
(1) शिवस्तुति (2) शिरोभेद (3) ग्रीवाभेद
(4) दृष्टिभेद (5) असंयुक्त हस्त (6) संयुक्त हस्त

2. कार्यक्रम विभाग –
(1) शारीरिक अभ्यास
(2) आरंभिक –05 अड़ऊ भेद
(पद + हस्त संचालन तीन काल में)
(3) पूजा नृत्य
(4) अलारिपु (तिस्त्रजाति)

REVISED SYLLBUS

B. A. Part- I (Economics)

Subject : Micro Economics, Paper-I (Code: 0111)

UNIT 1

Introduction - Definitions Nature and scope of Economics, Methodology in Economics, Utility - Cardinal and Ordinal approaches, Indifference curve, Consumer's equilibrium, Giffin goods, Demand - Law of Demand, Elasticity of demand Consumer's surplus

UNIT 2

Theory of production and cost, Production decision, Production function, Iso-quant, Factor substitution, Law of variable proportions, Returns to scale, Economies of scale, Different concepts of cost and their interrelation, Equilibrium of the firm.

UNIT 3

Market structure-perfect and imperfect markets, Equilibrium of a firm-Perfect competition, Monopoly and price discrimination, Monopolistic competition, Duopoly, Oligopoly, controlled and administered prices

UNIT 4

Factor pricing-Marginal productivity theory of distribution, Euler's theorem, Theories of wage determination, wages and collective bargaining, wage differentials, Rent - Scarcity Rent, differential rent, Quasi rent, Modern Rent Theory, Interest Classical and Keynesian Theories, Modern Theory, Profits - Innovation, Risk bearing and uncertainty theories

UNIT 5

Welfare economics: , What welfare economics is about ?, Role of value judgments in welfare economics, Pigou's contribution in the field of welfare economics, Concept and condition of Pareto optimality, New welfare economics: Kaldor-Hicks welfare criterion, Scitovsky paradox, Social welfare function and social choice: Bergson-Samuelson social welfare function, Prof. Amartya Sen's critique, Arrow impossibility theorem

References:

1. Bach, G. L. (1977) "Economics, " Prentice Hall of India, New Delhi.

2. Gauld, J.P. and Edward P. L. (1996), "Microeconomic Theory," Richard lrwin, Homewood

. 3. Henderson J. and R. E. Quandt (1980), "Microeconomic Theory : A Mathematical Approach", McGraw Hill, New Delhi.

4. Heathfield and Wibe (1987), " An Introduction to Cost and Production Functions", Macmillan. London.

5. Koutsoyiannis, A. (1990), " Modern Microeconomics" , Macmillan.

6. Lipsey, R. G. and K. A. Chrystal (1999) "Principles of Economics ", (9th Edition), Oxford University Press, Oxford. B.A.-Part-I (21) P

REVISED SYLLBUS

B. A. Part- I (Economics)

Subject : Indian Economy , Paper-II (Code: 0112)

UNIT 1

Pre and post independent Indian economy: A short introduction of economic policies of British India, State of economy at the time of independence, Planning exercise in India-Planning in India through different five Year Plans, The planning commission and NITI Aayog, Growth and development in pre-reform period, New Economic Reforms: Liberalization, Privatization and Globalization, Growth, development and structural change in post-reform period.

UNIT 2

Population and human development: Demographic trends and issues of education, health, malnutrition and migration. Growth and distribution: Trends and policies in poverty, inequality, unemployment and occupational distribution, International comparison in human development and poverty reduction

UNIT 3

Agriculture: Nature and importance, Trends in agriculture production and productivity, factors determining productivity, Land reforms, new agriculture strategies and green revolution, rural credit, Agricultural marketing, natural resources and infra-structure development: Performance, problems and policies, MUDRA yojana.

UNIT 4

Industry: Growth and productivity, Industrial policy and reforms, Growth and problems of small and cottage scale industries,Role of public sector enterprises in India's industrialization. Trends and performance in services.

UNIT 5

External Sector - Role of foreign trade, Trends in exports and imports, Composition and direction of India's foreign trade, Export promotion measures and the new trade policies, Recent macroeconomic scenario: National Income, investment, saving and inflation, Current macroeconomic policies and their impact, fiscal policies and monetary policy.

References

1. Uma Kapila, "Indian Economy : Performance and Policies," published by Academic Foundation.
2. Dutta and Sundram, "Indian Economy', S. Chand Publications.

3. Mishra and Puri, “Indian Economy,” Himalaya Publishing House.
4. Economic Survey of India: various Issues, Published by Government of India.

B.A. /B.Sc. Part I

PAPER - I
PHYSICAL GEOGRAPHY
Max. Marks: 50
(Paper Code-0117)

Unit I The Nature and Scope of Physical Geography. Origin of the Earth, Geological Time Scale, Earth's Interior, Continental Drift Theory (Wegner), Plate Tectonics, Isostasy.

Unit II Earth movements: Earthquakes and Volcanoes. Rocks, Weathering, Erosion, and Normal cycle of erosion, Evaluation of landscapes- Fluvial, Arid, Glacial, Karts and Coastal landscape.

Unit III Elements of Weather and Climate, Composition and Structure of the Atmosphere. World patterns of Atmospheric Temperature, Pressure, and Wind.

Unit IV Atmospheric Moisture, and Disturbances, Climatic Classification (Koppen and Thornthwait) types, characteristics and World patterns.

Unit V Surface relief of Pacific Ocean, Atlantic Ocean, and Indian Ocean. Distribution of Temperature and Salinity of oceans and seas, Currents and Tides, Ocean Deposits and Coral Reefs, and Oceanic Resources.

Books Recommended:

1. Barry, R. G. and Chorley, R. J. (1998): Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001): Physical Geography Made Simple, Rupa and Company. New Delhi
3. Bunnett, R.B. (2003): Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Private Ltd.
4. Garrison, T. (1998): Oceanography, Wordsworth Company., Belmont.
5. Lake, P. (1979): Physical Geography (English and Hindi editions), Cambridge University Press, Cambridge.
6. Lal, D.S. 1993 : Climatology, 3rd edition, Chaitanya Pub. House, New Delhi
7. Leong Goh Cheng (2003): Certificate Physical and Human Geography, Oxford University Press, New Delhi.
8. Monkhouse, F.J. (1979): Physical Geography. Methuen, London
9. Singh, S. (2003): Physical Geography. (English and Hindi editions.). Prayag Pustak Bhawan, Allahabad;
10. Trewartha, G.T., Robinson, A.H., Hammond, E.H., and Horn, A.T. (1976/1990): Fundamentals of Physical Geography, 3rd edition. MacGraw-Hill, New York.
11. Singh, M.B. (2001): *Bhoutik Bhugol,* Tara Book Agency, Varanasi
12. Strahler, A.N. and Stahler, A.M. (1992): Modern Physical Geography. John Wiley and Sons, New York.

B.A. /B.Sc. Part I

PAPER - II
HUMAN GEOGRAPHY
Max. Marks: 50
(Paper Code-0118)

Unit I Definition and Scope of Human Geography. Man - environment relationship; Determinism, Possibilism, and Probabilism; Human Development Index (HDI).

Unit II Classification of Human Races – their Characteristics and Distribution; Human adaptation to environment: Eskimos, Bushman, Pigmy, Gond, Masai, and Naga.

Unit III Growth, Density and Distribution of World Population and factors influencing Spatial distribution; Over , Under, and Optimum Population; Migration of Population. .

Unit IV Settlements – Urban Settlements: Urbanization, Evolution and Classification, Trends of Urbanization.

Rural settlements: Characteristics, Types and Regional Pattern, Rural Houses in India - Types, Classification and Regional Pattern.

Unit V Issues – Global Warming, Climate Change, Deforestation, Desertification, Air, Water and Soil Pollution.

Books Recommended:

1. Chisholm, M. (1985): Human Geography, 2nd edition, Penguin Books, London.
2. De Blij, H.J.(1996): Human Geography: Culture, Society and Space,. 2nd edition. John Wiley and Sons, New York,
3. Fellman, J. D., Arthur, G., Judith, G., Hopkins, J. and Dan, S. (2007): Human Geography: Landscapes of Human Activities. McGraw-Hill, New York. 10th edition.
4. Haggett, P. (2004): Geography: A Modern Synthesis. 8th edition, Harper and Row, New York.
5. Huggett, R. J. (1998): Fundamentals of Biogeography, Routledge, London.
6. Hussain, M. (1994): Human Geography, Rawat Publications, Jaipur.
7. Johnston, R. J., Gregory, D., Pratt, G. and Watts, M. (2009): The Dictionary of Human Geography. 5th edition, Basil Blackwell Publishers, Oxford.
8. Kaushik, S.D. and Sharma, A.K. (1996): Principles of Human Geography (in Hindi), Rastogi Publication, Meerut.
9. Norton, W. (2008): Human Geography, Oxford University Press, New York. 5th ed.
10. Saxena, H. M. (2000): Environmental Management. Rawat Publications., Jaipur and New Delhi.
11. Singh, K. N. and Singh, J. (2001): *Manav Bhugol*. Gyanodaya Prakashan, Gorakhpur. 2nd edition.
12. Singh, L.R. (2005): Fundamentals of Human Geography, Sharda Pustak Bhawan, Allahabad
13. Smith, D. M.(1977): Human Geography- A Welfare Approach, Edward Arnold (Publishers) Ltd.,London
14. Stoddard, R.H., Wishart, D.J. and Blouet, B.W. (1986): Human Geography. Prentice-Hall, Englewood Cliffs, New Jersey.

B.A. /B.Sc. Part I

PAPER - III
PRACTICALGEOGRAPHY
Max. Marks: 50

SECTION A

CARTOGRAPHY AND STASTISTICAL METHODS (M.M. 25)

Unit I Scale: Statement Scale , Representative Fraction (R.F.), Linear scale – Simple, Diagonal, Comparative, and Time Scales.

Unit II Contour: Methods of showing relief; Hachures, Contours; Representation of different landforms by contours.

Unit III Graph and Diagram: Line graph, Bar Diagram (Simple and Compound), Circle Diagram, Pie Diagram

Unit IV Statistical Technique: Mean, Median and Mode

SECTION B

SURVEYING - (M.M. 15)

Unit V Chain and Tape Survey. Triangulation method, Open Traverse and Closed Traverse

PRACTICAL RECORD AND VIVA VOCE (M.M. 10)

Books Recommended:

1. Davis, R.E. and Foote, F.S. (1953): Surveying, 4th edition, McGraw Hill Publication, New York
2. Jones, P.A.(1968): Fieldwork in Geography, Longmans, Green and Company Ltd., First Publication, London
3. Monkhouse, F. J. and Wilkinson, F.J. (1985): Maps and Diagrams. Methuen, London
4. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai
5. Pugh, J.C. (1975): Surveying for Field Scientists, Methuen and Company Ltd., London, First Publication.
6. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5th edition.
7. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
8. Sharma, J. P. (2001): *Prayogik Bhugol.,* Rastogi Publication, Meerut 3rd. edition.
9. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi,.
10. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
11. Venkatramaiah, C. (1997): A Text Book of Surveying, Universities Press, Hyderabad.

बी.ए. प्रथम वर्ष

प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व

प्रथम : प्रश्न–पत्र

B.A. Part I Paper I

भारत का राजनीतिक इतिहास (पेपर कोड 0133)

(हड़प्पा संस्कृति से 319 ई. तक)

Political History of India (Harappa Culture to 319 A.D.)

पूर्णांक : 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य छात्रों को संबंधित कालखण्ड के राजनीतिक इतिहास की समुचित जानकारी देना है।

इकाई– 1 (1) प्राचीन भारतीय इतिहास के स्रोत (Sources of Ancient Indian History)
(2) हड़प्पा तथा समकालीन ताम्राश्म संस्कृतियॉ (Harappa and Contemporary Chalcolithic Culture)
(3) वैदिक युग (Vedic Age)

इकाई– 2 (1) महाजन पद युग (Mahajanpada Age)
(2) मगध साम्राज्य का उत्कर्ष (Rise of Magadha Kingdom)

इकाई– 3 (1) सिकन्दर का आक्रमण और उसके प्रभाव (Alexander's Invasion and it's impact)
(2) मौर्य साम्राज्य का उत्थान और उसके प्रभाव (Rise of Mauryan empire and its impact)

इकाई– 4 (1) हिन्द–यूनानी (Indo-Greeks)
(2) शुंग (Shungas)
(3) सातवाहन (Satvahanas)
(4) शक–क्षत्रप, पार्थियन (Shak-Kshatrapas, Parthiyan)
(5) खारवेल (Kharvela)

इकाई– 5 (1) संगम युग (Sangam Age)
(2) कुषाण (Kushanas)
(3) मालव, यौधेय, अर्जुनायन तथा औदुम्बर (Malavas, Youdheyas, Arjunayana and Audumbara)
(4) नागवंश (Nagas)

सहायक ग्रंथ :

1. एच.सी. रायचौधरी – प्राचीन भारत का राजनीतिक इतिहास
2. के.ए. नीलकंठ शास्त्री – दक्षिण भारत का इतिहास
3. कृष्णदत्त बाजपेयी तथा विमलचंन्द्र पांडेय – प्राचीन भारत का इतिहास
4. विमल चन्द्र पांडेय – प्राचीन भारत का राजनीति तथा सांस्कृतिक इतिहास भाग एक
5. किरन कुमार थप्याल – सैंधव सम्यता
6. गुलाम, याजदानी (संपा.) – दकन का इतिहास
7. राजबली पाण्डेय – प्राचीन भारत
8. H.C. Roycoudhary - Political History of Ancient India
9. R.C. Majumdar (Ed.) - The Age of Imperial Unity
10. Romila Thaper - History of India
11. K.A, Nilkanta Shastry - History of South India
12. व्ही.डी.झा. सुष्मिता पाण्डेय, डॉ.ओम प्रकाश – Ashoka and the declaim of Moury empire

बी.ए. प्रथम वर्ष

प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व

प्रथम : प्रश्न–पत्र

B.A. Part I Paper II

भारत का राजनीतिक इतिहास (319 ई.से 1300 ई. सन् तक)

Political History of India (From 319 A.D. to 1300 A.D.)

पूर्णांक : 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य विद्यार्थियों को संबंधित कालखण्ड के राजनीतिक इतिहास का समुचित ज्ञान प्रदान करना है।

इकाई– 1 (1) गुप्तों की उत्पत्ति एवं प्रारंभिक इतिहास (Rise of Guptas and their early History)
(2) चन्द्रगुप्त प्रथम, रामगुप्त, समुद्रगुप्त (Chandragupta – I, Ramagupta, Samudragupta)
(3) कुमारगुप्त प्रथम, स्कन्दगुप्त (Kumargupta – I, Shandgupta)
(4) वाकाटक राजवंश, गुप्त–वाकाटक सम्बन्ध (Vakataka Dynasty, Gupta Vakataka relation)

इकाई– 2 (1) परवर्ती गुप्त राजवंश (Later Gupta Rulers)
(2) मौखरी (Maukharis)
(3) वर्धन राजवंश और हर्ष का प्रशासन (Vardhana Dynasty and Administration of Harsha)

इकाई– 3 (1) बादामी के चालुक्य (Chalukyas of Badami)
(2) कांची के पल्लव (Pallavas of Kanchi)
(3) चोल तथा उनका प्रशासन (Cholas and their administration)

इकाई– 4 (1) गुर्जर प्रतिहार (Gurjara Pratihara)
(2) राष्ट्रकूट (Rashtrakutas)
(3) पाल (Palas)
(4) गाहड़वाल (Gahadwalas)

इकाई– 5 (1) चन्देल (Chandela)
(2) परमार (Parmaras)
(3) चाहमान (Chahmanas)
(4) त्रिपुरी के कलचुरि (Kalachuris of Tripuri)
(5) रतनपुर के कलचुरि (Kalachuris of Ratanpur)

अनुशंशित पुस्तके :

1. उदयनारायण राय – गुप्त राजवंश तथा उसका इतिहास (नया संस्करण) 1988
2. श्री राम गोयल – भारत का राजनैतिक इतिहास भाग 2 एवं 3
3. श्री राम गोयल – गुप्त साम्राज्य का इतिहास
4. Ashvini Agrawal - Rise and Fall of the imperial Gupta
5. विशुद्धानंद पाठक – उत्तर भारत का राजनीतिक इतिहास
6. अवध बिहारी लाल अवस्थी – राजपूत राजवंश
7. डी.सी.गांगुली – परमार राजवंश
8. भगवती प्रसाद पांथरी – मौखरी और पुष्यभूमि राजवंश
9. डॉ.के.ए.नीलकंठ शास्त्री – दक्षिण भारत का इतिहास
10. डॉ.बैजनाथ शर्मा – हर्षवर्धन
11. R.C. Majumdar & A.D. Pusalkar (Ed.) - The Classicale Age "The age of Imperial Unity" The Strangle for Empire
12. Majumdar, Roy Choudhary - An Advanced History of India Vol. I

MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

B.A. Part-I

MATHEMATICS

PAPER - I

ALGEBRA AND TRIGONOMETRY

UNIT-I Elementary operations on matrices, Inverse of a matrix. Linear independence of row and column matrices, Row rank, column rank and rank of a matrix. Equivalence of column and row ranks. Eigenvalues, eigenvectors and the characteristic equations of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.

UNIT-II Application of matrices to a system of linear (both homogeneous and nonhomogeneous) equations. Theorems on consistency of a system of linear equations. Relation between the roots and coefficients of general polynomial equations in one variable. Transformation of equations. Descarte's rule of signs. Solutions of cubic equations (Cardons method), Biquadratic equation.

UNIT-III Mappings, Equivalence relations and partitions. Congruence modulo n. Definition of a group with examples and simple properties. Subgroups, generation of groups, cyclic groups, coset decomposition, Lagrange's theorem and its consequences. Fermat's and Euler's theorems. Normal subgroups. Quotient group, Permutation groups. Even and odd permutations. The alternating groups An. Cayley's theorem.

UNIT-IV Homomorphism and Isomorphism of groups. The fundamental theorems of homomorphism. Introduction, properties and examples of rings, Subrings, Integral domain and fields Characteristic of a ring and Field.

TRIGONOMETRY :

UNIT-V De-Moivre's theorem and its applications. Direct and inverse circular and hyperbolic functions. Logarithm of a complex quantity. Expansion of trigonometrical functions. Gregory's series. Summation of series.

TEXT BOOK :

1. I.N. Herstein, Topies in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd.New Delhi, 2000.
3. Chandrika Prasad, Text-Book on Algebra and Theory of equations, Pothishala Private Ltd., Allahabad.
4. S.L. Loney, Plane Trigonometry Part II, Macmillan and Company, London.

REFERENCES :

1. P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, First Course in linear Algebra, Wiley Eastern, New Delhi, 1983.
2. P.B. Bhattacharya, S.K.Jain and S.R. Nagpaul, Basic Abstract Algebra (2 edition), Cambridge University Press, Indian Edition, 1997.
3. S.K. Jain, A. Gunawardena and P.B. Bhattacharya, Basic linear Algebra with MATLAB, Key College Publishing (Springer-Verlag), 2001.
4. H.S. Hall and S.R. Knight, Higher Algebra, H.M. Publications, 1994.
5. R.S. Verma and K.S. Shukla, Text Book on Trigonometry, Pothishala Pvt. Ltd., Allahabad.

B.A. Part-I

MATHEMATICS

PAPER - II

CALCULUS

DIFFERENTIAL CALCULUS :

UNIT-I $\varepsilon - \delta$ definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuties. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.

UNIT-II Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in cartesian and polar coordinates.

INTEGRAL CALCULUS:

UNIT-III Integration of transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution.

ORDINARY DIFFERENTIAL EQUATIONS :

UNIT-IV Degree and order of a differential equation. Equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations.

UNIT-V Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

TEXT BOOK :

1. Gorakh Prasad, Differential Calculaus, Pothishala Private Ltd. Allahabad.
2. Gorakh Prasad, Integral Calculus, Pothishala Private Ltd. Allahabad.
3. D.A. Murray Introductory Course in Differential Equations, Orient Longman (India), 1976.

REFERENCES :

1. Gabriel Klambauer, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum's outline series, Schaum Publishing Co. New York.
3. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
4. P.K. Jain and S.K. Kaushik, An Introduction to Real Analysis, S. Chand & Co. New Delhi, 2000.
5. G.F. Simmons, Differential Equations, Tata Mc Graw Hill, 1972.
6. E.A. Codington, An Introduction to Ordinary Differential Equations, Prentics Hall of India, 1961.
7. H.T.H. Piaggio, Elementary Treatise on Differential Equations and their Applications, C.B.S. Publishe & Distributors, Dehli, 1985.
8. W.E. Boyce and P.O. Diprima, Elementary Differential Equations and Boundary Value Problems, John Wiley, 1986.

12. Erwin Kreysizig, Advanced Engineering Mathematics, John Wiley and Sons, 1999.

B.A. Part-I

MATHEMATICS

PAPER - III

VECTOR ANALYSIS AND GEOMETRY

VECTOR ANALYSIS :

UNIT-I Scalar and vector product of three vectors. Product of four vectors. Reciprocal Vectors. Vector differentiation. Gradient, divergence and curl.

UNIT-II Vector integration. Theorems of Gauss, Green, Stokes and problems based on these.

UNIT-III General equation of second degree. Tracing of conics. System of conics. Confocal conics. Polar equation of a conic.

UNIT-IV Sphere. Cone. Cylinder.

UNIT-V Central Conicoids. Paraboloids. Plane sections of conicoids. Generating lines. Confocal Conicoids. Reduction of second degree equations.

TEXT BOOKS :

1. N. Saran and S.N. Nigam, Introduction to vector Analysis, Pothishala Pvt. Ltd. Allahabad.
2. Gorakh Prasad and H.C. Gupta, Text Book on Coordinate Geometry, Pothishala Pvt. Ltd., Allahabad.
3. R.J.T. Bell, Elementary Treatise on Coordinate Geometry of three dimensions, Machmillan India Ltd. 1994.

REFERENCES :

1. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Company, New York.
2. Murray R. Spiegel, Vector Analysis, Schaum Publishing Company, New York.
3. Erwin Kreysizig, Advanced Engineering Mathematics, John Wiley & Sons, 1999.
4. Shanti Narayan, A Text Book of Vector Calculus, S. Chand & Co., New Delhi.
5. S.L. Loney, The Elements of Coordinate Geometry, Macmillan and Company, london.
6. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of two Dimensions, Wiley Eastern Ltd., 1994.
7. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of three Dimensions, Wiley Eastern Ltd., 1999.
8. N. Saran and R.S. Gupta, Analytical Geometry of three Dimensions, Pothishala Pvt. Ltd. Allahabad.

नवीन संशोधित पाठ्यक्रम

दर्शन शास्त्र

बी.ए. भाग–एक, दर्शन शास्त्र में दो प्रश्न पत्र (75 अंक) के होंगे

1. भारतीय दर्शन की रूपरेखा
2. पाश्चात्य दर्शन का इतिहास

प्रत्येक प्रश्न पत्र पांच इकाईयों में विभाजित है । प्रत्येक इकाई में से एक प्रश्न हल करना अनिवार्य होगा ।

बी.ए. भाग – एक

दर्शन शास्त्र

प्रथम – प्रश्न पत्र

भारतीय दर्शन की रूपरेखा

इकाई–1
1. भारतीय दर्शन – परिचय एवं मुख्य विशेषताएं
2. वेद एवं उपनिषद– ब्रह्म , आत्मा
3. चार्वाक दर्शन – तत्व मीमांसा

इकाई–2
1. जैन दर्शन – स्याद्वाद, जीव, बंधन एवं मोक्ष
2. बौद्ध दर्शन– चार आर्यसत्य, अनात्मवाद

इकाई–3
1. न्याय दर्शन – प्रमाण (प्रत्यक्ष एवं अनुमान), ईश्वर
2. वैशेषिक दर्शन– परमाणुवाद, सप्त पदार्थ

इकाई–4
1. सांख्य दर्शन – प्रकृति , पुरूष, विकासवाद
2. योग दर्शन – अष्टांग योग, ईश्वर

इकाई–5
1. शंकराचार्य का अद्वैत दर्शन– ब्रह्म, आत्मा, माया
2. रामानुज का विशिष्टाद्वैत – ब्रह्म, जीव, मोक्ष

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

नवीन संशोधित पाठ्यक्रम

बी.ए. भाग – एक

दर्शन शास्त्र

द्वितीय – प्रश्न पत्र

पाश्चात्य दर्शन का इतिहास

इकाई–1
1. पाश्चात्य दर्शन – परिचय
2. प्लेटो– प्रत्ययों का सिद्धांत
3. अरस्तू– कारणता का सिद्धांत

इकाई–2
1. थामस एक्वीनास– ईश्वर के अस्तित्व के प्रमाण
2. डेकार्ट– संदेह पद्धति, आत्मा का अस्तित्व, ईश्वर का अस्तित्व

इकाई 3.
1. स्पिनोजा – द्रव्य, गुण, पर्याय
2. लाइबनित्ज– चिद्बिन्दुवाद

इकाई–4
1. जॉन लॉक– सहज प्रत्ययों का खंडन, मूलगुण एवं उपगुण
2. जॉन बर्कले – मूलगुण एवं उपगुण का खंडन, विज्ञानवाद

इकाई–5
1. ह्यूम– संस्कार और प्रत्यय, संदेहवाद, आत्मा का खंडन
2. कांट – समीक्षावाद

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

बी. ए. भाग एक B.A. Part I

राजनीति विज्ञान Political Science

प्रथम प्रश्न पत्र : राजनीतिक सिद्धान्त Paper I : Political Theory

इकाई 1 : राजनीति विज्ञान का अर्थ, परिभाषा (आधुनिक अवधारणा सहित) । राजनीति एक विशिष्ट मानवीय व्यवहार के रुप में । शक्ति, सत्ता, प्रभाव : अर्थ, विशेषताएं, प्रकार । राजनीति विज्ञान की अध्ययन पध्दतियां : परम्परागत एवं व्यवहारवाद एवं उत्तर व्यवहारवाद ।

Unit I : Meaning and Definition of Political Science (with modern concept). Politics as a specific human behaviour. Power, Authority and Influence : meaning, features and kinds. Method of Study to Political Science : Traditional , Behaviouralism and Post Behaviouralism.

इकाई 2 : राज्य एवं उसके आवश्यक तत्व । राज्योत्पत्ति के विभिन्न सिद्धान्त, मार्क्सवादी सिद्धान्त । सावयविक सिद्धान्त ।

Unit 2 : State and its essential elements. Various theories of the origin of the State, Marxist theory . Organismic Theory.

इकाई 3 : सम्प्रभुता एवं उसकी बहुलवादी आलोचना । अधिकारः अर्थ, प्रकार , सिद्धान्त । कर्तव्य । स्वतन्त्रता : अर्थ , प्रकार, संरक्षण । समानता : अर्थ , प्रकार एवं स्वतन्त्रता से सम्बंध । प्रजातन्त्र : परिभाषा, व्यापक अर्थ, चुनौतियां, सफलता के लिए आवश्यक शर्तें , गुण–दोष । प्रत्यक्ष प्रजातन्त्र ।

Unit 3: Sovereignty and its pluralistic criticism. Rights : meaning, kinds and theories. Duties. Liberty : meaning, kinds , safeguards. Equality : meaning, kinds and relations with Liberty. Democracy : meaning, comprehensive meaning, challanges, conditions for its success, merits and demerits. Direct Democracy.

इकाई 4 : शासन के प्रकार : एकात्मक व संघात्मक , संसदीय व अध्यक्षात्मक, निरंकुशतन्त्र । शासन के अंग : कार्यपालिका, व्यवस्थापिका, न्यायपालिका । शक्ति पृथक्करण का सिद्धान्त व नियंत्रण –संतुलन का सिद्धान्त । संविधान : अर्थ , प्रकार । प्रतिनिधित्व के सिद्धान्त एवं निर्वाचन प्रणालियां ।

Unit 4 : Kinds of Government : Unitary and Federal, Parliamentary and Presidential. Dictatorship. Organs of Government : Executive, Legislature and Judiciary. Theory of Separation of Powers and Checks and Balances. Constitution : meaning and kinds. Theories of representation and Electoral Process.

इकाई 5 : लोककल्याणकारी राज्य। दल पद्धति : अर्थ , प्रकार, पद्धति । दबाव समूह : अर्थ, प्रकार, तकनीक । सामाजिक परिवर्तन : अर्थ, विशेषताएं , सिद्धान्त । नारीवाद, राष्ट्रवाद ।

Unit 5 : Public Welfare State. Party System : meaning , kinds , process. Pressure Groups : meaning, kinds and technique. Social Change : meaning, characteristics, theories. Feminis. Nationalism.

Andrew Haywood Political Theory , An Introduction.
7- O.P. Gaba An Introduction to Political Theory, Macmillan India Ltd.

बी. ए. भाग एक B. A. Part I

राजनीति विज्ञान Political Science

द्वितीय प्रश्न पत्र : भारतीय शासन एवं राजनीति Paper II : Indian Government and Politics

इकाई 1 : भारतीय राष्ट्रीय आन्दोलन : 1858 का प्रथम स्वतन्त्रता संग्राम, असहयोग आन्दोलन, सविनय अवज्ञा आन्दोलन, भारत छोड़ो आन्दोलन । भारत का संविधानिक विकास : 1858, 1909,1919 और 1935 का भारत शासन अधिनियम ।

Unit 1 : Indian National Movement : First Independence Movement 1858, Non cooperation Movement, Civil Disobedience Movement and Quit India Movement.Constitutional Development of India : Govt. of India Act of 1858,1909, 1919 and 1935.

इकाई 2 : भारतीय संविधान : विशेषताएं , प्रस्तावना, स्त्रोत, । संघीय व्यवस्था , मौलिक अधिकार, मूल कर्तव्य,नीति निर्देशक तत्व । संविधान संशोधन प्रकिया ।

Unit 2 : Constitution of India : Characteristics, Preamble, Sources. Federal System. Fundamental Rights and Duties, Directive Principles of State Policy. Constitution Amendment Process.

इकाई 3 : संघीय कार्यपालिका : राष्ट्रपति, उपराष्ट्रपति, मन्त्रिपरिषद् और प्रधानमन्त्री । संघीय व्यवस्थापिका :संसद : लोकसभा और राज्यसभा । संसदीय प्रकिया ।

Unit 3 : Union Executive : President , Vice President, Council of MInisters and Prime MInister. Union Legislature : Parliament: Lok Sabha and Rajya Sabha. Parliamentary Procedure.

इकाई 4 : संघीय न्यायपालिका : सर्वोच्च न्यायालय : गठन, क्षेत्राधिकार, न्यायिक पुनरावलोकन, न्यायिक सकियतावाद । राज्य कार्यपालिका : राज्यपाल , मन्त्रिपरिषद् और मुख्यमन्त्री ।

Unit 4 : Union Judiciary : Supreme Court : Organisation, Jurisdiction, Judicial Review,Judicial Activism. State Executive : Governor, Council of Ministers and Chief Minister.

इकाई 5 : राज्य व्यवस्थापिका : विधानसंभा एवं विधानपरिषद् । निर्वाचन आयोग व चुनाव सुधार । राष्ट्रीय व क्षेत्रीय दल । भारतीय राजनीति के प्रमुख मुद्दे : जाति, धर्म, भाषा और क्षेत्र । पंचायती राज व्यवस्था।

Unit 5 : State Legislature : Legislative Assembly and Legislative Council. Election Commission and Election Reforms. National and Regional Parties. Major issues of Indian Politics : Caste, Religion, Language and Region. Panchayati Raj System.

(Reference Books)

11- M.V. Pylee , Constitutional History of India , S.Chand.
12- D.D. Basu Indian Constitution

B. A. – I

P S Y C H O L O G Y

Paper	Name of the Paper	Max. Marks	Duration
I	Basic Psychological Processes	50	3 hrs.
II.	Psychopathology	50	3 hrs.
III.	Practicum	50	4 Hrs.

PAPER - I

BASIC PSYCHOLOGICAL PROCESSES (Paper Code-0119) M.M.:50

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-1 Introduction: Definition and Goals of Psychology; Behaviouristic, Cognitive and Humanistic; Cross-cultural Perspectives. Methods: Experimental, Observational, Interview, Questionnaire, and Case study.

UNIT-2 Biological Basis of Behaviour: Genes and Behaviour, The Nervous System: The Central Nervous System (C.N.S.), The Autonomic Nervous System (A.N.S.) and The Peripheral Nervous System (P.N.S.); Glands and Hormones; Emotions- Types and Bodily changes (internal and external).

UNIT-3 Sensory and Perceptual Processes: Nature and Types of Sensation, Perception and Attention: Process, Definition, Types and Determinants; Principles of Perceptual Organization; Illusion: Nature and Types.

UNIT-4 Learning and Memory: Classical and Operant Conditioning- Basic Processes; Verbal and Observational Learning; Memory: Sensory (S.M.), Short-term (S.T.M.) and Long-term (L.T.M.); Forgetting: Process and Theories.

UNIT-5 Cognitive and Non-Cognitive Processes: Intelligence: Nature and Types; Motivation: Biogenic and Sociogenic Motives; Thinking Process: Nature and Types. Personality: Nature and Determinants; Approaches to study Personality: Trait and Type Approaches; Assessment of Personality.

References

1. सिंह, अरुण कुमार। सामान्य मनोविज्ञान। बनारस हिन्दू विश्वविद्यालय प्रकाशन।
2. वर्मा, पूनम। आधुनिक सामान्य मनोविज्ञान।
3. Baron, R.A. & Byrne, D.A. Understanding Behavior. Tokyo: Halt Sounders.
4. Zimbardo, P.G. Psychology. New York: Haper Collings College publishers.
5. Lefton, L. A. (1985). Psychology. Bosten-Allyn Publishers. 6.Walser, A.L. (1997).

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B. A. - I

P S Y C H O L O G Y

PAPER- II

PSYCHOPATHOLOGY (Paper Code-0120) **M.M.:50**

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-1 Introduction: The concept of Normality and Abnormality; Models of Psychopathology: Psychodynamic, Behavioral and Cognitive.

UNIT-2 Assessment of Psychopathology: Diagnostic Tests, Rating Scales, Clinical Interview, and Projective Tests.

UNIT-3 Anxiety Disorders: Panic Disorder, Phobias, Obsessive Compulsive Disorder (OCD), and Generalized Anxiety Disorder (GAD).

UNIT-4 Mood Disorders: Manic-Depressive Episode and Dysthemia; Personality Disorders: Paranoid, Schizoid, and Dependent Personality Disorder, Dissociative disorder and Obesity.

UNIT-5 Management of Psychopathology: Stress Management; Medico and Psychosocial Therapy: Shock Therapy, Psychoanalysis, Group therapy and Behavior therapy.

References

1. Lamm, A. (1997). Introduction to Psychopathology. NY: Sage.
2. Buss, A. H. (1999). Psychopathology. NY: John Wiley.

B. A. – I

P S Y C H O L O G Y

PAPER- III

PRACTICUM **M.M.:50**

Note: This paper consists of two parts:

Part-A

(a) Comprises of Laboratory **Experiments**.
(b) Comprises of Psychological **Testing** and understanding of self and others.

(a) **Experiments-** (Any five of the following) :-

(i) Effect of Set on Perception
(ii) Effect of Frustration on Performance.
(iii) Division of Attention.
(iv) Learning Curve/ Serial Position Curve.
(v) Retroactive Inhibition (RI).
(vi) S.T.M.
(vii) Concept Formation.
(vii) Judgment of Emotions through Facial Expressions.
(ix) Personality Test

(b) **Psychological Tests** (Any four of the following)

(i) Verbal/ Nonverbal Intelligence Test/ Performance Tests.

(ii) E.P.I./ Personality (iii) Anxiety test.

(iv) Depression Scale (v) Adjustment Inventory.

(vi) Achievement motivation. (vii) Stress Tolerance Test.

Part-B

Anecdotal Record: Each student will be required to observe the behaviour of pupil in different setting and select an anecdote to understand, judge and narrate it as objectively as possible, so as to reveal his/her psychological insight existing in that anecdotal behavior. This record constitutes a part of psychological assessment of the students. Introduction to the measures of central tendency and graphical presentation of the ungrouped data.

Distribution of Marks

A.	Conduction of Psychological Experiment and Reporting	-	15 Marks
B.	Administration of one Psychological Test and Reporting	-	15 Marks
C.	Evaluation of Practical notebook and Anecdotal record	-	10 Marks
D.	Viva-voce	-	10 Marks

Note : No candidate will be allowed to appear in the practical examination unless his/her day-to-day practical work and the report are found satisfactory.

References Choubey, A. (2015). Psycho-lab- Experiment and Test. Raipur: Vaibhav Prakshan.

●

सत्र 2018–19 से प्रस्तावित (संशोधित दिनांक 20.08.2018)

बी.ए. प्रथम वर्ष

संस्कृत साहित्य

प्रथम प्रश्नपत्र

टीप – बी.ए. प्रथम वर्ष में संस्कृत साहित्य के दो प्रश्न–पत्र होंगें एवं दोनों प्रश्न –पत्र 75– 75 अंकों के होंगें ।

नाटक, व्याकरण और अनुवाद पूर्णांक – 75

इकाई –1	स्वप्नवासवदत्तम् – व्याख्या	अंक – 15
इकाई –2	स्वप्नवासवदत्तम् – समीक्षात्मक प्रश्न	अंक – 15
इकाई –3	1. सुबन्त (शब्दरूप) – राम, मुनि, भानु, पितृ, करिन्, कर्तृ, आत्मन्, लता, मति, नदी, धेनु, मातृ, फल, वारि, सर्व, तद्, एतद्, यद्, इदम्, अस्मद्, युष्मद् । 2. तिङन्त (धातुरूप) – भ्वादि, दिवादि, तुदादि, चुरादि गण के अतिरिक्त अस् एवं कृ धातुओं के लट्, लृट्, लङ्, लोट् एवं विधिलिङ् लकारों के रूप 3. अपठित गद्यांश पर आधारित प्रश्न	अंक – 15

नोट– शब्द रूप एवं धातु रूप के विकल्प के रूप में अपठित गद्यांश पर आधारित प्रश्न भी पूछे जा सकते है ।

इकाई –4	प्रत्याहार, संज्ञा, सन्धि और विभक्त्यर्थ	अंक – 15
इकाई –5	हिन्दी से संस्कृत में अनुवाद	अंक – 15

अनुशंसित ग्रन्थ –

1. रचनानुवाद कौमुदी – डा. कपिलदेव द्विवेदी
2. संस्कृतस्य व्यावहारिकस्वरूपम् – डा. नरेन्द्र, श्री अरविन्द आश्रम
3. संस्कृतव्याकरण – श्रीधर वसिष्ठ
4. संस्कृत में अनुवाद कैसे करें – उमाकान्त मिश्र शास्त्री, प्रकाशक – भारती भवन
5. लघु सिद्धान्त कौमुदी – श्री महेश सिंह कुशवाहा, प्रकाशक – चौखम्बा विद्याभवन, वाराणसी

सत्र 2018–19 से प्रस्तावित

बी.ए. प्रथम वर्ष

संस्कृत साहित्य

द्वितीय प्रश्नपत्र

गद्य, कथा एवं साहित्येतिहास पूर्णांक – 75

इकाई –1 शुकनासोपदेशः – व्याख्या अंक – 15

इकाई –2 हितोपदेशः (मित्रलाभः) – व्याख्या अंक – 15

इकाई –3 शुकनासोपदेश एवं हितोपदेश के समीक्षात्मक प्रश्न अंक – 15

इकाई –4 वैदिक एवं पौराणिक साहित्य का सामान्य परिचय अंक – 15

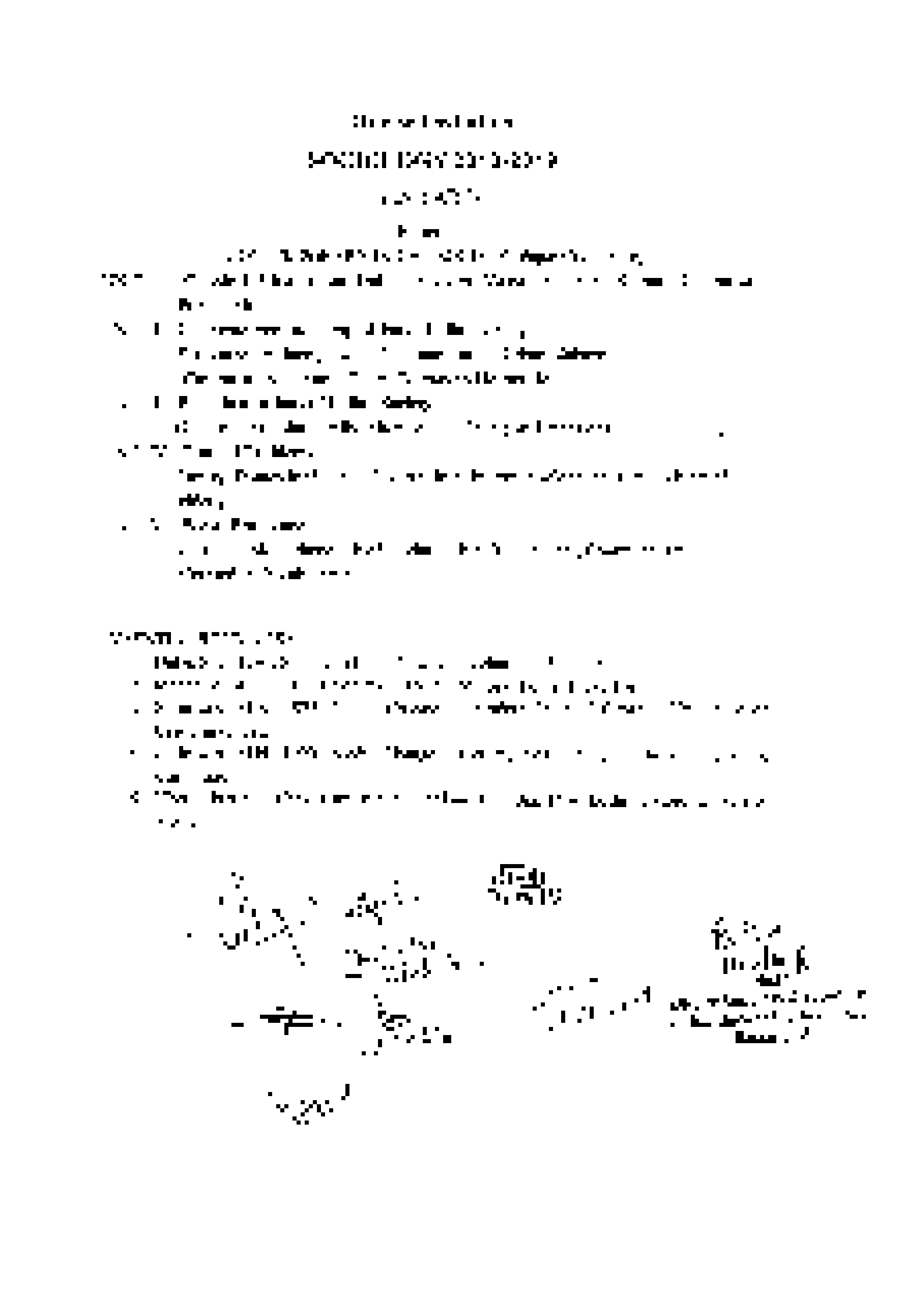
(वेद, ब्राह्मण, आरण्यक, उपनिषद्, वेदांगों एवं पुराणों का संक्षिप्त परिचय)

इकाई –5 निम्नलिखित कवियों का परिचय – अंक – 15

महाकवि कालिदास, भारवि, माघ, श्रीहर्ष, विशाखदत्त, बाणभट्ट, शूद्रक, विशाखदत्त, भवभूति ।

अनुशंसित ग्रन्थ –

1. शुकनासोपदेश – प्रकाशक – मोतीलाल बनारसीदास, वाराणसी
2. हितोपदेश (मित्रलाभ) – प्रकाशक – मोतीलाल बनारसीदास, वाराणसी
3. वैदिक साहित्य और संस्कृति – आचार्य बलदेव उपाध्याय
4. संस्कृत साहित्य का इतिहास – आचार्य बलदेव उपाध्याय
5. संस्कृत साहित्य का अभिनव इतिहास – डा. राधावल्लभ त्रिपाठी, वि.वि. प्रकाशन, सागर, म.प्र.



B.A./B.Sc. –I
Subject-Statistics
Paper – I (Paper Code-0803)
PROBABILITY THEORY

Unit-I
Important concepts in probability: Random experiment: trial, sample point and sample space, event, Operations of events, concepts of mutually exclusive and exhaustive events. Definition of probability: classical and relative frequency approach. Richard Von Misses, Cramer and Kolmogrove approachesto probability, merits and demerits to these approaches, any general idea to be given. Discrete probability space, Properties of probability based on axiomatic approaches, Independence of events, Conditional probability, total and compound probability rules, Baye's theorem and its applications.

Unit-II
Random variables: Definition of discrete random variable (rv); probability mass function (pmf) and cumulative distribution function (cdf). Joint pmf of several discrete rvs. Marginal and conditional pmfs. Independence of rvs. Idea of continuous random variables, probability density function, illustration of random variables and its properties. Expectation of a random variable and its properties -moments, measures of location and dispersion, skewness and kurtosis, Moment generating function, raw and central moments, Probability generating function (pgf) and, their properties and uses.

Unit-III
Standard univariate discrete distributions: degenerate, discrete uniform, hypergeometric, Poisson, geometric and negative binomial distributions. Marginal and conditional distributions, Distributions of functions of discrete rvs, reproductive property of standard distributions.

Unit-IV
Univariate continuous distributions and their properties: Uniform, Beta, Gamma, Exponential, Normal, Cauchy, Lognormal. Moment generating function (mgf) : its properties and applications.
Tchebycheff's inequality and applications, statements and applications of weak law of large numbers and central limit theorems.

Unit-V
Four short notes, one from each unit will be asked. Students have to answer any two.

REFERENCES

1. Bhat B.R.,Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
2.Chung, K.L. (1979). Elementary Probability Theory with Stochastic Processes, Springer International Student Edition.
3. Edward P.J., Ford J.S. and Lin (1974): Probability for Statistical Decision-Marketing. Prentice Hall
4. Goon A.M., Gupta M.K. and Dasgupta B.(1999): Fundamentals of Statistics, Vol. I , World Press, Calcutta
5. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, Mc. Graw Hall.

ADDITIONAl REFERENCES:
6. Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7.David Stirzaker (1994). Elementary Probability, Cambridge University Press.
8.Feller, W. (1968). An Introduction to Probability Theory and its Applications, Wiley.
9. Hoel P.G. (1971): Introduction to Mathematical Statistics
10. Mayer P.L. (1970): Introductory Probability and Statistical Applications, Addition Wesley
11.Mukhopadhyay, P. (1996). Mathematical Statistics, New Central Book Agency, Calcutta.
12.Parzen, E. (1960). Modern Probability Theory and its Applications, Wiley Eastern.
13Pitman, Jim (1993). Probability, Narosa Publishing House.

Paper – II(Paper Code-0804)
DESCRIPTIVE STATISTICS

Unit - I
Origin and Development of statistical importance, uses and limitations of Statistics. Types of Data: Concepts of a statistics population and sample from a population; qualitative and quantitative data; nominal and ordinal data; cross sectional and time series data; discrete and continuous data; frequency and non-frequency data.
Collection and Scrutiny of Data; Primary data – designing a questionnaire and a schedule; checking their consistency. Secondary data – their major sources including some government publications. Complete enumeration, controlled experiments, observational studies and sample surveys. Scrutiny of data for internal consistency and detection of errors of recording. Ideas of cross-validation.

Presentation of Data: Construction of tables with one or more factors of classification. Diagrammatic and graphical representation of non-frequency data. Frequency distributions, cumulative frequency distributions and their graphical and diagrammatic representation – column diagram, histogram, frequency polygon and ogives. Stem and leaf chart. Box plot.

Unit -II
Analysis of Quantitative Data: Univariate data: Concepts of central tendency or location, and their measures; arithmetic, geometric and harmonic mean, median and mode.

Unit -III
Dispersion and relative measures of dispersion, skewness and kurtosis, and their measures including those based on quartiles and moments. Sheppard's corrections for moments for grouped data (without deviation).

Unit -IV
Bivariate data: Scatter diagram. Product moment correlation coefficient and its properties. Coefficient of determination. Correlation ratio. Concepts of regression. intra-class correlation coefficient with equal and unequal group sizes. Rank correlation – Spearman's and Kendall's measures. Correlation index. Principle of least squares. Fitting of linear and quadratic regression and related results. Fitting

of curves reducible to polynomials by log and inverse transformation. Multivariate data: Multiple regression, multiple correlation and partial correlation in 3 variables. Their measures and related results.

Unit V

Four short notes, one from each unit will be asked. Students have to answer any two.

REFERENCES

1. Bhat B.R.,Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
2.Croxton FE, Cowden DJ and Klein S: Applied General Statistics (1973): Prentice Hall of India.
3.Goon A.M., Gupta M.K., Dasgupta B. Fundamentals of Statistics, Vol. 1(1991) & Vol. 2(2001). World Press, Calcutta.
5.Gupta V.K. and Kapor S.C. : Fundamentals of Mathematical Statistics S. Chand and Sons.

ADDITIONAl REFERENCES:

6.Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, McGraw Hill.
8.Snedecor GW and Cochran WG: Statistical Methods (1967) : Lowa State University Press.
9.Spiegel, MR (1967): Theory & Problems of Statistics (1967): Schaum's Publishing Series.

Paper III:
Practical : Practicals Based on Paper I & II

1. Presentation of data by Frequency tables, diagrams and graphs.
2. Calculation of Measures of Central Tendency, dispersion , skewness and kurtosis
3. Product Moment Correlation and Correlation Ratio
4. Fitting of Curves by the least square method
5. Regression of two variables
6. Spearman’s Rank correlation Coefficient
7. Multiple regression of three variables
8. Multiple correlation and partial correlation
9. Evaluation of probabilities using addition and multiplication theorems, conditional probabilities and Bayes theorems
10. Exercises on mathematical expectations and finding measures of central tendency, dispersion, skewness and kurtosis of univariate probability distributions
11. Fitting of univariate and conditional distributions

हिन्दी साहित्य

प्रथम - प्रश्न पत्र

(प्राचीन हिन्दी काव्य) अंक 75

(पेपर कोड-0103)

उद्देश्य एवं प्रस्तावना-

प्राचीन से तात्पर्य है - आधुनिक काल से पूर्व का काल । सही अर्थ में हिन्दी भाषा और साहित्य का विकास आदिकाल से शुरू होता है । इसमें धार्मिक तथा ऐतिहासिक दो प्रकार का साहित्य मिलता है, जो प्रबंध, मुक्तक, रासो, फागु, चरित, सुभाषित आदि विविध । काव्यरूपों में अभिव्यंजित है । मध्यकालीन साहित्य की पृष्ठभूमि के रूप में इसे प्रतिष्ठापित किया जाता है ।

मध्यकालीन काव्य में भक्तिकाव्य, जहां लोक जागरण को स्वर देने वाला है, वहीं रीतिकाल अपने लौकिक-श्रृंगारिका, परिदृश्य में तत्कालीन सामाजिक, सांस्कृतिक, राजनीतिक स्थितियों को बेलौस अभिव्यंजित करता है । अत: भाषा, संस्कृति, विचार, मानवता, काव्यत्व, काव्यरूपता, लौकिकता-पारलौकिकता, आदि दृष्टियों से इसका अध्ययन अत्यावश्यक है ।

पाठ्य विषय -

1. कबीर (कबीर - कांतिकुमार जैन) प्रारंभिक 50 साखियाँ)
2. जायसी-संक्षिप्त पद्मावत-श्यामसुंदर दास) नागमती वियोग वर्णन
3. सूर (भ्रमर गीत सार - सं. आचार्य रामचन्द्र शुक्ल) प्रारंभिक 25 पद
4. तुलसी - ''रामचरित मानस'' के अयोध्याकाण्ड से प्रारंभिक 25 दोहे चौपाई, छंद सहित ।
5. घनानन्द (घनानन्द - सं. विश्वनाथ प्रसाद मिश्र) प्रारंभिक 25 छन्द द्रुत पाठ हेतु निम्नांकित तीन कवियों का अध्ययन किया जावेगा - जिसमें से किन्हीं दो पर लघूत्तरीय प्रश्न पूछे जायेंगे -

   1. विद्यापति
   2. रहीम
   3. रसखान

अंक विभाजन-

1.	3 व्याख्याएँ	30 प्रतिशत
2.	आलोचनात्मक प्रश्न	30 प्रतिशत
3.	लघूत्तरीय प्रश्न	20 प्रतिशत
4.	वस्तुनिष्ठ प्रश्न	20 प्रतिशत

हिन्दी साहित्य

द्वितीय - प्रश्न पत्र

हिन्दी कथा साहित्य

पूर्णांक 75

(पेपर कोड-0104)

उद्देश्य एवं प्रस्तावना-

गद्य की प्रमुख विधाओं का इतना द्रुत विकास इनकी लोकप्रियता का प्रमाण प्रस्तुत करता है । इसमें आधुनिक जीवन, अपनी विविध कवियों के साथ यथार्थ रूप में अभिव्यंजित हुआ है । जीवन की अनुभूतियाँ, संवेदनाओं तथा विविध परिस्थितियों के साक्षात्कार के लिए इनका अध्ययन सर्वथा अपेक्षित है ।

पाठ्य विषय -

व्याख्या एवं आलोचनात्मक प्रश्नों के लिए एक उपन्यास एवं आठ कहानीकारों की एक-एक प्रतिनिधि कहानी का अध्ययन आवश्यक है ।

उपन्यास	1.	गबन	-	प्रेमचंद
कहानी	1.	प्रेमचंद	-	कफन
	2.	जयशंकर प्रसाद	-	आकाश दीप
	3.	यशपाल	-	परदा
	4.	फणीश्वरनाथ रेणु	-	ठेस
	5.	मोहन राकेश	-	मलवे का मालिक
	6.	भीष्म साहनी	-	चीफ की दावत
	7.	राजेन्द्र यादव	-	बिरादरी बाहर
	8.	रागेय राघव	-	गदल

द्रुत पाठ के लिए निम्नांकित तीन कथाकारों का अध्ययन अपेक्षित है, जिनमें से किन्हीं दो पर लघूत्तरीय प्रश्न पूछे जावेंगे -

1. उपेन्द्रनाथ अश्क, 2. बाल शौरि रेड्डी 3. शिवानी

अंक विभाजन -3/ व्याख्याएँ 30 प्रतिशत

2/ आलोचनात्मक प्रश्न	30 प्रतिशत
5/ लघुत्तरीय प्रश्न	20 प्रतिशत
20/ वस्तुनिष्ठ प्रश्न	20 प्रतिशत

- - - - - - - - -

B. A. Part-I

ENGLISH LITERATURE

There will be two literatures in English - 1550-1750 Papers, each carrying maximum marks - 75. Nine questions are to be attempted in each peper. Each question carries the marks according to the scheme mentloned in each paper.

ENGLISH LITERATURE

PAPER - I

LITERATURE IN ENGLISH - 1550-1750 (Paper Code-0105) **M.M. 75**

(i) Unit-1 of annotation is compulsery, and passages to be set from Units (II to V), atleast one from each unit, 3 to be attempted. 3x5 = 15

(ii) Multiple choice/objective type questions to be set unit vii, 15 to be set 10 be attempted. 1x1 = 10

(iii) From Unit-II to VI-8 questions to be setatleast one from each unit-5 to be attempted. 10x5 = 50

Word Limit for each answer 300 to 400 words.

UNIT-1 ANNOTATIONS.

UNIT-2 POETRY

(a) Shakespeare - Sonnet No. 1 From Fairest Creatures, Sonnet No. 154., The little Love God.

(b) Milton - How Soon Hath Time the Subtle Theif of Youth ...

(c) John Donne - Sweetest Love I Don't go, This is my play's Last Scene.

UNIT-3 POETRY

(a) John Dryden - Portrait of Shadwell.

(b) Alexander - Pope- From An Essy on Criticism (True case in writing ....) and the world's Victor Stood subdned by sound.

UNIT-4 PROSE

(a) Bacon Of Studies, Of Health, Of Friendship

(b) Addison-Sir Roger at Home

(c) Steele Of the Club.

UNIT-5 DRAMA

Shake spear - The Merchant of Venice

UNIT-6 Fiction - Swift - The Battle of the Books.

UNIT-7 Historical and Literary Topics

(i) The Renaissance.

(ii) Humanism.

(iii) Reformation.

(iv) The Restoration.

(v) The Earlier Drama

(vi) Petrachism and the Sonnet Cycle.

(vii) The Influence of Seneca and Classical Dramatic Theory

(viii) The Elizabethan and Jacobean stage.

(ix) Restoration Drama

(x) The Rise of Periodcal Essay

BOOKS RECOMMENDED for Unit VII in Papers I and II

1. Edward Albert - A History of English Literature.
2. Ifor Evans - A short History of English Literature.
3. Hudson - An Outline History of English Literature.

Both the papers of B. A. Part-I are included in the anthologies prescribed in the previous syllabus for B. A. Part-I and B. A. Part - II

ENGLISH LITERATURE

PAPER - II

LITERATURE IN ENGLISH FROM 1750-1900 (Paper Code-0106)

Note- (i) Unit-1. of annotation is compulsory, 6 passages be set from Units (II to IV) atleast one from each unit, 3 to be attempted. 3x5 = 15

(ii) Multiple Choice/objective type questions to be set from unit-VII, 25 to be set 10 to be attempted. 1x10 = 10

(iii) From Units 11 to VI-8 questions to be set atleast one from each Unit - 5 to be attempted. 10x5 = 50

Word Limit for each answer 300 to 400 words.

UNIT-1 ANNOTATIONS

UNIT-2 POETRY -

(a) Blake - Tiger, Tiger Burning Bright.
(b) Wordsworth - Daffodils and Solitary Reaper.
(c) Coleridge - Frost at Midnight.

UNIT-3 POETRY-

(a) Shelley - Ode to a skylark.
(b) Keats - Ode to Autumn.
(c) Tennyson - Crossing the Bar.
(d) Browing - Prospice.

UNIT-4 PROSE

(a) Lamb - Dream Children : A Reverie
(b) Hazlit - On Actors and Acting

UNIT-5 Fiction Jane Austen - Pride and prejudice.

UNIT-6 Fiction Charles Dickens - David Copperfield

UNIT-7 Historical and Literary Topics.

(1) The Reform Acts.
(2) The Impact of Industrial ization.
(3) Colonialism And Imperialism.
(4) Scientific the ughts and discoveries.
(5) Faith and Doubt.
(6) Classical and Romantic Concepts of Imagination.
(7) Varieties of Romantic and Victorian Poetry.
(8) The Victorian Novel.
(9) Realism and the Novel.
(10) Aestlheticism.

- - - - - - - -

MUSIC

Note : 1. B. A.(General) three year degree course with the relative wcight of pracicval and thcory being in the proportion 50 and 50 respectively (Model curriculum, page No.21A) courses. Hence the Central Board of Studies devide the ratio as :-

Ist paper 40 marks (written or Theory) Revised as 50

2ad paper 40 mars (written or Theory) Revised as 50

practical of 10 marks from which 10 marks are for the intcrnal sossional work.

B.A. General (as one of the optional objccts).

Hindustain Music (Vocal +Instrumental..)

THEORY

PAPER - I **M.M. : 50**

(Paper Code-0131)

1. Definition and Illustrations :- Naad, Shruti, Swara, Saptak, Purvang, Uttarang, Vadi, Samvadi, Vivadi, Anuvadi, Alankar, That, Mind, Soota, Bol, Alap, Tan, Tihai, pakad.
2. General knowledge of the Musical Styles:-

   Dhrupad, Dhamar, khyal, Thumari, Tarana, Tappa, Hori, Chaturang, Geet, bhaion, Ghazal,
3. General Kniowldege of the biographies and the contributions of the following Musi cians:-

   Ameer khusroi, Swami Haridas, Tansen, Nayak Baiju, Nayak Gopal, Tyagraja.
4. Merits and Demerits of Musicians according to the Shastras.
5. Study of the Theoritical details of prescribed Ragas for Practical Course as follows :- Yaman, Bhupali, Allhaiya Bilawal, Bhairav, Kafi, Khamaj, Brindavani - sarang, Durga (Bilawal That).

THEORY

PAPER - II **M.M. : 50**

(Paper Code-0132)

1. Hindustani Music and Karnataka Music, short history, similarities and Differences.
2. Study of Natation Systems - Pt. Bhatkhande and Pt. Paluskar.
3. Time Theory of the Ragas, Purva Raga, Utlar Raga, Sandhi Prakash Raga,
4. Formation of Ragas, Sampurna, Shadav, Audawa, Jati, That or Mel Theory.
5. Definition of Tala, Matra, Avartan, Bol, Vibhag, Khali, Bhari, Vilambit, Madhya and Drutlaya Writing of the Talas in Notation with Dugan

PRACTICAL

M.M. : 50

1. Alankar (Palta)
2. Study of the following Ragas :- Yaman, Bhupali, Alahaiya Bilawal, Bhairav, Kafi, Khamaj, Brindavani Sarang, Durga (Bilawal That)
3. Two Vilambit Khyalas or Masitkhani Gat in any two of the above mentioned Ragas.
4. Madhya Laya Khyalas or Razakhani Gat with Alap, Tan, Tora Jhala, in any five of the above Ragas.
5. Lakshan Geet, Saragam Geet in all the above Ragas.
6. Ability to demonstrate (orally by giving Tali and Khali of on hand) Talas Prescribed in course as follows :- Dadra, Kaharva, Teen Tal, Ektal, Chautal, Jhaptal.
7. One Dhrupad or Dhamar / one Gat other than teen Tal (Composition only)
8. One Bhajan, Ghazal, Geet, Patrioteec song and prayer.

INTERNAL SCSSIONAL WORK -

1. Ten Descriptions of Music Programmes (Radio and T. V. personally atlonded)

RECOMMENDED BOOK -

1. Kramik Pustak Malika (Part I to Part IV) By pt. V.N. Bhatkhande.
2. Sangitanjali Part I to VI By Pt. Onkar Nath Thakur.
3. Sangeet Visharad (Hathras) By Vasant
4. Sangeet Bodh, By Dr. Sarad Cahndra Paranjape
5. Dhawani aur Sangeet, by Prof. L. K. Sing
6. Tan Malika, by Raja Bhaiya Poocvale
7. Hamare Sangeet Ratna, by Lakshmi Narayan Garg.
8. Rag Parichaya Part I to IV By Harish Chandra Shrivastava
9. All Journals and Magazenes of Music
10. Sitar Malika, (Hathra)
11. Tabla Vigyan, by Dr. Lalmani Misra
12. Swar aur Ragon ke Vikas me Vadyon ka Yogdan, By Prof. Indrani Chakrawarty.
13. Sangeet Manjusha By Prof. Indrani Chakrawarty.
14. Music - its methods and technique and teaching in Higher Education.
    By Prof. Indrani Chakrawarty.
15. Sangeetanjali Part I to V By Pt. Ramashraya Jha.

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पाठ्यक्रम उर्दू निसाब

नोट : इस इम्तेहान में दो पर्चे होंगे । हर पर्चे में 75 नम्बर पर मुशतमिल होगा ।
(1) नस्र (2) नज्म ।

पहला पर्चा

नस्र (पेपर कोड-0129)

(सवानेह, खाके, इन्शाईये)

निसाब

(1) सवानेह :

1.	गालिब के सवानेही हालात	:	''यादगारे गालिब'' के मुसन्निफ अल्ताफ हुसैन हाली
2.	शिब्ली की बेनियाजी और खुद्दारी	:	''हयाते शिब्ली'' से सैयद सुलेमान नदवी
3.	नजीर अहमद की कहानी	:	''कुछ मेरी, कुछ उनकी जबानी'' मुसन्निव फरहत उल्ला बेग

(2) खाके :

1.	नामदेव माली	:	चन्द हम अस्र से मुसन्निव मौलवा अब्दुल हक
2.	हकीम अजमल खाँ	:	''खिमालिस्तान'' सज्जाद हदर यलद्रम
3.	अकबर इलाहाबादी	:	इन्शाएँ माजिद हिस्सा-2, मुसन्निफ अब्दुल माजिद दरयावादी
4.	जिगर साहब	:	''साहब'' से मुसन्निफ मोहम्मद तुफैल
5.	मौलाना अब्दुल कलाम आजाद	:	''अब्दुल कलाम आजाद'' से मुसन्निफ मुलामुस्सयदेन

(3) इन्शाईये :

1.	तास्सुब	:	''मजामीने सर सैयद'' सर सैयद
2.	मुझे मेरे दोस्तों से बचाओ	:	''खिमालिस्तान'' सज्जाद हदर यलद्रम
3.	शहजादे का बाजार में घिसटना	:	गदरे देहली के अफसाने सुसन्निफ ख्वाजा सहन निजामी
4.	सबेरे जो कल ऑख मेरी खुली	:	''मजामीने पितरस'' अज पितरस बुखारी
5.	बरसात	:	निगारिस्तान अज नियाज फतहपुरी
6.	शायर होना क्या माने रखता है	:	अज रशीद अहमद सिद्दीकी

पर्चा प्रथम

नोट : मुन्दरजा बाला पर्चा पाँच इकाईयों में तफसीम होगा ।

इकाई-1	1.	सवाने, निगारी, खाका निगारी और इन्शाईया निगारी पर सवालात ।	15 नम्बर
	2.	शामिले निसाब हसबाफ पर सवालात	15 नम्बर
	3.	शामिले निसाब खाकों पर सवालात	15 नम्बर
	4.	शामिले निसाब इन्शाईयों पर सवालात	15 नम्बर
	5.	शामिले निसाब असबाफ सवानेही और इन्शाईयों में इक्तेबासात की तशरीह	15 नम्बर

पर्चा द्वितीय (शायरी)

गजलियात (पेपर कोड-0130)

निसाब :

(1) बली : 1. याद करना हर घड़ी उस यार का
2. शराबे शौक से सरशार हैं हम

(2)	मीर तकी मीर	:	1. उल्टी हो गई सब तदवीरे
			2. मुँह तकाही करें है जिस तिस का
(3)	गालिब	:	1. दिल ही तो है न संगो खिश्त दर्द से भर न आए क्यो
			2. यह न थी हमारी किस्मत के विसाले यार होता
(4)	मौमिन	:	1. अगर उसकी जरा नहीं होता
			2. गैरो पे खुल न जाएँ कही राज देखना
(5)	आतिश	:	1. मगर उशको फरेबे नर्गिसे मस्ताना आता है
			2. हवाएँ दौरे गए खुशगवार राह में है
(6)	दाग देहलवी	:	1. खातिर से या खअयाल से मैं मान तो गया
			2. गाब किया तेरे बादे पे एतेवार किया
(7)	सिरज मीर खाँ सैंहर	:	1. सोने में दिल है दिल में दाग
			2. वक्ते जिबाह मुँह फिर फिर गया शमशीरे कातिल का
(8)	डॉ. इकबाल	:	1. कभी ऐ हकीकते मुसुन्तजिर नजर आ लिबासे गजाज में
			2. फिर चरागे लाबा से रोशन हुए कोहो दमन
(9)	हसरत मौहानी	:	1. रस्मे जफा कामयाब देखिये कब तक रहे
			2. हुस्ने बे परवा को कुद बीन खुद आरा कर दिया
(10)	फानी बदायूरी	:	1. खल्क कहती है जिसे दिल तेरे दीवाने का
			2. दुनियाँ मैरा बला जाने मेंहगी है के सस्ती है
(11)	जिगर मुरादाबादी	:	1. दिल गया रोनके हयात गई
			2. सेहले खिरद ने दिन यह दिखाएँ
(12)	फराक गौरखपुरी	:	1. निगारे नाज ने पर्दे उठाए है क्या-क्या
			2. बहुत पहले से उन कदमों की आहट जान लेते है
(13)	मजरूह सुल्तान पुरी	:	1. जला के मशअले जॉ हम जुन सिफात चले
			2. मुझे सहल हो गई मंन्जिले
(14)	ताज भोपाली	:	1. मै हूँ गदाए हुस्न न यूँ हॅस के टाल दे
			2. है अजब भीड़ भाड़ सड़कों पर
(15)	जॉ निसार अख्तर	:	1. हम से भागा न करो दूर गजालो की तरह
			2. न ख्वाब, खलिश न खुमार यह आदमी तो कोई सानेहा लगे है मुझे
(16)	खलील उर्रेहमान आजंमी	:	1. हम जिन्दगी के साज पे गाते रहे नगमा तेरा
			2. मै सूने मकान का दिया हूं
(17)	फजला ताबिशं	:	1. एक दो धोखे हो तो यारो दिल रखने को खा भी लो
			2. न कर शुमार के हर शै गिनी नहीं आती

इकाईयाँ : इकाई नं.

1.	गजल से मुताल्लिक सवालात	15 नम्बर
2.	कदीम शुअरा पर तन्कीदी सवालात	15 नम्बर
3.	जदीद गजल गो शुअरा पर सावालात	15 नम्बर
4.	कदीम गजल गो शुअरा के अशआर की तशरीह	15 नम्बर
5.	जदीद गजल गो शुअरा के अशआरकी तशरीह	15 नम्बर

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HOME SCIENCE

PAPER - I

ANATOMY PHYSIOLOGY & HYGIENE M.M. : 50

(Paper Code-0121)

UNIT-1 Structure & functions of cell general introduction of Tissue and their functions skeletal system - Types of bones, classification general structure & functions of bones. Muscular system - General structure, types and function.

UNIT-2 Circulatory system - General structure of organs and functions. composition of blood & function. Respiratory system - General structure of organs and functions.

UNIT-3 Digestive system - General introduction of Nutrients, Liver and spleen organs of digestion their general structure and function. Excretory system- organs of excretion.

Kidney & skin - structure & function.

UNIT-4 Nervous system - Central nervous system structure and function.

Senses and Sensory organs - ear and eye structure & function.

UNIT-5 Hygiene - Personal Hygiene

social Hygiene

Enviromental and Industrial Hygiene

Water - its importance and purification.

Air - its importance and purification.

First aid home nursing - Principles, qualities of nurse, Responsibilities, selection of sick room. care of the patient. Some common accidents and their aid, poision, bleeding, Burns and scalds, fracture sprain, dislocation.

प्रायोगिक

कुल समय 3 घंटे **कुल अंक- 50**

अंको का विभाजन

1.	सेशनल	10
2.	प्राथमिक उपचार	10
3.	गृह परिचर्या	15
4.	शरीर रचना एवं स्वास्थ्य विज्ञान	15

सेशनल : (परीक्षा के समय छात्राऐं प्रायोगिक नेट बुक एवं प्राथमिक उपचार पेटी जमा करें) ।

प्रयोग क्रमांक-1 रिपोर्ट : कालेज की कक्षाओं का प्रतिदिन की सफाई एवं वायुविजन संबंधित निरीक्षण ।

प्रयोग क्रमाक-2 स्वयं के परिवार में पीने के पानी के प्रति के साधन, संग्रह के प्रकार एवं साधन पानी की शुद्ध एवं स्वच्छता के लिये प्रयुक्त विधि ।

प्रयोग क्रमांक-3 रिपोर्ट : स्वयं के परिवार एवं अन्य दो पड़ोसी परिवार के घर में अगस्त से दिसम्बर (अनुमानत: पांच महीने) के दौरान हुई बीमारियों के संबंध में जानकारी ।

1. रोग का नाम ।
2. प्राथमिक उपचार - जो दिया गया ।
3. आहार (जो उपयोग में लाया गया) ।

प्रयोग क्रमांक-4 प्राथमिक उपचार पेटी (आवश्यक सामान)

1. घाव धोने एवं बांधने का सामान ।
2. दर्द कम करने की दवाईयाँ ।
3. अपाचन - में प्रयुक्त दवाईयाँ ।

प्राथमिक उपचार पेटी छात्राएँ परीक्षा के समय अपना नाम एवं परिवार के सदस्यों की संख्या लिखकर प्रस्तुत करें ।

प्रयोग क्रमांक-5 रोगी के लिये उपचारात्मक व्यंजनों का अध्यापक द्वारा करके बताना ।

1. सब्जियों का सूप ।
2. दाल का सूप ।
3. उबला अंडा ।
4. फटे दूध का पानी (व्हे वाटर) ।
5. सब्जी एवं फलों का स्टू (फ्ल्श्रल्नीड्यल्लीछश्च श्रड्डुट्टरू क्ल्ज्ञ).

इन व्यंजनों की विधि एवं उपयोगिता नोट बुक में अंकित की जावेगी ।

प्रयोग क्रमांक-6 प्राथमिक उपचार

1. विभिन्न प्रकार की पट्टियाँ (तिकोनी, गोल) ।
2. घाव की देखभाल ।
3. कृत्रिम श्वसन ।

प्रयोग क्रमांक-7 गृह परिचर्चा

1. शरीर के तापमान का चार्ट
2. गरम एवं ठंडे पानी की थैली तैयार करना ।
3. बिस्तर लगाना / चद्दर बदलना ।

प्रयोग क्रमांक-8 दृष्य श्रव्य यंत्र का बनाना ।

महत्वपूर्ण निर्देश- प्रयोग क्रमांक 1, 2, 3, तथा 5 की रिपोर्ट छात्राओं द्वारा प्रायोगिक नोट बुक में लिखकर एवं अध्यापक द्वारा प्रति हस्ताक्षरित / प्रमाणित करवाकर परीक्षा के समय प्रस्तुत की जावेगी ।

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HOME SCIENCE

Paper - II

HOME SCIENCE - EXTENSION EDUCATION

(Paper Code-0122)

UNIT-1 Introduction of Home Science Extension Education :

(A) Home Scince - Concepts, goals and Areas of Home Science & their inter relationship with extension.

(b) Principles and methods of home science extension education general concepts of extension work.

(c) Objectives of extension educatuoin qualities of extension workers, extension education process.

UNIT-2 Community Development problems and Role of Home Scientists :

(A) Principles of community development organization and function of community development.

(B) Role of home scientists in community development, programmes of extension education for community. programmes of community development at central, state, district, block and village level.

Family plalnning programme.

Community problems, child marriage, Dowery system, parda pratha, rural indibtendness unemployment.

UNIT-3 Teaching methods & aids :

Methods of learning - Discussion, demonstration, observation and their applecation to home science teaching.

Extension Methods - their scope advantages and application.scope and use in Home Science teaching

Extension Methods - their scope advantages and application.

UNIT-4 Attitude towards Home Science :

Attitudes towards Home Science, Motivation towards Home Science. Applecation of Home Science towards improvement in family living. Job opportunities in Home Science National and International agencies and their collaboration with Home Science, Official organization Home Science Association of India, W.H.O. FAG, CARE, ICAR, ICDS, ICSSR, ICMR, IRDP, Adult education.

UNIT-5 Curriculum Planning in Home Science :

Basic concept of curriculum planning components of curriculum planning imple mentation evoluation and improvement required in the existing system of H.Sc. education policy and its relevance to H.Sc. Programme planning-concept, prin ciples objectives and steps in programme planning.

REFERENCE :

1. Extension education and community development by Dhama O. P.
2. Co-operative Extension Work by Kelsey, L.D. and Heame C. R.
3. Extension education, Shri Lakshmi press by Reddy A. A.
4. An Introduction to programme evaluation John Wiley
   - Fracklin, J. K. & Thrashe / J.H.

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नवीन संशोधित पाठ्यक्रम
बी.ए. प्रथम वर्ष , इतिहास
प्रश्न पत्र –प्रथम
भारत का इतिहास, प्रारंभ से 1206 ई. तक

इकाई–1

1. भारत की भौगोलिक संरचना
2. भारतीय इतिहास के स्त्रोंतों का सर्वेक्षण
3. पूर्ण पाषाण काल एवं उत्तर पाषाण काल
4. हड़प्पा सभ्यता– निर्माता, प्रसार, नगर योजना, राजनीतिक सामाजिक, आर्थिक संरचना

इकाई–2

5. ऋगवैदिक काल – राजनीतिक, सामाजिक, आर्थिक
6. ईसा पूर्व छठवी शताब्दी का भारत –महाजनपद काल
7. जैन एवं बौद्ध धर्म
8. सिंकदर का आक्रमण और उसका प्रभाव

इकाई–3

9. चंद्रगुप्त मौर्य एवं अशोक
10. मौर्य प्रशासन, कला एवं संस्कृति, अशोक का धम्म
11. मौर्योत्तरकाल – शुंग, कुषाण एवं सातवाहन
12. संगमयुग– साहित्य, संस्कृति, चोल एवं पाण्ड्य

इकाई–4

13. गुप्तयुग– समुद्रगुप्त की विजयें एवं चंद्रगुप्त द्वितीय, प्रशासन, आर्थिक, सामाजिक, सांस्कृतिक दशा
14. राजपूतों की उत्पत्ति एवं प्रशासनिक तथा सामाजिक विशेषताएं
15. पल्लव, चालुक्य, वर्धन, पाल, राष्ट्रकुट
16. भारत का दक्षिण पूर्व एशिया एवं श्रीलंका से संबंध
17. मोहम्मद बिन कासिम, महमूद गजनवी एवं मुहम्मद गोरी का आक्रमण

इकाई 5

18. छत्तीसगढ़ का परिचय– नामकरण एवं भौगोलिक स्थिति
19. छत्तीसगढ़ के प्रमुख क्षेत्रीय राजवंश–पाण्डुवंश, शरभपुरीय,
20. छत्तीसगढ़ के प्रमुख राजवंश– नलवंश, छिन्दक नागवंश,
21. दक्षिण कोसल के कल्चुरी वंश, राजनीतिक एवं प्रशासनिक व्यवस्था

संदर्भ ग्रन्थ सूचीः–

1. रतिभानु सिंह नाहर — प्राचीन भारतीय इतिहास एवं संस्कृति
2. शांता शुक्ला — भारत का राजनीतिक इतिहास
3. द्विजेन्द्र नारायण एवं श्रीमाली — प्राचीन भारत
4. ओम प्रकाश — प्राचीन भारत
5. बी.एन. लूनिया — प्राचीन भारतीय संस्कृति
6. एस.आर. शर्मा — प्राचीन भारत– प्रगैतिहासिक युग से 1200 ई. तक
7. K.L. Khurana — Ancient India from Earliest Time to 1206 A.D.
8. K.L. Khurana — History of India from Earliest Time to 1526 A.D
9. Vincent Smith — Oxford History of India
10. भार्गव — प्राचीन भारत
11. L. Prasad — Ancient India- Indius Volley Civilization to 1200 A.D
12. भगवान सिंह वर्मा — छत्तीसगढ़ का इतिहास प्रारंभ से 1947ई. तक
13. राम कुमार बेहार — छत्तीसगढ़ का इतिहास
14. ऋषिराज पांडे — दक्षिण कौशल के कल्चुरी
15. व्ही.व्ही. मिराशी — कल्चुरी नरेश और उनका काल
16. सुरेश चंद्र शुक्ला — छत्तीसगढ़ का समग्र अध्ययन
17. किशोर अग्रवाल — बीसवीं शताब्दी का छत्तीसगढ
18. सुरेश चंद्र शुक्ला एवं अर्चना शुक्ला — छत्तीसगढ की रियासतों का विलीनीकरण
19. लाला जगदलपुरी — बस्तर इतिहास एवं संस्कृति
20. प्यारेलाल गुप्त — प्राचीन छत्तीसगढ
21. सी.एल. शर्मा — छत्तीसगढ की रियासतें
22. हीरालाल शुक्ल — छत्तीसगढ का जनजातीय इतिहास
23. पी.एल. मिश्र — मुगलकालीन छत्तीसगढ़

बी.ए. प्रथम वर्ष , इतिहास
प्रश्न पत्र – द्वितीय
विश्व का इतिहास–1453 ई. से 1890 ई. तक

इकाई–1

1. यूरोप में आधुनिक युग की विशेषताएँ, पुनर्जागरण
2. धर्म सुधार एवं प्रति धर्म सुधार आंदोलन
3. राष्ट्रीय राज्यों का उदय स्पेन, फ्रांस
4. राष्ट्रीय राज्यों का उदय इंग्लैण्ड, रूस

इकाई–2

5. वाणिज्यवाद, उपनिवेशवाद
6. औद्योगिक क्रान्ति
7. इग्लैण्ड में गृह युद्ध : घटनाएँ, कारण एवं परिणाम
8. गौरव पूर्ण क्रांति (1688)

इकाई–3

9. अमेरिका का स्वतंत्रता संग्राम
10. फ्रांस की क्रान्ति के कारण एवं प्रभाव
11. नेपोलियन युग
12. विएना कांग्रेस

इकाई–4

13. अनुदारवाद– मैटरनिक, आंतरिक एवं विदेश नीति
14. यूरोप में 1830 ई. एवं 1848 ई. की क्रान्ति
15. इंग्लैण्ड में उदारवाद 1832 एवं 1867 ई. का सुधार अधिनियम
16. पूर्वी समस्या– कारण, क्रीमिया युद्ध, बर्लिन सम्मेलन

इकाई–5

17. इटली का एकीकरण
18. जर्मनी का एकीकरण
19. बिस्मार्क की गृह नीति

20. बिस्मार्क की विदेश नीति

संदर्भ ग्रन्थ सूचीः–

1. बी. एन. मेहता — अर्वाचीन यूरोप
2. K.L. Khurana — History of Modern World
3. Khurana And Sharma — Modern Europe 1453- 1789 A.D.
4. जैन एवं माथुर — आधुनिक विश्व
5. कौलेश्वर राय — आधुनिक यूरोप
6. मथुरा लाल शर्मा — संयुक्त राज्य अमेरिका का इतिहास
7. वी.एस. माथुर — संयुक्त राज्य अमेरिका का इतिहास
8. बी.एन. लूणिया — आधुनिक पाश्चात्य इतिहास की प्रमुख धाराएं
9. एल.पी. शर्मा — इंग्लैंड का इतिहास
10. वी.डी. महाजन — इंग्लैंड का इतिहास
11 जे.आर. काम्बले — अमेरिका का इतिहास
12. A.C. Gupta — A History of China
13. विपिन बिहारी सिन्हा — आधुनिक ग्रेट ब्रिटेन

सत्र 2019–20 से प्रस्तावित

बी.ए. द्वितीय वर्ष

संस्कृत साहित्य

[illegible]

[illegible]

नाटक, व्याकरण तथा रचना पूर्णांक – 75

इकाई –1	नागानन्द नाटकम् (हर्षवर्धनकृत) 1. एक ससन्दर्भ व्याख्या 2. दो सूक्तियों की व्याख्या	अंक – 15
इकाई –2	नागानन्द नाटकम् – समीक्षात्मक प्रश्न	अंक – 15
इकाई –3	व्याकरण (लघुसिद्धान्तकौमुदी) कर्तृवाच्य, कर्मवाच्य, भाववाच्य	अंक – 15
इकाई –4	व्याकरण (लघुसिद्धान्तकौमुदी) समास प्रकरण	अंक – 15
इकाई –5	वाक्यरचना व्याकरण के अधीत अंश पर आधारित छह संस्कृत शब्दों से वाक्यरचना	अंक – 15

अनुशंसित ग्रन्थ –

1. नागानन्द नाटक – हर्षवर्धन, प्रकाशक – चौखम्बा विद्याभवन, वाराणसी
2. रचनानुवाद कौमुदी – डा. कपिलदेव द्विवेदी
3. संस्कृत में अनुवाद कैसे करें – उमाकान्त मिश्र शास्त्री, प्रकाशक – भारती भवन
4. लघु सिद्धान्त कौमुदी – श्रीधरानन्द शास्त्री
5. लघु सिद्धान्त कौमुदी – श्री महेश सिंह कुशवाहा, प्रकाशक – चौखम्बा विद्याभवन, वाराणसी
6. शीघ्रबोधव्याकरणम् – डा. पुष्पा दीक्षित, पाणिनीय शोध संस्थान, तेलीपारा, बिलासपुर

सत्र 2019–20 से प्रस्तावित

बी.ए. द्वितीय वर्ष

संस्कृत साहित्य

द्वितीय प्रश्नपत्र

नाटक, व्याकरण और अनुवाद पूर्णांक – 75

इकाई –1 रघुवंशमहाकाव्यम् (द्वितीय सर्गः) अंक – 15
दो श्लोकों की व्याख्या

इकाई –2 रघुवंशमहाकाव्य के समीक्षात्मक प्रश्न अंक – 15

इकाई –3 नीतिशतकम् (भर्तृहरिकृत) अंक – 15
दो श्लोकों की व्याख्या

इकाई –4 साहित्येतिहासः अंक – 15
नाटक, महाकाव्य तथा गद्यकाव्य –
अभिज्ञानशाकुन्तल, उत्तररामचरित, वेणीसंहार, मुद्राराक्षस, मृच्छकटिक, रघुवंश, कुमारसंभव, बुद्धचरित, सौन्दरनन्द, पद्मचूडामणि, सुग्रीववध, किरातार्जुनीय, भट्टिकाव्य, जानकीहरण, शिशुपालवध, नैषधीयचरित, हरविजय, नवसाहसांकचरित, विक्रमांकदेवचरित, राजतरंगिणी ।
वासवदत्ता, दशकुमारचरित, कादम्बरी, हर्षचरित, तिलकमंजरी, गद्यचिन्तामणि, शिवराजविजय ।

इकाई –5 साहित्येतिहासः अंक – 15
गीतिकाव्य, मुक्तक तथा कथा साहित्य –
शतकत्रय (भर्तृहरि), ऋतुसंहार, मेघदूत, अमरुकशतक, गीतगोविन्द, भामिनीविलास, पंचलहरी, नलचम्पू, रामायणचम्पू, भारतचम्पू, वरदाम्बिकापरिणय, पंचतंत्र, हितोपदेश, बेतालपंचविंशति, शुकसप्तति, कथासरित्सागर, बृहत्कथामंजरी, कथामुक्तावली, इक्षुगन्धा ।
(उल्लिखित रचनाओं एवं रचनाकारों का सामान्य परिचय अपेक्षित है ।)

अनुशंसित ग्रन्थ –

1. रघुवंशमहाकाव्य – कालिदास, प्रकाशक – मोतीलाल बनारसीदास
2. नीतिशतकम् – भर्तृहरि, प्रकाशक – चौखम्बा विद्याभवन, वाराणसी
3. संस्कृत साहित्य का इतिहास – आचार्य बलदेव उपाध्याय
4. संस्कृत साहित्य का अभिनव इतिहास – डा. राधावल्लभ त्रिपाठी, वि.वि. प्रकाशन, सागर, म.प्र.

बी. ए. भाग 2 B. A. Part II

राजनीति विज्ञान Political Science

प्रथम प्रश्नपत्र : राजनीतिक चिन्तन Paper I : Political Thought

इकाई 1 : प्लेटो : आदर्श राज्य – न्याय, शिक्षा, साम्यवाद, दार्शनिक शासक ।

अरस्तू : राज्य, दासप्रथा, नागरिकता , क्रान्ति ।

Unit 1 : Plato : Ideal State : Justice, Education, Communism , Philosopher King.

Aristotle : State, Slavery, Citizenship , Revolution.

इकाई 2 : मैकियावेली : युग का शिशु, धर्म व नैतिकता, राजा के कर्तव्य और आचरण।

हॉब्स : सामाजिक समझौता सिद्धान्त – लेवियाथन । लॉक : सामाजिक समझौता सिद्धान्त ।

रुसो : सामाजिक समझौता सिद्धान्त , सामान्य इच्छा ।

Unit 2 : Machiavelli : Child of his times, Religion and Morality, Duties and Conduct of King. Hobbes : Social Contract Theory: Leviathan. Locke : Social Contract Theory. Rousseau : Social Contract Theory and General Will.

इकाई 3 : बेंथम : उपयोगितावाद । मिल : उपयोगितावाद में संशोधन, स्वतंत्रता और प्रतिनिधि शासन ।

ग्रीन : राजनीतिक विचार । मार्क्स : राजनीतिक विचार ।

Unit 4 : Bentham : Utiliterianism. Mill : Amendment in Utiliterianism. Liberty and Representative Government. Green : Political Thoughts. Marx : Political Thoughts.

इकाई 4 : आदर्शवाद, व्यक्तिवाद, उदारवाद, समाजवाद, फासीवाद : विशेषताएं और आलोचना ।

Unit 4 : Idealism, Individualism, Liberalism, Socialism, Fascism : Features and Criticism.

इकाई 5 : मनु और कौटिल्य : सप्तांग सिद्धान्त, राजा और राजपद, प्रशासकीय व्यवस्था, राज्यमण्डल ।

गांधी : सत्य, अहिंसा, सत्याग्रह एवं राजनीतिक विचार । अम्बेडकर : राजनीतिक एवं सामाजिक विचार

दीनदयाल उपाध्याय : एकात्ममानववाद ।

Unit 5 : Manu and Kautilya : Saptang Theory, King and Kingship, Administrative System, Rajyamandal.

Gandhi : Truth , Non violence , Satyagrah and Political thoughts.

Ambedkar : Political and Social thoughts.

Deen Dayal Upadhyay : Akatmamanavvad.

बी.ए.द्वितीय वर्ष

प्रथम प्रश्न पत्र राजनीतिक चिन्तन

क्र	पुस्तक का नाम	लेखक का नाम
1.	राजनीतिक चिन्तन की रूपरेखा	ओ.पी. गावा
2.	राजनीतिक चिन्तन का इतिहास	जीवन मेहता
3.	राजनीतिक चिन्तन का इतिहास	बी.एल. फाडिया
4.	पाश्चात्य एवं आधुनिक राजनीतिक चिन्तन का इतिहास	प्रभू दत्त शर्मा
5.	पाश्चात्य राजनीतिक चिन्तन	जे.पी. सूद
6.	भारतीय राजनीतिक चिन्तन	वी.पी. वर्मा
7.	भारतीय राजनीतिक चिन्तन	अवस्थी एवं अवस्थी
8.	भारतीय राजनीतिक चिन्तन	आ.पा. गावा
9.	पालीटिकल थाट	सा.एल. बपर
10.	हिस्ट्री ऑफ पालीटिकल थियरी	जार्ज एच सेबाइन
11.	रिसेन्ट पालीटिकल थॉट	फ्रान्सीस डब्लू कोकर
12.	मास्टर ऑफ पालीटिकल थॉट	माईकल बी. फास्टर
13.	ग्रेट पालीटिकल थॉट	विटियम इवेस्टीन

Reference:-

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- Vishwanath Mishra, **Rajavidya evam Rajanitishashtra**, Sagar: Vishwavidyalaya Prakashan, 2007

Brian R. Nelson, **Western Political Thought**, Delhi NCR: Pearson Education Ltd., 1996

बी. ए. भाग 2 B. A. Part II

राजनीति विज्ञान Political Science

द्वितीय प्रश्नपत्र : तुलनात्मक शासन एवं राजनीति Paper II : Comparative Government and Politics

इकाई 1 : ब्रिटिश संविधान : विकास, विशेषताएं, कार्यपालिका , व्यवस्थापिका, न्यायपालिका ।

Unit 1 : British Constitution : Evolution , Salient Features, Executive, Legislature and Judiciary.

इकाई 2 : संयुक्त राज्य अमेरिका का संविधान : विशेषताएं, कार्यपालिका , व्यवस्थापिका, न्यायपालिका , शक्ति पृथक्करण व नियंत्रण संतुलन का सिद्धान्त ।

Unit 2 : Constitution of United States of America : Salient Features, Executive, Legislature and Judiciary. Theory of Separation of Powers and checks and balances.

इकाई 3 : स्विटजरलैण्ड का संविधान : विशेषताएं, कार्यपालिका , व्यवस्थापिका, न्यायपालिका , प्रत्यक्ष प्रजातन्त्र। Unit 3 : Constitution of Switzerland : Salient Features, Executive, Legislature and Judiciary. Direct Democracy.

इकाई 4 : चीन का संविधान :विशेषताएं, कार्यपालिका , व्यवस्थापिका, न्यायपालिका, साम्यवादी दल ।

Unit 4 : Constitution of China : Salient Features, Executive, Legislature and Judiciary. Communist Party.

इकाई 5 : तुलनात्मक राजनीति : अर्थ, परिभाषा, । ईस्टन का व्यवस्था सिद्धान्त, आमण्ड का संरचनात्मक–प्रकार्यात्मक उपागम । राजनीतिक विकास, राजनीतिक समाजीकरण, राजनीतिक संस्कृति की अवधारणा।

Unit 5 : Comparative Politics : meaning , Definition. System Theory of David Easton, Structural -functional Approach of Almond. Concept of Political Development, Political Socialisation, Political Culture

बी.ए. द्वितीय वर्ष
प्रश्न पत्र
तुलनात्मक शासन एवं राजनीति

सन्दभ ग्रन्थ सूचीः–

क्र	पुस्तक का नाम	लेखक का नाम
1.	तुलनात्मक राजनीति एवं राजनीतिक संस्थाए	सी बी गेना
2.	तुलनात्मक राजनीति	जे.सी. जौहरी
3.	तुलनात्मक राजनीति	पी.डी शर्मा
4.	तुलनात्मक राजनीति	एस.आर. महेष्वरी
5.	तुलनात्मक राजनीति संस्थाएं और प्रक्रियांए	तपन बिस्वाल
6.	कम्परेटीव गर्वनेमेंट	एस.ई. फाईनर

Reference :-

- Anup Chand Kapur, K.K. Mishra **Select Constitutions** (U.K., U.S.A., France, Canada, Switzerland, Japan, China, India), S. Chand & Company Ltd., New Delhi, 2001.
- B.C. Rai, **The World Constitution: A Comparative Study** (U.S.A., U.K., Soviet Union, Switzerland, Japan, France, Australia, Canada, India, Pakistan), Prakashan Kendra, Lucknow, 2001
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- Shashi Kant Jha & Bhaswati Sarkar (eds.) **Amidst Turbulence & Hope, Transition Russia and Eastern Europe,** New Delhi, 2002
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- Gabrial A. Almond and G. Bingham Powell (eds.) **Comparative Politics Today: A World view,** Harper Collins Publishers, 2002

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- J. C. Johri**, 'New Comparative Government'**, Lotus Press Publisher, 2008.
- Vidya Bhushan and Vishnu Bhagwan, **World Constitutions,** New Delhi

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B.A. Part II Paper I

प्रथम : प्रश्न–पत्र

प्राचीन भारतीय सामाजिक तथा आर्थिक संस्थाएं (पेपर कोड 0134)

Ancient Indian Social and Economic Institution

पूर्णांक : 75

उद्देश्य : इस पाठ्यक्रम का उद्देश्य प्राचीन भारत की सामाजिक तथा आर्थिक संस्थाओं का सामान्य ज्ञान कराना है।

इकाई– 1 (1) वर्णाश्रम व्यवस्था (Varna System)
(2) आश्रम व्यवस्था (Ashramas)
(3) पुरूषार्थ चतुष्टय (Purushartha Chatushthaya)
(4) पंचमहायज्ञ (Pancha mahayagya)

इकाई– 2 (1) संस्कार (Sanskaras)
(2) विवाह तथा उसके प्रकार (Marriage and their types)
(3) परिवार की उत्पत्ति तथा महत्व, संयुक्त परिवार, पिता,माता, तथा पुत्र की स्थिति, पुत्रों के प्रकार
(Origin of Family and its Significance, Joint Family, position of Father, Mother and Sons; Types of Son)

इकाई– 3 (1) नारियों की स्थिति (Position of Women)
(2) शिक्षा–उद्देश्य, आदर्श, उपलब्धियॉ तथा प्रमुख शिक्षा केन्द्र
(Objectives of Education, Model, Achievements and Important education Centres)

इकाई– 4 (1) वैदिक काल से 600 ई.पू. तक प्राचीन भारत की आर्थिक दशा
(Economic Condition of Ancient India from Vedic age to 600 B.C.)
(2) श्रेणियों का संगठन और कार्य (Organisation and working of Guilds)
(3) 600 ई.पू. से 319 इ. तक प्राचीन भारत की आर्थिक दशा
(Economic Condition of Ancient India from 600 B.C. to 319 A.D.)

इकाई– 5 (1) 319 ई से 1200 ई. तक प्राचीन भारत की आर्थिक दशा
(Economic Condition of Ancient India from 319A.D. to 1200 A.D.)
(2) आंतरिक और बाह्य व्यापारिक मार्ग (Domestic and International trade routes)

सहायक ग्रंथ :

1. मनोरमा जौहरी – प्राचीन भारतीय वर्णाश्रम व्यवस्था
2. जयशंकर मिश्र – भारत की सामाजिक इतिहास
3. के.सी.जैन – प्राचीन भारतीय सामाजिक तथा आर्थिक संस्थाएं
4. राजबली पाण्डेय – हिन्दू संस्कार
5. हरिदत्त वेदालंकार – हिन्दू परिवार मीमांसा
6. ए.एस.अल्तेकर – प्राचीन भारत में नारियों की स्थिति
7. आर.एस.शर्मा – प्राचीन भारत में शूद्रों की स्थिति
8. ए.एस.अल्तेकर – प्राचीन भारतीय शिक्षण पद्धति
9. रमेशचन्द्र मजुमदार (अनु.कृष्णदत्त बाजपेयी) – प्राचीन भारत में संगठित जीवन
10. मोतीचन्द्र – सार्थवाह
11. कृष्णदत्त बाजपेयी – भारतीय व्यापार का इतिहास
12. कृष्णदत्त बाजपेयी – प्राचीन भारत का विदेशों में सबंध
13. आर.एस.शर्मा – पूर्व मध्यकालीन भारत में सामाजिक परिवर्तन
14. डॉ. चन्द्रदेव सिंह – प्राचीन भारतीय समाज और चिन्तन
15. सुस्मिता पाण्डेय – समाज, आर्थिक व्यवस्था एवम् धर्म
16. P.N. Prabhu - Hindu Social Organization
17. S.K. Maity - The Economics life of Northem India in the Gupta Period.
18. L.Gopal - Economic life of Northem Indian
19. D.R. Das - Econimics History of the Dean
20. शिव स्वरूप सहसा – प्राचीन भारतीय सामाजिक, आर्थिक संस्थाएं

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द्वितीय : प्रश्न–पत्र

B.A. Part II Paper II

प्राचीन भारतीय राजनय तथा प्रशासन (पेपर कोड 0205)

Ancient Indian Polity and Administration

पूर्णांक : 75

इकाई– 1 राज्य की उत्पत्ति, प्रकार, स्वरूप तथा कार्य।
(Origin, types, form, and function of State)

इकाई– 2 राजपद, मंत्रिपरिषद्–संगठन एवं कार्य, सप्तांग सिद्धांत।
(Kingship; organisation and working of Council of Ministers; Theory of Saptanga)

इकाई– 3 गणराज्य : संगठन, शासन, पद्धति, गुण–दोष
(Republics: organisation, government, system, Pros & Cons)

इकाई– 4 अंतर्राष्ट्रीय संबंध, मण्डल सिद्धांत, षाडगुण्य सिद्धांत, दूत व्यवस्था, गुप्तचर व्यवस्था।
(International Relation, Principle of Mandala, Principle of Shadgunya, Ambassadors, Espionage)

इकाई– 5 विभिन्न राजवंशों की प्रशासन व्यवस्था :
मौर्य, गुप्त, हर्ष कालीन वंश की प्रशासन, राष्ट्रकूट एवं चोलवंश।
(Administrative system of various Dynasties: Mauryas, Guptas, period of Harsha, Rashtrakutas and Cholas)

अनुशंशित पुस्तके :

1. अनंत सदाशिव अल्तेकर – प्राचीन भारतीय शासन पद्धति (Ancient Indian Administration)
2. काशी प्रसादा जायसवाल – हिन्दू राजतंत्र, भाग 1, 2 (Hindu Polity)
3. डॉ. रवींन्द्रनाथ अग्रवाल – मध्यप्रदेश क्षेत्र के अंतर्राज्यीय संबंधों का अध्ययन
4. सत्यकेतु विद्यालंकर – प्राचीन भारतीय शासन व्यवस्था एवं राज्य शास्त्र
5. मनोरमा जौहरी – प्राचीन भारत में राज्य और शासन व्यवस्था
6. हरिशचन्द्र शर्मा – प्राचीन भारतीय राजनीतिक विचारक एवं संस्थाएं
7. राधाकृष्ण चौधरी – प्राचीन भारतीय राजनीति एवं शासन व्यवस्था

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1. सल्तनत कालीन एवं मुगल कालीन इतिहास के स्त्रोत
2. दास वंश– ऐबक, इल्तुतमिश, बलबन
3. खिलजी वंश– अलाउद्दीन खिलजी–सैनिक उपलब्धियां, राजस्व व्यवस्था एवं बाजार नियंत्रण
4. तुगलक वंश– मोहम्मद बिन तुगलक

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5. मुगल साम्राज्य की स्थापना – बाबर एवं हुमायूँ
6. शेरशाह सूरी का प्रशासन
7. अकबर की राजपूत नीति
8. मुगल शासकों की धार्मिक नीति – अकबर से औरंगजेब तक

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9. मुगल प्रशासन
10. मध्यकालीन सामाजिक एवं आर्थिक दशा
11. भक्ति आंदोलन
12. सूफीवाद

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13. मध्यकालीन साहित्य, कला एवं स्थापत्य
14. विजयनगर राज्य
15. बहमनी राज्य
16. शिवाजी का प्रशासन

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17. पेशवा– बालाजी विश्वनाथ, बालाजी बाजीराव
18. पानीपत का तृतीय युद्ध– कारण एवं परिणाम
19. मराठों के अधीन छत्तीसगढ़ – बिम्बाजी भोसले
20. छत्तीसगढ़ में मराठा प्रशासन

1. श्रीवास्तव ए.एल — भारत का इतिहास (अग्रेजी अनुवाद)
2. श्रीवास्तव ए.एल — दिल्ली सल्तनत (अग्रेजी अनुवाद)
3. श्रीवास्तव ए.एल — मुगलकालीन भारत (अग्रेजी अनुवाद)
4. हबीबुल्लाह — भारत में मुस्लिम शासन की बुनियाद
5. मजूमदार, राय चौधरी एवं दत्त — भारत का वृहत् इतिहास खंड–2
6. पंजाबी बी. के. — भारत का इतिहास (1206–1761)
7. हबीब एवं निजामी — दिल्ली सल्तनत
8. वर्मा हरिशचंद — मध्यकालीन भारत (750–1540)
9. शर्मा कालूराम एवं व्यास प्रकाश — मध्यकालीन भारतीय संस्कृति
10. सक्सेना आर.के. — दिल्ली सल्तनत
11. राधेशरण — भारत की सामाजिक एवं आर्थिक संरचना और संस्कृति के मूल तत्व (आदिकाल से 1950 ईस्वी तक)
12. पाण्डेय ए.बी. — पूर्व मध्यकालीन भारत
13. पांडेय ए.बी. — उत्तर मध्यकालीन
14. ईश्वरी प्रसाद — मुगलकालीन भारत
15. श्रीवास्तव एच.एस. — मुगलकालीन शासन व्यवस्था
16. सरदेसाई जी.एस. — मराठों का नवीन इतिहास खंड–2
17. सरकार जे.एन. — शिवाजी और उनका युग
18. त्रिपाठी आर.पी. — मुगल साम्राज्य का इतिहास और पतन
19. मित्तल ए.के. — यूनिफाइड इतिहास (प्रारंभ से 1761 ई.)
20. मित्तल ए.के — यूनिफाइड इतिहास प्राचीन काल से 1950 ईस्वी तक
21. Dey, U.N. — Mughal Government
23. Habib & Nizami — Comprehensive History of India
24. Majumdar, R. C. & Dutt — An Advanced History of India Vol-II
25. Mehta — Advanced Study in the Medival History of India
26. Pandey A.B. — Early Medieval India
27. Pandey A.B — Medieval India
28. Prasad Ishwari — Medieval India
29. Sarkar, J.N. — Shivaji and his Time
30. Satish Chandra — Madhyakalin Bharat
31. Niraj Shrivastav — Madhyakalin Bharat Prashasan,Samaj ,Sanskriti
32. पी.एल. मिश्र — मराठाकालीन छत्तीसगढ़
33. भगवान सिंह वर्मा — छत्तीसगढ़ का इतिहास

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1. विलियम द्वितीय की विश्व राजनीतिक
2. अफ्रीका का विभाजन
3. जापान का आधुनिकीकरण– मेईजी पुनर्स्थापना एवं जापान का आधुनिकीकरण
4. रूस–जापान युद्ध : कारण एवं परिणाम

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5. चीन अफीम युद्ध एवं चीन की क्रांति, साम्यवाद
6. पूर्वी समस्या –बर्लिन कांग्रेस, युवा तुर्क आंदोलन
7. बाल्कन युद्ध : कारण एवं परिणाम
8. प्रथम विश्व युद्ध : कारण एवं परिणाम

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9. वर्साय की संधि
10. रूस की क्रांति 1917 ई.
11. फासीवाद – मुसोलिनी
12. नाजीवाद –हिटलर

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13. जापान का सैन्यवाद
14. राष्ट्रसंघ : स्थापना एवं विल्सन के 14 सूत्र
15. द्वितीय विश्वयुद्ध : कारण एवं परिणाम
16. संयुक्त राष्ट्र संघ – स्थापना एवं संगठन, उपलब्धियां

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17. शीत युद्ध
18. गुट निरपेक्ष आंदोलन एवं पंचशील सिद्धान्त
19. विश्व शांति की चुनौती– कोरिया एवं फिलीस्तीन समस्या
20. एक ध्रुवीय विश्व

1. हेजन — आधुनिक यूरोप का इतिहास
2. बी.आई. पाल — आधुनिक यूरोप का इतिहास
3. HAL Fisher — A History of Europe
4. Christopher — From Reformation to Industrial Revolution
5. A.J.P. Taylor — The origins of the second war
6. David Thompson — Europe, Nepolean
7. सत्यकेतु विद्यालंकार — एशिया का इतिहास
8. दीनानाथ वर्मा — आधुनिक यूरोप का इतिहास
9. Grant and Temperley — Europe in the 19th and 20th Century (also Hi—Version)
10. Kettelby — History of the Modern Times
11. Moon — Imperialism In World Politics
12. Plamor & Parkins — International Politics
13. Parks, Hengy Bamford — The United States of America A History
14. Panikkar K.M. — Asia and Western Dominance
15. Schuman — International Politics
16. Taylor, A.J.P. — Struggle for Mastery over Europe
17. Vinacke, H.M. — A History of Far East In Modern Times
18. Fay — Origins of the World War
19. के.एल.खुराना एवं शर्मा — विश्व का इतिहास
20. देवेन्द्र सिंह चौहान — समकालीन यूरोप
21. S.P. Nanda — History of Modern World
22. सुरेश चंद्र एवं शिवकुमार — आधुनिक विश्व का इतिहास
23. कालू राम शर्मा — आधुनिक विश्व
24. ई.एच.कार — दो विश्व युद्ध के बीच
25. जैन एवं माथुर — विश्व का इतिहास
26. अर्जुन देव, इंदिरा अर्जुन देव — समकालीन विश्व का इतिहास (1890—2008)
27. बी.एन.लुणिया — आधुनिक पाश्चात्य इतिहास की प्रमुख धाराएं (भाग—2)
28. कौलेश्वर राय — आधुनिक यूरोप (1789—1945)

MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

B.A. Part-II
Paper-I
ADVANCED CALCULUS

UNIT-I Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion. Series of non-negative terms. Comparison tests, Cauchy's integral test, Ratio tests, Raabe's, Logarithmic, De Morgan and Bertrand's tests. Alternating series, Leibnitz's theorem. Absolute and conditional convergence.

UNIT-II Continuity, Sequential continuity, Properties of continuous functions, Uniform continuity, Chain rule of differentiability, Mean value theorems and their geometrical interpretations. Darboux's intermediate value theorem for derivatives, Taylor's theorem with various forms of remainders.

UNIT-III Limit and continuity of functions of two variables. Partial differentiation. Change of variables. Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. Jacobians.

UNIT-IV Envelopes, evolutes. Maxima, minima and saddle points of functions of two variables. Lagrange's multiplier method.

UNIT-V Beta and Gamma functions, Double and triple integrals, Dirichlet's integrals, Change of order of integration in double integrals.

REFERENCES :

1. Gabriel Klaumber, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. T.M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
3. R.R. Goldberg, Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970.
4. D. Soma Sundaram and B. Choudhary, A First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.
6. Gorakh Prasad, Differential Calculus, Pothishala Pvt. Ltd., Allahabad.
7. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Co., New York.
8. Gorakh Prasad, Integral Calculus, Pothishala Pvt. Ltd., Allahabad.
9. S.C. Malik, Mathematical Analysis, Wiley Eastern Ltd., New Delhi.
10. O.E. Stanaitis, An Introduction to Sequences, Series and Improper Integrals, Holden-Dey, Inc., San Francisco, California.
11. Earl D. Rainville, Infinite Series, The Macmillan Company, New York.
12. Chandrika Prasad, Text Book on Algebra and Theory of Equations, Pothishala Pvt. Ltd., Allahabad.
13. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
14. Shanti Narayan, A Course of Mathematical Analysis, S.Chand and Company, New Delhi.

B.A. Part-II
Paper-II
DIFFERENTIAL EQUATIONS

UNIT-I Series solutions of differential equations- Power series method, Bessel and Legendre functions and their properties-convergence, recurrence and generating relations, Orthogonality of functions, Sturm-Liouville problem, Orthogonality of eigen-functions, Reality of eigen values, Orthogonality of Bessel functions and Legendre polynomials.

UNIT-II Laplace Transformation- Linearity of the Laplace transformation, Existence theorem for Laplace transforms, Laplace transforms of derivatives and integrals, Shifting theorems. Differentiation and integration of transforms. Convolution theorem. Solution of integral equations and systems of differential equations using the Laplace transformation.

UNIT-III Partial differential equations of the first order. Lagrange's solution, Some special types of equations which can be solved easily by methods other than the general method, Charpit's general method of solution.

UNIT-IV Partial differential equations of second and higher orders, Classification of linear partial differential equations of second order, Homogeneous and non-homogeneous equations with constant coefficients, Partial differential equations reducible to equations with constant coefficients, Monge's methods.

UNIT-V Calculus of Variations- Variational problems with fixed boundaries- Euler's equation for functionals containing first order derivative and one independent variable, Extemals, Functionals dependent on higher order derivatives, Functionals dependent on more than one independent variable, Variational problems in parametric form, invariance of Euler's equation under coordinates transformation.

Variational Problems with Moving Boundaries- Functionals dependent on one and two functions, One sided variations.

Sufficient conditions for an Extremum- Jacobi and Legendre conditions, Second Variation. Variational principle of least action.

REFERENCES :

1. Erwin Kreysizig, Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999.
2. D.A. Murray, Introductory Course on Differential Equations, Orient Longman, (India), 1967.
3. A.R. Forsyth, A Treatise on Differential Equations, Macmillan and Co. Ltd., London.
4. Lan N. Sneddon, Elements of Partial Differential Equations, McGraw-Hill Book Company, 1988.
5. Francis B. Hilderbrand, Advanced Calculus for Applications, Prentice Hall of India Pvt. Ltd., New Delhi, 1977.
6. Jane Cronin, Differential equations, Marcel Dekkar, 1994.
7. Frank Ayres, Theory and Problems of Differential Equations, McGraw-Hill Book Company, 1972.
8. Richard Bronson, Theory and Problems of Differential Equations, McGraw-Hill, Inc., 1973.
9. A.S. Gupta, Calculus of variations with-Applications, Prentice-Hall of India, 1997.
10. R. Courant and D. Hilbert, Methods of Mathematical Physics, Vots. I & II, Wiley-Interscience, 1953.
11. I.M. Gelfand and S.V. Fomin, Calculus of Variations, Prentice-Hill, Englewood Cliffs (New Jersey), 1963.
12. A.M. Arthurs, Complementary Variational Principles, Clarendon Press, Oxford, 1970.
13. V. Kornkov, Variational Principles of Continuum Mechanics with Engineering Applications, Vol. I, Reidel Publ. : Dordrecht, Holland, 1985.
14. T. Oden and J.N. Reddy, Variational Methods in Theoretical Mechanics, Springer-Verlag, 1976.

B.A. Part-II
Paper-III
MECHANICS

STATICS

UNIT-I Analytical conditions of Equilibrium, Stable and unstable equilibrium. Virtual work, Catenary.

UNIT-II Forces in three dimensions, Poinsot's central axis, Null lines and planes.

DYNAMICS

UNIT-III Simple harmonic motion. Elastic strings. Velocities and accelerations along radial and transverse directions, Projectile, Central orbits.

UNIT-IV Kepler's laws of motion, velocities and acceleration in tangential and normal directions, motion on smooth and rough plane curves.

UNIT-V Motion in a resisting medium, motion of particles of varying mass, motion of a particle in three dimensions, acceleration in terms of different co-ordinate systems.

REFERENCES :

1. S.L. Loney, Statics, Macmillan and Company, London.
2. R.S. Verma, A Text Book on Statics, Pothishala Pvt. Ltd., Allahabad.
3. S.L. Loney, An Elementary Treatise on the Dynamics of a particle and of rigid bodies, Cambridge University Press, 1956.

संशोधित

बी. ए. भाग–2

हिन्दी साहित्य

प्रथम प्रश्न पत्र

अर्वाचीन हिन्दी काव्य (पेपर कोड– 0173) पूर्णांक– 75

प्रस्तावना– आधुनिक काव्य आधुनिकता की समस्त विशेषताओं को समेटे हुए है। स्वतंत्रता प्राप्ति के पूर्व की भाव– भाषा, शिल्प, अन्तर्वस्तु सम्बन्धी समस्त विकास धारा यहां सजीव रूप में देखी जा सकती है। इसे अनदेखा करना मनुष्य की विकास यात्रा को नजर अंदाज करना है। इस यात्रा के साक्षात्कार के लिए आधुनिक काव्य का अध्ययन अपेक्षित ही नहीं अपितु अनिवार्य हैं।

पाठ्य विषय–

1. मैथिलीशरण गुप्त – भारत– भारती की कविताएँ
2. सूर्यकान्त त्रिपाठी निराला – (1) सखि बसन्त आया।
   (2) वर दे, वीणा वादिनी वर दे।
   (3) हिन्दी के सुमनों के प्रति पत्र।
   (4) तोड़ती– पत्थर।
   (5) राजे ने अपनी रखवाली की।
3. सुमित्रानंदन पंत – (1) बादल।
   (2) परिवर्तन 2 पद (1.खोलता इधर जन्मलोचन
   2. आज का दुख कल का आल्हाद)
   (3) ताज।
   (4) झंझा में नीम।
   (5) भारत माता।
4. माखन लाल चतुर्वेदी – (1) बलि पंथी से ।
   (2) साँझ और ढोलक की थापें।
   (3) मैं बेच रही हूँ, दही।
   (4) उलाहना।
   (5) निः शस्त्र सेनानी।
5. स. ही. वात्स्यायन अज्ञेय – (1) सबेरे उठा तो धूप खिली थी।
   (2) साम्राज्ञी का नैवेद्य दान।
   (3) घर।
   (4) चांदनी जी लो।
   (5) दूर्वांचल।

द्रुतपाठ हेतु निम्न कवियों का अध्ययन किया जाएगा, जिन पर लघुउत्तरीय प्रश्न पूछे जायेंगे–

1. अयोध्या सिंह उपाध्याय ''हरिऔध''।
2. सुभद्रा कुमारी चौहान। 3. श्रीकांत वर्मा।

अंक विभाजन–	व्याख्याएं (3)	– 21 अंक
	आलोचनात्मक प्रश्न (2)	– 24 अंक
	लघुउत्तरीय प्रश्न (5)	– 15 अंक
	वस्तुनिष्ठ (15)	– 15 अंक
	कुल अंक	75 अंक

इकाई विभाजन–

इकाई– 1 व्याख्या
इकाई– 2 गुप्त, निराला
इकाई– 3 पंत, चतुर्वेदी, अज्ञेय
इकाई– 4 द्रुतपाठ के कवि एवं आधुनिक काव्य धारा का इतिहास
(राष्ट्रीय काव्य धारा, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता)
इकाई– 5 वस्तुनिष्ठ (सम्पूर्ण पाठ्यक्रम से)

संशोधित

बी. ए. भाग–2

हिन्दी साहित्य

द्वितीय प्रश्न पत्र

हिन्दी निबंध तथा अन्य गद्य विधाएँ(पेपर कोड– 0174) पूर्णांक– 75

पाठ्य विषय–

व्याख्या एवं आलोचनात्मक प्रश्नों के लिए एक नाटक, पांच प्रतिनिधि निबंध और पाँच एकांकी का निर्धारण किया गया है।

नाटक– अंधेरी नगरी– भारतेन्दु हरिश्चन्द्र

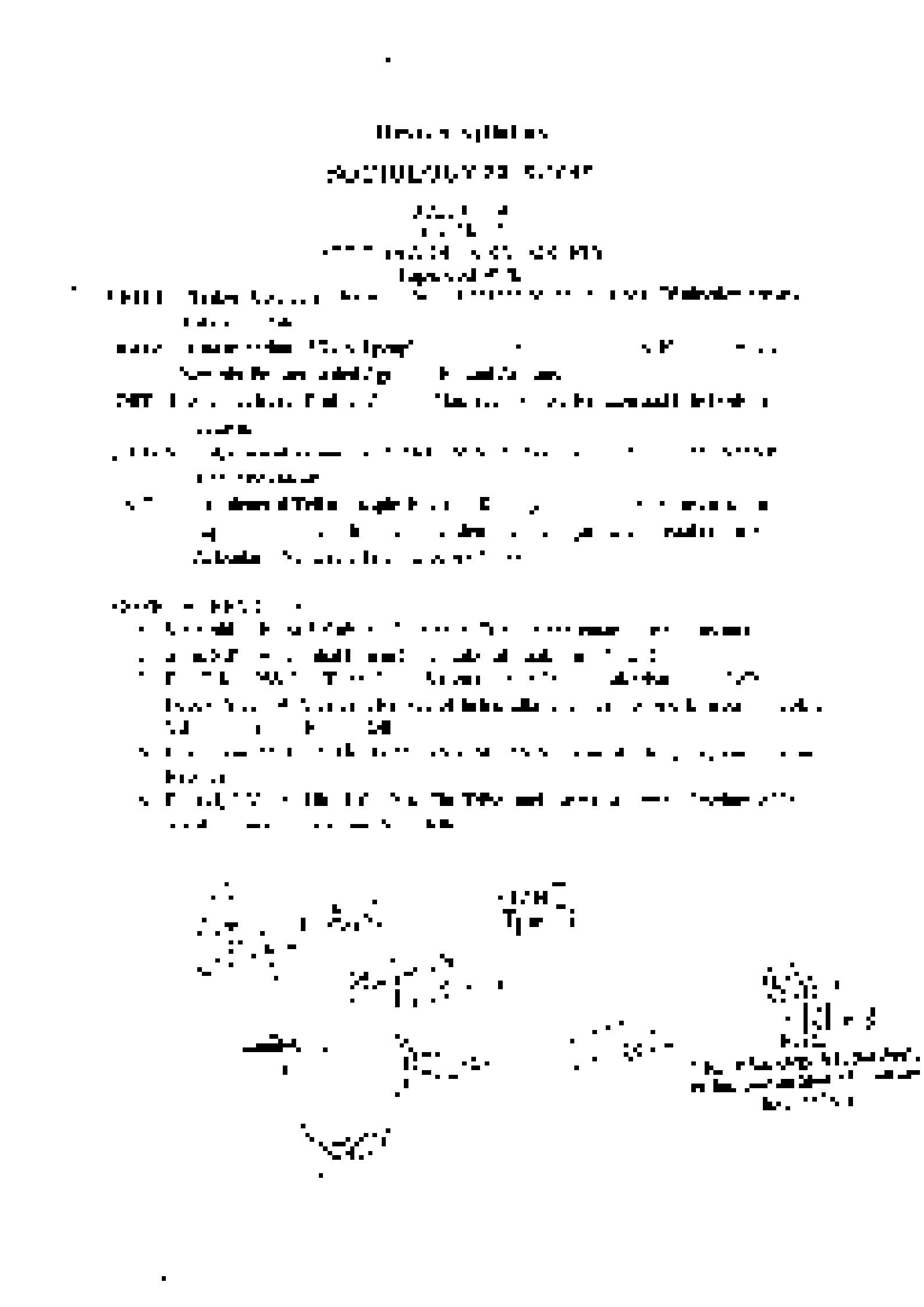
निबंध– 1. क्रोध – आचार्य रामचन्द्र शुक्ल।
2. बसन्त – डॉ. हजारी प्रसाद द्विवेदी।
3. उस अमराई ने राम– राम कही है – डॉ. विद्यानिवास मिश्र।
4. काव्येषु नाट्यम रम्यम् – बाबू. गुलाब राय।
5. बेईमानी की परत – हरिशंकर परसाई

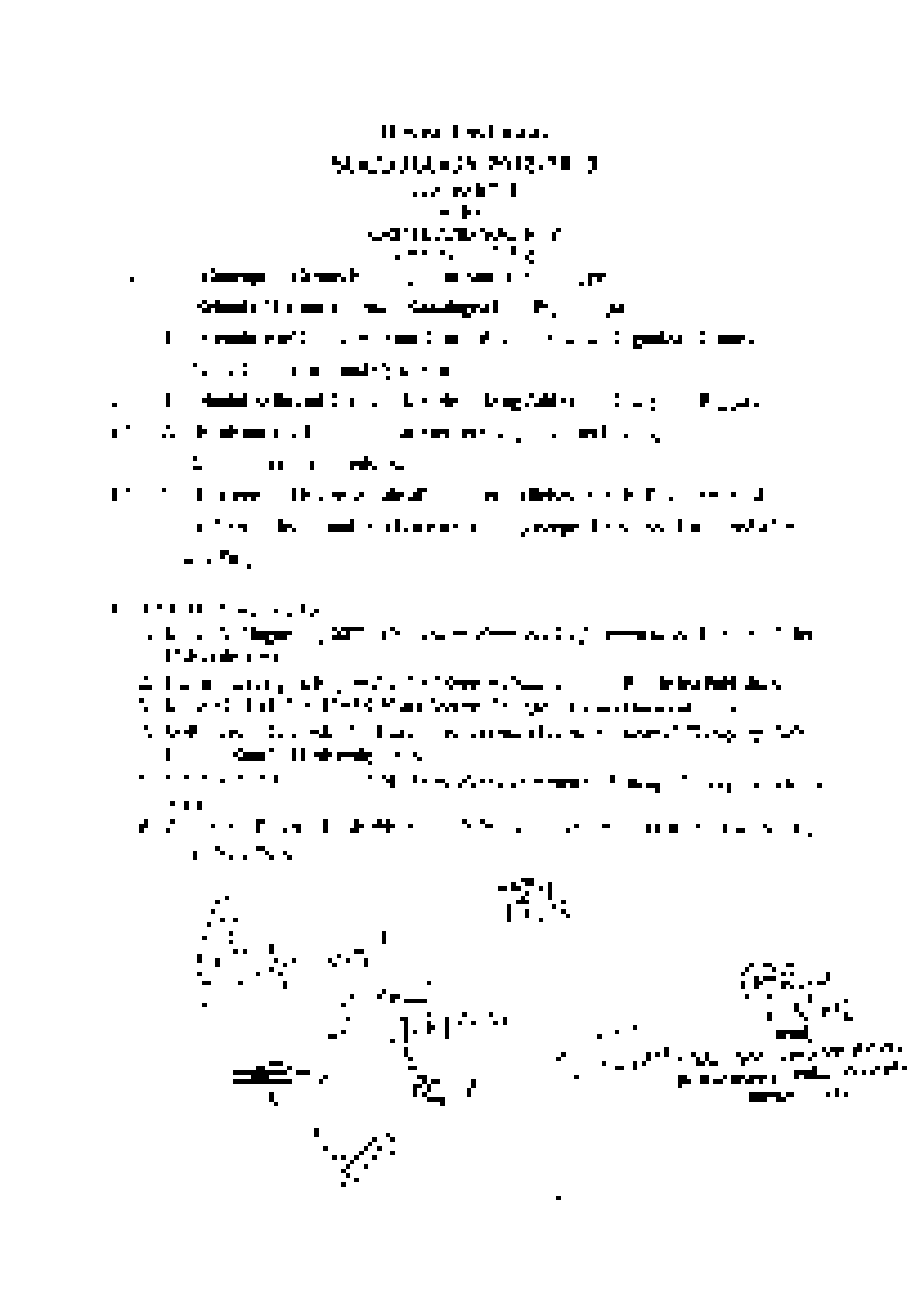
एकांकी– 1. औरंगजेब की आखिरी रात – डॉ. रामकुमार वर्मा
2. स्ट्राईक – भुनेश्वर
3. एक दिन – लक्ष्मीनारायण मिश्र
4. दस हजार – उदयशंकर भट्ट
5. मम्मी ठकुराईन – डॉ. लक्ष्मीनारायण लाल

द्रुत पाठ के लिए तीन गद्यकारों का अध्ययन किया जायेगा, जिन पर लघुउत्तरीय प्रश्न पूछे जायेंगे।
1. राहुल सांकृत्यायन 2. महादेवी वर्मा 3. हबीब तनवीर

अंक विभाजन–	व्याख्याएं (3)	– 21 अंक
	आलोचनात्मक प्रश्न (2)	– 24 अंक
	लघुउत्तरीय प्रश्न (5)	– 15 अंक
	वस्तुनिष्ठ (15)	– 15 अंक
	कुल अंक	75 अंक

इकाई विभाजन–
इकाई– 1 व्याख्या
इकाई– 2 अंधेरी नगरी एवं क्रोध, वसन्त, उस अमराई ने राम– राम कही हैं।
इकाई– 3 औरंगजेब की आखिरी रात, स्ट्राईक, एक दिन, दस हजार, मम्मी ठकुराईन
इकाई– 4 द्रुतपाठ के गद्यकार– राहुल सांकृत्यायन, महादेवी वर्मा, हबीब तनवीर।
इकाई– 5 वस्तुनिष्ठ (समग्र पाठ्य विषय से)





REVISED SYLLBUS

B.A. Part- II (Economics)

Subject : Macro Economics, Paper-I (Code: 0181)

UNIT 1

National Income: Concept and measurement of national income, Economic welfare and national income, Social accounting. Circular flow of income, National income accounting, Green accounting Classical theory of employment, Say's law of market Keynesean theory of employment.

UNIT 2

Consumption Function - Average and marginal propensity to consume, Keynes's psychological law of consumption. Determinants of the consumption function. The saving function. The investments multiplier and its effectiveness, The investment Function - marginal efficiency of capital, Autonomous and induced investment. Saving and investment equality.

UNIT 3

Nature and Characteristics of trade cycle, Theories of trade cycle: Hawtrey's monetary theory, Hayek's over investment theory, Keynes's view on trade cycles, Schumpeter's theory of innovation, Samuelson and Hicks multiplier accelerator model, Control of trade cycle.

UNIT 4

International Trade - Inter-regional and international trade, Comparative advantage cost theory, Opportunity cost theory and Heckscher Ohlin theory, International trade and economic development, Tariffs & import quotas, Concept of optimum tariff. Balance of trade & balance of payment., Concept & components of BOP, Equilibrium & disequilibrium in BOP, Relative merits & demerits of devaluation, Foreign trade multiplier.

UNIT 5

Functions and objectives of international monetary fund, World Bank and World Trade Organization, International monetary reforms and India, Foreign trade in India recent change in the composition and direction of foreign trade, India's balance of payment, Export promotion and import substitution in India. Multinational Corporation and India.

BASIC READING LIST -

- Ackley, G. (1976) – " Macro Economics; Theory and Policy," Mcmillan Publishing Company, Newyork.

- Day, A.C.L. (1960) – "Outline of Monetary Economics," Oxford University Press Oxford.

- Gupta, S.B. (1994)- "Monetary Economics," S. Chand and Co., Delhi

- Heijdra, B.J. and F.V. Ploeg (2001) – "Foundations of Modern Macro-economics," Oxford University Press, Oxford.

- Lewis, M.K. and P.D. Mizan (2000) –" Monetary Economics, " Oxford University Press, New Delhi.

- Shapiro, E. (1996) – "Macroeconomic Analysis," Galgotia Publications, New Delhi .

READING LIST - - Ackley, G. (1976)," Macroeconomics : Theory and Policy", Macmillan Publishing Company, New York. -

Day, A.C.L. (1960) –" Outline of Monetary Economics," Oxford University Press Oxford.

- Gupta, S.B. (1994)- "Monetary Economics," S. Chand and Co., Delhi

- Heijdra, B.J. and F.V. Ploeg (2001) –" Foundations of Modern Macro-economics, " Oxford University Press, Oxford.

- Lewis, M.K. and P.D. Mizan (2000) - Monetary Economics, Oxford University Press, New Delhi.

- Shapiro, E. (1996) – "Macroeconomic Analysis," Galgotia Publications, New Delhi.

- Dillard, D. (1960)- "The Economics of John Mayanand Keynes, "Crossby Lockwood and Sons, London.

- Hanson, A.H. (1953), "A Guide to Keynes, " McGraw Hill, New York.

- Higgins, B. (1963), "Economic Development; Principles, Problems and Policies, " Central Book Depot, Allahbad.

- Keynes, J.M. (1936), "The General Theory of Employment, Interest and Money," Macmillan, London.

- Kindleberger, C.P. (1958), "Economic Development," McGraw Hill Book company, New York.

Powelson, J.P.C. (1960), " National Income and Flow of Funds Analysis," McGraw Hill, New York.

==*==

REVISED SYLLBUS

B.A. Part- II (Economics)

Subject : Money, Banking and Public Finance, Paper-II (Code: 0182)

UNIT 1

Basic concepts : Money - meaning and functions, Gresham's law; Quantity theory of money- Cash transaction and cash balance approaches; Value of Money, Inflation, deflation and reflation, types, causes and effects on different sectors of the economy; Demand pull and cost push inflation; Measures to control inflation. Phillips curve, Concept of demonetization.

UNIT 2

Commercial banking- meaning and types; Functions of commercial banks, The process of credit creation, purpose and limitations; Liabilities and assets of banks; Evolution of commercial banking in India after independence; A critical appraisal of the progress of commercial banking after Nationalization, Functions of a central bank; Quantitative and qualitative methods of credit control; Bank rate policy; Open market operations; Variable reserve ratio and selective methods. Role and functions of the Reserve bank of India; Objectives and limitations of monetary policy with special reference to India.

UNIT 3

Meaning and scope of public finance; Distinction between private and public finance; public goods v/s private goods; The Principle of maximum social advantage; Role of the government in economic activities ; Public expenditure - Meaning, classification and principles of public expenditure; Trends in public expenditure and causes of growth of public expenditure in India.

UNIT 4

Sources of Public revenue; taxation - Meaning, Canons and classification of taxes; Division of tax burden. The benefit and ability to pay approaches; Impact and incidence of taxes; Taxable capacity; Effects of taxation; Characteristics of a good tax system; Equity and Justice in Taxation, Major trends in tax revenue of the Central and State Government in India.

UNIT 5

Public debt and financial administration: Sources of public borrowing, Effects of public debt. Methods of debt redemption. The public budget- Kinds of budget, Economic and functional classification of the budget; Preparation and passing of budget in India.

READING LIST -

- Ackley G. (1978), "Macroeconomics : Theory and Policy," Macmillan Publishing Co., New York.
- Bhargavas B.H. (1981), "The Theory and Working of Union Finance in India," Chaitanya Publishing House Allaybad.
- Gupta, S.B. (1994)," Monetary Economics", S. Chand & Company, New Delhi.
- Houghton. E.W. (Ed.) (1988), "Public Finance." Pengum, Battinore - Jha R. (1998), Modorn Public Economics. Routledge, London.
- Mithani, D.M. (1981), "Modern Public Finance," Himalaya Publishing House, Mumbai.
- Musgrave, R.A. and P.B. Musgrave (1976)," Public Finance in Theory and Practice", McGraw Hill, Kogakusha, Tokyo.
- Shapiro, E. (1996), "Macroeconomics Analysis," Galgotia Publications, New Delhi.

ADDITIONAL READING LIST

- Day, A.C.L. (1960), "Outline of Monetary Economics, " Oxford University Press, Oxford.
- De Kock, M.H. (1960)," Central Banking." Staples Press, London.
- Due, J.E. (1963), "Government Finance," Irwin, Homewood.
- Government of India, "Economic Survey" (Annual), New Delhi
- Halm, G.N. (1955), "Monetary Theory," Asia Publishing House, New Delhi

B.A. /B.Sc. Part II

PAPER - I
ECONOMIC AND RESOURCES GEOGRAPHY
Max. Marks: 50
(Paper Code-0187)

Unit I Meaning, scope and approaches to economic geography; Main concepts of economic geography; Resource: concept and classification; Natural resources: soil, forest and water.

Unit II Mineral resources: iron ore and bauxite; Power resources: coal, petroleum and hydro electricity; Resource conservation; Principal crops: wheat, rice, sugarcane and tea

Unit III Agricultural regions of the world (Derwent Whittlesey); Theory of agricultural location (Von Thunen); Theory of industrial location (Weber); Major industries: iron and steel, textiles, petrochemical and sugar; industrial regions of the world.

Unit IV World transportation: major trans-continental railways, sea and air routes; International trade: patterns and trends; Major trade blocks: LAFTA, EEC, ASEAN; Effect of globalization on developing countries.

Unit V **C**onservation of resources; evolution of the concept, principles, philosophy, and approach to conservation, resources conservation and practices. Policy making and sustainable development.

Books Recommended:

1. Alexander, J. W. (1988): Economic Geography. Prentice-Hall, New Delhi,.
2. Bryson, J., Henry, N., Keeble, D. and Martin, R. (eds.) (1999): The Economic Geography Reader: Producing and Consuming Global Capitalism. John Wiley and Sons, Inc, New York.
3. Clark,G. L., Gertler, M. S. and Feldman, M. P. (eds.) (2000): The Oxford Handbook of Economic Geography. Oxford University Press, USA.
4. Coe, N. (2007): Economic Geography: A Contemporary Introduction. Blackwell Publishers, Inc., Massachusetts.
5. Gautam, A. (2006): *Aarthik Bhugol Ke Mool Tattava,* Sharda Pustak Bhawan, Allahabad.
6. Guha, J. S. and Chattoraj, P.R. (2002): A New Approach to Economic Geography: A Study of Resources. The World Press Private Limited, Kolkata.
7. Hanink, D. M. (1997): Principles and Applications of Economic Geography: Economy, Policy, Environment. John Wiley and Sons, Inc, New York.
8. Hartshorne, T. A. and Alexander, J. W. (1988): Economic Geography (3rd revised edition) Englewood Cliff , New Jersey, Prentice Hall
9. Hudson, R. (2005): Economic Geographies: Circuits, Flows and Spaces. Sage Publications, London.
10. Knowles, R, Wareing, J. (2000): Economic and Social Geography Made Simple, Rupa and Company, New Delhi.

B.A. /B.Sc. Part II

PAPER - II

GEOGRAPHY OF INDIA

Max. Marks: 50
(Paper Code-0188)

Unit I Physical Features: Structure, Relief, Climate, Physiographic Regions, Drainage, Climate-origin and mechanism of monsoon, and regional and Seasonal variation.

Unit II Natural Resources: Soils - types, their distribution and characteristics. Water Resources (major irrigation and hydel power projects); Forests-types, distribution, economic significance and conservation. Mineral and Power resources-Iron-ore, Manganese, Copper, Coal, Petroleum and Natural gas, Non conventional sources of energy.

Unit III Cultural Features : Population - Growth, Density and Distribution. Agriculture - Major crops, impact of Green Revolution and Agricultural regions.

Unit IV Industries Localization, Development & Production - Iron and steel, Cotton Textile, Cement, Sugar, Transport, Foreign Trade. Industrial Region.

Unit V Detailed Study of the following regions of India : Kashmir Valley, North- East Region, Chhota Nagpur Plateau, Thar Desert, Islands of India.

Books Recommended:

1. Chauhan, P.R. and Prasad, M. (2003): *Bharat Ka Vrihad Bhugol*, Vasundhara Prakashan, Gorakhpur.
2. Farmer, B.H. (1983): An Introduction to South Asia. Methuen, London
3. Gautam, A. (2006): Advanced Geography of India, Sharda Pustak Bhawan, Allahabad
4. Johnson, B.L.C. (1963): Development in South Asia. Penguin Books, Harmondsworth
5. Krishnan, M.S. (1982): Geology of India and Burma, CAS Publishers and Distributors, Delhi.
6. Khullar, D.R. (2007): India: A Comprehensive Geography, Kalyani Publishers, New Delhi
7. Nag, P. and Gupta, S. S. (1992): Geography of India, Concept Publishing Company, New Delhi.
8. Rao, B.P. (2007): *Bharat kee Bhaugolik Sameeksha*, Vasundhara Prakashan, Gorakhpur.
9. Sharma, T.C. and Coutinho, O. (2003): Economic and Commercial Geography of India, Vikas Publishing House Private Ltd. New Delhi.
10. Singh , J. (2003): India: A Comprehensive Systematic Geography. Gyanodaya Prakashan, Gorakhpur
11. Singh, J. (2001): *Bharat: Bhougolik Aadhar Avam Ayam*, Gyanodaya Prakashan, Gorakhpur.
12. Singh, R.L. (ed.) (1971): India: A Regional Geography. National Geographical Society of India, Varanasi.
13. Spate, O.H. K., Learmonth A. T. A. and Farmer, B. H. (1996): India, Pakistan and Sri Lanka. Methuen, London, 7th edition.
14. SukhwaI, B.L. (1987): India: Economic Resource Base and Contemporary Political Patterns. Sterling Publication, New Delhi
15. Tiwari, R.C. (2007): Geography of India, Prayag Pustak Bhawan, Allahabad.
16. Wadia, D. N. (1959): *Geology of India*. Mac-Millan and Company, London and student edition, Madras.

B.A. /B.Sc. Part II

PAPER - III
PRACTICAL GEOGRAPHY
Max. Marks: 50

SECTION A
MAP INTERPRETATION, PROJECTIONS AND STATISTICAL METHODS (M.M. 25)

Unit I Distribution Maps: Dot Map, Choropleth Map and Isopleth Map.

Unit II Map Projections: Definition and classification; Conical, Zenithal, and Cylindrical Projections.

Unit III Interpretation of Weather Maps: Use of Meteorological Instruments.

Unit IV Statistical Methods: Quartile: Mean Deviation, Standard Deviation and Quartile Deviation; Relative Variability and Co-efficient of Variation.

SECTION B
SURVEYING (M.M. 15)

Unit V Surveying: Whole Circle Bearing and Reduced Bearing, Methods of Prismatic Compass Survey.

PRACTICAL RECORD AND VIVA VOCE (M.M. 10)

Books Recommended:

1. Alvi, Z. 1995 : Statistical Geography: Methods and Applications, Rawat Pub. New Delhi: .
2. Davis, R.E. and Foote, F.S. (1953): Surveying, 4th edition, McGraw Hill Publication, New York
3. Kanetker, T.P. and Kulkarni, S.V.(1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
4. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai.
5. Pal, S.K. 1999 : Statistics for Geoscientists, Concept publishing Company, New Delhi
6. Punmia, B.C.(1994): Surveying, Vol I, Laxmi Publications Private Ltd, New Delhi.
7. Raisz, E. (1962): General Cartography. John Wiley and Sons, New York. 5th edition
8. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata.
9. Sharma, J. P. (2001): *Prayogik Bhugol.,* Rastogi Publication, Meerut 3rd. edition.
10. Silk, J. 1979 : Statistical techniques in Geography, George Allen and Unwin, London
11. Singh, R.L. and Singh, Rana P.B. (1993): Elements of Practical Geography. (Hindi and English editions). Kalyani Publishers, New Delhi,.
12. Singh, L.R. (2006): Fundamentals of Practical Geography, Sharda Pustak Bhawan, Allahabad.
13. Venkatramaiah, C. (1997): A Text Book of Surveying, Universities Press, Hyderabad.

B.A. – II

P S Y C H O L O G Y

Paper	Name of the Paper	Max. Marks	Duration
I	Social Psychology	50	3 hrs.
II.	Psychological Assessment	50	3 hrs.
III.	Practicum	50	4 Hrs.

PAPER - I

SOCIAL PSYCHOLOGY (Paper Code-0189) M.M.:50

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-1 Nature, Goal and Scope of Social Psychology; Methods of Social Psychology: Experimental, Survey, Interview, Observation, and Sociometric. Approaches to the study of social behavior: Psychoanalytic, Cognitive, and Behavioral.

UNIT-2 Social Perception: Perception of Self and Others, Impression Formation and its Determinant, Prosocial Behavior: Co-operation and Helping- Personal, Situational and Socio-cultural Determinants.

UNIT-3 Stereotypes: Nature and Determinants; Prejudice: Nature and Determinants; Attitudes: Nature and Measurement; Interpersonal Attraction and Determinants.

UNIT-4 Group Structure and Function: Social Facilitation, Conformity, Cohesiveness; Group Norms; Leadership: Nature, Types, Characteristics and Functions.

UNIT-5 Social Issues: Aggression- Determinants, Prevention and Control; Population Explosion- Nature and Consequences (Socio-cultural); Pollution; Corruption; Mob Behavior; Gender Discrimination and Child Labour.

References

1- fl g] v:q dekjA lekt eukfoKku dh :ij[kkA ekrhyky cukjlhnk lidk'kuA
2- feJk ,o tuA leku eukfoKku d ey vk/kkjA e-i- fgUnh xFk vdkneA
3- f=ikBh] ykycpuA lekt eukfoKku dh :ij[kkA gjilkn Hkkxo idk'kuA
4- Baron, R.A. & Byrne, D. Social Psychology. New Delhi: Prentice Hall Pub.
5- Secord, P.F. & Backman, C.W. (1994). Social Psychology. McGraw-Hill.

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B.A. - II

P S Y C H O L O G Y

PAPER- II

PSYCHOLOGICAL ASSESSMENT (Paper Code-0190) **M.M.:50**

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-1 Psychological Assessment: Concept, Difference between Physical and Psychological Assessment, Levels of Assessment, Barriers in Psychological Assessment, Unidimensional and Multidimensional Assessment.

UNIT-2 Psychological Tests: Concept, Characteristics, and Types- Standardized and Non-standardised, Group, Performance and Verbal; Uses of Psychological Tests.

UNIT-3 Test Construction: Steps in Test Construction, Reliability- Test-retest, Split-half; Factors affecting Reliability; Validity: Content and Predictive; Factors affecting Validity; Norms- Age and Grade.

UNIT-4 Cognitive and Non-cognitive Tests: Cognitive- Introduction to Intelligence, Aptitude, and Achievement Testing; Non-Cognitive: Introduction to Personality, Interest, and Value Testing.

UNIT-5 Psychological Testing in Applied aspects of Life: Education, Occupation, Social, Health and Organization; Socio-Cultural factors in Psychological Assessment.

References

1- Anastasi (1997) Psychological Testing, New York : McGraw-Hill.
2- Ciminero, A.R. (1986) Handbook of Behavioral Assessment, New York: John Wiley.
3- Gupta, S.P. (2001). Manovaigyanik Mapan evam Moolyankan. Agra: Sharda Prakashan.

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B. A. - II

P S Y C H O L O G Y

PAPER- III

PRACTICUM **M.M.:50**

Note: This paper consists of two parts:

Part-A

(a) Comprises of Laboratory **Experiments**.
(b) Comprises of Psychological **Testing** and understanding of self and others.

(a) **Experiments** (Any five of the following):-

1. Effect of Group on Decision Making.
2. Social Facilitation.
3. Effect of Social setting on Sociometry.
4. Stereotypes.
5. Effect of Order of Information on Person-Perception.
6. Effect of Leadership on Performance.
7. Effect of Cognitive Dissonance on Attitude Change.
8. Effect of Communicator's Credibility on Suggestibility.

(b) **Psychological Tests** (Any four of the following):-

1. Aggression.
2. Deprivation.
3. Self-concept.
4. Dependence Proneness Scale.
5. Value.
6. Vocational Interest.
7. Attitude Scale.
8. Creativity.
9. Personality Test.

Part-B

Field Work

Each student will be required to visit a hospital/ industrial organisation/ educational institution etc. under departmental supervision and shall be preparing his/her observation report, revealing his/her psychological insight about group dynamics that is operational in the unit. This record constitutes a part of assessment of field visit. Measures of central tendency in group data and correlation- Rank order.

Distribution of Marks

A.	Conduction of Psychological Experiment and Reporting	15 marks.
B.	Administration of one Psychological Test and Reporting	15 marks.
C.	Evaluation of Practical note book of the Field-Work	10 marks.
D.	Viva-Voce	10 marks.

References Sharma, R. (2018)- Psycho-laboratory- Experiment and Test. Raipur: Vaibhav Prakshan.

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B. A. - II

P S Y C H O L O G Y

PAPER- III

पाट्यक्रम उर्दू अदब

बी.ए. भाग-2

नोट - इस इम्तेहान में दो पर्चे होंगे । हर पर्चा 75 का होगा ।

(1) नस

(2) शायरी

पहला पर्चा नस

(पेपर कोड-0199)

(खत निगारी, तन्जोमिजाह, तन्कीद)

निसाब :

खत निगारी :

1.	खुतूते गालिब	ऊर्दूए मोअल्ला और ऊदे हिंदी से तीन खत
2.	खुतूते मेंहदी इफादी	सहीकए मुहब्बत से तीन खते
3.	मुतूते अबुल कलाम आज़ाद	गुबारे खातिर से तीन खते

तन्जो पिजाह :

1.	खोजी का किरदार	फसानए आज़ाद से अज पं. रतननाथ सरशार
2.	औरत जात से	अज मुल्ला रमूजी
3.	गफूर मियाँ से इफ्तेताब	तखल्लुस भोपाल
4.	हिमाकते	शफीरकुर्रेहयान

तककीद :

1.	मजमून अज शिब्लि मजस्माने शिब्लि	
2.	गालिब शख्सो शायर से	मंजनू गौरखपुरी
3.	इकबाल की अज़मत	आले अहमद सुरूर
4.	चकबस्त बहैहियत पयाम्बरे दौरे जदीद	अहतेशाम हुसैन
5.	कसीदे सिन्फे सूखुन की हैसियत से	ऊर्दू में कसीदा निगारी से डॉ. अबु मुहम्मद सहर

इकाईयाँ :

पहली इकाई	:	शामिले निसाब असनाफ पर सवालात	नं. 15
दूसरी इकाई	:	खत निमारों पर तनकीदी सवालात	नं. 15
तीसरी इकाई	:	तन्जो मिज़ाह निगारों पर सवालात	नं. 15
चौथी इकाई	:	तन्कीद निगारों पर सवालात	नं. 15
पाँचवी इकाई	:	शामिले निसाब खुतूत और तन्कीदी गमामी के इक्बेबासात की तशरीह	नं. 15

निसाब उर्दू अदब

पर्चा-2 (शामरी)

(पेपर कोड-0200)

(मसनवियात ब-मन्जूमात) नं. : 75

निसाब :

मसनवियात :

1. मसनबी सहरूल बयात से इन्तेखाब अज मोर हसन (ब एतेबार प्लाट)
2. मसनवी गुलजारे रसीम इन्तेखाब अज दयाशंकरनसीम

मन्जूमात :

1.	आदबी नामा	अज नजीर अकबर आबादी
2.	बरसात की बहारे	अज नजीर अकबर आबादी
3.	चुण की दाद	अज अल्ताफ हुसैन हाली
4.	हुब्बे वतन	अज अल्ताफ हुसैन हाली
5.	रामायण का एक सीन	अज बृजमोहन चकबस्त
6.	जिब्रील और इब्लीस	डॉ. इकबाल
7.	शुभाए उम्मीद	डॉ. इकबाल
8.	अल्बेली सुबह	जोश मलीहाबादी
9.	तन्हाई	फैज अहमद फैज
10.	एक लड़का	अख्तर उल ईमान
11.	आवारा	मजाज लखनवी
12.	चाँद तारो का बन	मखदूम मुहीउद्दीन
13.	सुबहे परदा	सरदार जाफरी

इकाईयाँ :

इकाई नं. 1.	शामिले निसाब असनाफ पर सवालात	नं. 15
2.	मसनबी निगारो पर सवालात	नं. 15
3.	नज्म निगारों पर सवालात और मन्जूमात का खुलासा या जायजा	नं. 15
4.	तशरीह मसनवियात से	नं. 15
5.	तशरीह मन्ज्मात	नं. 15

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गृह विज्ञान

प्रश्न पत्र - 1

तंतु एवं वस्त्र विज्ञान

पूर्णांक : 50

(पेपर कोड-0191)

इस परीक्षा में दो लिखित प्रश्न पत्र होंगे । जिसमें से प्रत्येक तीन घंटे की अवधि तथा 50 अंकों का होगा । एक प्रायोगिक परीक्षा 50 अंकों की होगी । जिसमें से 10 अंक सत्रीय कार्य के लिये सुरक्षित रहेंगे । कुल अंक 150 होंगे। परीक्षार्थियों को लिखित एवं प्रायोगिक परीक्षा में पृथक-पृथक उत्तीर्ण होना अनिवार्य है-

इकाई-1 तन्तु विज्ञान का परिचय- तंतुओं का वर्गीकरण, विशेषतायें, भौतिक एवं रासायनिक परीक्षण ।

वस्त्र बुनाई (Weaves) : के प्रकार- सादी ट्विल सेटिन जैकार्ड, पाइल ।

इकाई-2 आधारभूत परिसज्जाऐं, विशेष परिसज्जाऐं । रंगों का वर्गीकरण एवं विभिन्न तंतुओं के लिये उनकी उपयुक्तता ।

इकाई-3 छपाई-प्रकार, ब्लाक, स्टेन्सिल, स्क्रीन, डिसचर्ज रोलर । प्रत्येक प्रकार की छपाई की विधियां । टाई एंड डाई- विशेषता, विधि ।

इकाई-4 धुलाई : जल, साबुन, शुष्क धुलाई, कलफ तथा नील । धब्बे छुड़ाना, विभिन्न प्रकार के वस्त्र धोना ।

इकाई-5 परिधान : परिधान एवं व्यक्तित्व, परिधान का चुनाव, ड्राफ्टिंग की विधि, सीवन (प्रकार) परिधान में पूर्णता (डार्ट, प्लीट्स, टक्स, गेदर्स) प्लैक्ट ओपनिंग, फासनर ।

स्वीकृत पुस्तकें :

1.	वस्त्र विज्ञान एवं परिधान	:	डॉ. प्रमिला
2.	वस्त्र विज्ञान के मूल सिद्धांत	:	डॉ. जी.पी. शैरी
3.	हाउसहोल्ड फिजिक्स		:डॉ. कुलश्रेष्ठ
4.	गृह व्यवस्था एवं गृह सज्जा	:	श्रीमती के. बक्शी
5.	गृह व्यवस्था एवं गृह सज्जा	:	चन्द्रकांता मांडलिक
6.	गृह व्यवस्था एवं गृह कला	:	जी.पी. शैरी
7.	गृह व्यवस्था एवं गृह कला	:	श्रीमती कांति पांडेय
8.	पारिवारिक परिधान एवं व्यवस्था	:	मंजु पाटनी व सपना हेनरी
9.	गृह व्यवस्था	:	डॉ. करुणा शर्मा

गृह विज्ञान

प्रश्न पत्र - 2

पारिवारिक संसाधन प्रबंधन

पूर्णांक : 50

(पेपर कोड-0192)

इकाई-1 **गृह प्रबंध :** गृह प्रबंध की परिभाषा, गृह प्रबंध प्रक्रिया, परिवार में गृहणी के कर्त्तव्य एवं उत्तरदायित्व- मूल्य, लक्ष्य स्तर-अर्थ विशेषता वर्गीकरण एवं विकास, निर्णय प्रक्रिया ।

इकाई-2 **गृह सज्जा :** कला के सिद्धांत एवं कला के तत्व । नमूना-रचनात्मक एवं अलंकारमय नमूना, नमूने के सिद्धांत । रंग-रंग के महत्व एवं प्रभाव, फर्नीचर का चुनाव एवं महत्व, गृह सज्जा के उपसाधन । पुष्प सज्जा, प्रकार,

सिद्धांत, उपयोग।

इकाई-3 **पारिवारिक साधन :** पारिवारिक साधन, वर्गीकरण, विशेषतायें, उपयोग को प्रभावित करने वाले तत्व, समय-अवधारणा, समय, व्यवस्थापन के साधन । समय व्यवस्थापक की प्रक्रिया ।

शक्ति-अवधारणा, विभिन्न घरेलू कार्यों में शक्ति का मूल्य, शक्ति व्यवस्थापन की प्रक्रिया ।

आय के साधन एवं प्रकार, पारिवारिक बजट, व्यय बचत, रहन सहन का स्तर, आय व्यय का लेखा जोखा (एकाउंट कीपिंग) ।

इकाई-4 **रसोई घर :** आधुनिक रसोई घर, प्रकार, रसोई-घर के कार्यक्षेत्र, ईधन के गैर परम्परागत स्रोत, सौर ऊर्जा, जल वितरण प्रणाली, वायुबीजन, प्रकाश की व्यवस्था, संग्रह व्यवस्था ।

इकाई-5 **कार्य का सरलीकरण :** अर्थ, कार्य विधियाँ एवं आदतों में सुधार की तकनीक, प्रोसेस चार्ट, पाथवे चार्ट, परिवर्तन की श्रेणियाँ । समय शक्ति एवं श्रम बचत के उपकरण ।

प्रायोगिक कार्य

1. सिलाई- ब्लाऊज, बेबी फ्राक, झबला, बाबा सूट, पंजाबी कुरता, सलवार, पेटीकोट, पुष्प सज्जा ।
2. धुलाई- विभिन्न वस्त्रों की धुलाई, धब्बे छुड़ाना, बांधनी का कार्य ।
3. पुष्प सज्जा ।

अंक विवरण -

सत्रीय	:	10
सिलाई	:	20
धुलाई	:	15 (धुलाई कार्य, बांधनी-10, धब्बा छुड़ाना 5)
पुष्प सज्जा	:	5

स्वीकृत पुस्तकें :

1.	वस्त्र विज्ञान एवं परिधान	:	डॉ. प्रमिला
2.	वस्त्र विज्ञान के मूल सिद्धांत	:	डॉ. जी.पी. शेरी
3.	हाउसहोल्ड फिजिक्स	:	डॉ. कुलश्रेष्ठ
4.	प्रारंभिक कृषि विज्ञान	:	राजेन्द्र प्रसाद
5.	उद्यान विज्ञान	:	डॉ. एस.एस. श्रीवास्तव
6.	गृह व्यवस्था एवं गृह सज्जा	:	श्रीमती के. बक्सी
7.	गृह व्यवस्था एवं गृह सज्जा	:	चन्द्रकांता मांडलिक
8.	गृह व्यवस्था एवं गृह कला	:	जी.पी. शेरी
9.	गृह व्यवस्था एवं गृह कला	:	श्रीमती कांति पांडेय
10.	कृषि विज्ञान	:	कृपाल सिंह भिंडर
11.	उद्यान शास्त्र	:	बसंत इंगोले
12.	पारिवारिक परिधान एवं व्यवस्था	:	मंजु पाटनी व सपना हेनरी

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MUSIC

PAPER - I

THEORY OF INDIAN MUSIC. VOCAL \ INSTRUMENTAL

(Paper Code-0201)

UNIT-I (a) Definitions and study of the following terms : Graha, Ansha, Nayas Swara, Paryayansha Swara, Alpatava-Bahutva, Aavirbhava-Tirobhava, Gandharva-Gan, Nibaddha-Anibaddha Gan, Jamjama, Ghaseet, Krintan, Shuddha, Chayalag, Sankirna Raga.

(b) Swasthan Niyam, Ragalap, Aalapti, Akshiptika, Samvadatva.

UNIT-II Short Biographics and contributions of the Musicians :- Sharangdeva, Acharya Bharat, Aahobal, Venkatmakhi, Sadarang-Adarang. Aalauddin Khan, Faiyaz Khan, Imdad Khan, Pt. Ravi Shankar.

UNIT-III Notation of Talas with Dugun and Chaugun Layakaries :-

Roopak, Teevra, Sultal, Deepchandi, Jhumra, Adachautal, Dhamar, Tilwara.

UNIT-IV (a) Study of Karnatak Taal System,

(b) Comparative study of Karnatak and Hindustani Taal System.

UNIT-V Definition of Vaggeyakar, Uttam Vageyakar, Adham Vaggeyakar, Classification of Instruments :- Tat, Vitat, Ghan, Shushir

PAPER - II

THEORY OF INDIAN MUSIC VOCAL.INSTRUMENTAL M.M. : 50

(Paper Code-0202)

UNIT-I Elementry of Medium-Sound, Musical Sound and Noice, Vibratory motions, Frequency, Pitch, Magnititude and Timber, Major Tone, Minor Tone, Semi Tone.

UNIT-II Study of Melas or Thatas as follows :

(a) 72 Melas of Venkat Mukhi

(b) 32 Thatas of V.N. Bhatkhande

UNIT-III History of Indian Music as follows :

(a) Origin of Music

(b) Vedic, Pauranik and Gupta Period a short survey

UNIT-IV (a) Explanation of the following terms :
Kajari, Chaiti, Rabindra Sangeet, Tribal Music, Lawani, Garba, Baul, Bhatiyali, Mand

(b) Merits of a good listener, Qualities of a good listener to make any music programme a success.

UNIT-V (a) Study of theoritical details of Ragas prescribed for practical course : Bihag, Kedar, Desh, Bageshwari, Malkauns, Jaunpuri, Bhairavi, Hameer, Kalingda, Kamod, Chhayanat

(b) Writing in notation of songs (Bandish) or gats prescribed in practical course of Second year

(c) Writing of a critical appreciation of Radio or T.V. Music (Classical) Programme

PRACTICAL

VOCAL/INSTRUMENTAL **M.M. : 50**

1. Study of the following Ragas : Bihag, Kedar, Desh, Bageshwari, Malkauns, Jaunpuri, Bhairavi, Hameer, Kalingda, Kamod, Chhayanat
2. Two Vilambit Khayalas/Maseet Khani Gat, with Alap and Tanas or Todas. One Choice of the candidate and one vilambit asked by the examiner. 10 marks
3. Sargam geet and Lakshan geet in all the above Ragas. Playing of a Gat in Jhaptal and Rupak Tal. 3 + 3 = 6
4. Drut Khayal or Raza Khani Gat with Tanas or Todas in any five of the above mentioned Ragas. 4 + 4 = 8
5. Singing of a Dhrupad Dhamar with Layakaris or playing a Gat in other than Teen Tal. 8 marks
6. Study of the following Talas :

   Roopak, Teevra, Sooltaal, Deepchandi, Jhumra, Adachautal, Dhamar, Tilwara.

   Demonstration of Talas with Dugun Chaugun. 4 marks

   Singing of Tarana/Playing of Bol or Jhala 4 marks

SESSIONAL WORK M.M. : 10

1. Keeping up to date Practical and Theory note books. Attendence in Class and performance in college classes.
2. Ten descriptions of Music Programmes in Radio, T.V. or Personally attended. Participation in Departmental activities.

BOOKS RECOMMENDED -

1. Hindustani Sangeet Paddhati Kramik Pustak Malika (Part-1-4) By V.N. Bhatkhande.
2. Sangeet Visharad, by Vasant.
3. Sangeet Bodh, by S.S. Paranjape.
4. Sangeet Shastra Darpan, By Shanti Govardhan Part I + II
5. Rag Bodh, By B.R. Deodher Part I, II, III
6. Bharatiya Sangeet, Ka Itihass by Umesh Joshi. By Dr. S.S. Paranjape.
7. Sangeet Shastra 1 + 2 + 3 by Mahesh Narayan Saxena.
8. Sangeet Shastra 1, 2, 3 by V.N. Bhatkhande.
9. Sangeetanjali, by Pt. Omkar Nath Thakur.
10. Sitar Malika, by Bhagwat Sharan Sharma.
11. Taal Prakash by Bhagwat Saran.
12. Dhwani Aur Sangeet by Lalit Kishore Singh.

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ENGLISH LITERATURE

PAPER-I

MODERN ENGLISH LITERATURES (Paper Code-0175)

M.M. 75

All Questions are compulsory.

Note : 1. Unit-I is compulsory. Two passages from each of the units I to V to be set and three to be attempted. (3 x 5 = 15)

2. Short answer questions from unit VII, seven to be set and five to be attempted. (5 x 2 = 10)

3. Long answer questions from unit II to VI. Five questions from each unit with internal choice to be set. (5 x 2 = 10)

(Words limit for each answer is 300-400 words)

UNIT-I Annotations

UNIT-II (Poetry)

W.B. Yeats - 'A Prayer for My Daughter, The Second Coming

T.S. Eliot - 'Love Song of J. Alfred Prufrock'

UNIT-III (Poetry)

Dylan Thomas - 'Lament, 'A Refusal to Mourn the Death

Larkin - 'Toads', At Grass'

UNIT-IV (Prose)

Bertrand Russell - On the Value of Scepticism

Oscar Wilde - Happy Prince

UNIT-V (Drama)

G.B. Shaw - Pygmalion

UNIT-VI (Fiction and short-stories)

Rudyard Kipling-Kim

Short-Stories

Katherine mansfield - A Cup of Tea

UNIT-VII 1. Elegy,

2. Sonnet,

3. Ode,

4. Morality & Miracle Play,

5. One Act Play,

6. Interlude

BOOKS RECOMMENDED :

1. An Introduction to the study of English Lit. B. prasad

2. A Glossart of Literary Terms - M.H. Abrahamas

3. Prose of Today - M. Millan Pub

4. Short stories of Yesterday and To day - M. Millan

PAPER - II

MODERN ENGLISH LITERATURS (Paper Code-0176)

M.M. 75

All question are complusory.

Note : 1. Unit I is complusory. Two passages from each of the units II to V to be set and three to be attempted. (3x5 = 15)

2. Short answer questions from unit VII, seven to be set and five to be attempted. (5x2 = 10)

3. Long-answer questions from unit II to VI. Five questions from each unit with internal choice to be set. (5x2 = 10)

(Words limit for each answer is 300-400 words)

UNIT-I Annotation

UNIT-II (Poetry)

Sasson - At the Grove of Henry Vaughan.

Owen, W.H. - Strange Meeting

UNIT-III (Poetry)

Auden - Seascape

Ted Hughes - The Howling of Wolves

UINT-IV (Prose)

Robert Lynd - Forgetting

H. Belloc - A conversation with A Reader

UNIT-V (Drama)

John Galsworthy - Strife

OR J.M. Synge - Riders of the Sea

UNIT-VI William Golding - Lord of the Flies (Fiction)

UNIT-VII 1. Simile 2. Metaphor 3. Alliteration 4. Onomaetopoea 5. Ballad 6. Epic 7. Dramatic Monologuc.

BOOK RECOMMENDED -

1. Golden Treasury - Palgrave
2. A Glossary of Literary Terms - M.H. Abrams
3. An Introduction to the study of English literature - B.Prasad

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बी.ए./बी.एस.सी. तृतीय वर्ष

प्रश्न पत्र–प्रथम

सुदूर संवेदन एवं भैगोलिक सूचना प्रणाली

(पेपर कोड़ – 0248)

अधिकतम अंकः 50

इकाई –1 : सुदूर संवेदन का अर्थ तथा आधारभूत संकल्पना : परिभाषा, इतिहास, एवं विषय क्षेत्र; विद्युत चुम्बकीय विकिरण : विशेषताएँ, वर्णक्रमीय (SPECTRAL) प्रदेश एवं बैण्ड; पृथ्वी के धरातल एवं वायुमण्डल के साथ विकिरण अर्जा की अन्योन्यक्रिया, वर्णक्रमीय (SPECTRAL)लक्षण ।

इकाई –2 : सुदूर संवेदन के प्रकार : वायु जनित एवं अंतरिक्ष जनित; हवाई छायाचित्र : प्रकार एवं विशेषताएँ; सुदूर संवेदन उपग्रह : प्लेटफार्म एवं संवेदक : सक्रिय एवं निष्क्रय, संवेदक की विशेषताएँ : स्थानिक विभेदन, वर्णक्रमीय (SPECTRAL) विभेदन, रेड़ियोमेट्रिक विभेदन, अल्पकालिक विभेदन, उत्पाद ।

इकाई –3 : चाक्षुष एवं अंकीय बिम्ब प्रक्रियान्वयण तकनीक; संसाधन मानचित्रण एवं पर्यावरण नियंत्रण में सुदूर संवेदन अनुप्रयोग, भारत में सुदूर संवेदन; उद्दभव एवं विकास।

इकाई –4 : भौगोलिक सूचना प्रणाली का परिचय : भूसूचना की परिभाषा, भूसूचना का महत्व एवं विषय क्षेत्र, भौगोलिक सूचना प्रणाली का इतिहास, जी0 आई0 एस0 की संकल्पना, जी0 आई0 एस0 के कार्य – आंकड़ा प्रवेश, संचालन, परिचालन, प्रबंधन, त्रुटि संसूचन, विश्लेषण एवं प्रदर्शन, धरातलपत्रक, सर्वेक्षण, हवाई बिम्ब, उपग्रह आंकड़े एवं बिम्ब, आकड़ो के प्रकार धरातलीय एवं अधरातलीय या लाक्षाणिक ।

इकाई–5 : आंकड़ा मॉडल एवं आंकड़ा विश्लेषण : रॉस्टर आंकड़ा एवं उसकी विशेषताएँ, वेक्टर आंकड़ा एवं उसकी विशेषताएँ, रास्टार आंकड़ा विश्लेषण : ग्रिड सेल अथवा पिक्सल, विक्टर आंकड़ा विश्लेषण धरातलीय आकड़ा, विक्टर प्रारुप की रचना धरातलीय एवं अधरातलीय आंकड़ा प्रबंधन, धरातलीय सूचना तकनीक ।

Books Recommended:

1. Bhatta, B. (2010): Remote Sensing and GIS, Oxford University Press, New Delhi.
2. Campbell, J.B. (2002): Introduction to Remote Sensing. 5th edition, Taylor and Francis, London
3. Curran, P.J. (1985): Principles of Remote Sensing, Longman, London
4. Kang-tsung Chang (2003) Geographic Information Systems, Tata McGraw Hill, New Delhi
5. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. 4th edition. John Wiley and Sons, New York
6. Lo Albert, C.P., and Young, K.W (2003) Concepts and Techniques of Geographical Information Systems, Prentice Hall of India Pvt. Ltd., New Delhi.
7. Nag Prithvish and Kudrat M. (1998): Digital Remote Sensing, Concept Publishing Company, New Delhi
8. Star J, and J. Estes, (1994), Geographic Information Systems: An Introduction, Prentice Hall, New Jersy.
9. Williams J. (1995): Geographic information from space, John Wiley and Sons, England,

10. चौनियाल, देवी दत्त (2004), सुदूर संवेदन एवं भौगोलिक सूचना प्रणाली, शारदा पुस्तक भवन, इलाहाबाद–2.

बी.ए./बी.एस.सी. तृतीय वर्ष
प्रश्न पत्र–द्वितीय
छत्तीसगढ़ का भूगोल
(पेपर कोड़ – 0249)

अधिकतम अंक : 50

इकाई –1. भौतिक स्वरूप भौमिकीय संरचना उच्चावच, भूआकृतिक प्रदेश, अपवाह, जलवायु ।

इकाई –2. प्राकृतिक संसाधन–मिट्टी, प्रकार, विशेषताएँ, वितरण, जलसंसाधनः प्रमुख सिंचाई और बहुउद्देशीय परियोजनांए, वन : प्रकार, वितरण, वनों का संरक्षण, खनिज संसाधन – लौह अयस्क, कोयला डोलोमाइट, चुना पत्थर और बाक्साइट छत्तीसगढ़ में शक्ति के संसाधन।

इकाई –3. कृषि– प्रमुख खाद्यान्न फसलें, दलहन एवं अन्य फसलें, जनसंख्या– वृद्धि, वितरण और घनत्व, जनजातिय जनसंख्या । ग्रामीण और नगरीय जनसंख्या ।

इकाई –4. उद्योग, लौह इस्पात उद्योग, सिमेंट चीनी, एल्युमिनीयम, छत्तीसगढ़ के औद्योगिक प्रदेश ।

इकाई –5. व्यापार, परिवहन, पर्यटन, छत्तीगढ़ का सामाजिक आर्थिक विकास ।

Books Recommended:

1. Jha, Vibhash Kumar and Saumya Naiyyar (2013) Chhattisgarh Samagra, Chhattisgarh Rajya Hindi Granth Akadmi, Raipur
2. Kumar, Pramila (2003): Chhattisgarh Ek Bhugolik Addhyayan. Madhya Pradesh Hindi Granth Akadmi, Bhopal
3. Nagesh Jitendra and at all (2014): Chhattisgarh Sandarbh 2014 Jansanmpark Vibhag, C.G. Govt., Raipur
4. Tiwari, Vijay Kumar ( ): Geography of Chhattisgarh, Himalya Publishing House, Pvt. Ltd
5. Tripathi, Kaushlendra and Pursottam Chandrakar (2001): Geography of Chhattisgarh, Shardaprakashan, Aazad Nagar , Bilaspur.
6. Verma ,L.N. (2017): Geography of Chhattisgarh, Madhya Pradesh Hindi Granth Akadmi, Bhopal

बी.ए./बी.एस.सी. तृतीय वर्ष
प्रश्न पत्र–तृतीय
प्रायोगिक भूगोल

अधिकतम अंक : 50

खण्ड़ (अ)

मनचित्र पठन एवं निर्वचन **20**

इकाई –1. बैन्ड ग्राफ, हीदर ग्राफ, क्लाइमोग्राफ, पवनारेख ।

इकाई –2. भारतीय स्थलाकृतिक मानचित्र की व्याख्या प्रकार, वर्गीकरण धरतलीय मानचित्र के प्रकार एवं विष्लेषण, राष्ट्रीय एवं अन्तराष्ट्रीय, भौतिक एवं सांस्कृतिक तत्वों के आधार पर विष्लेषण ।

इकाई –3. उपग्रह बिम्ब : प्रारम्भिक सूचनाओं की व्याख्या बिम्ब निर्वाचन : चाक्षुश विधि – भूमि उपयोग भूमि आच्छादन मानचित्रण, जी0 पी0 एस0 का उपयोग एवं अनुप्रयोग ।

खण्ड़ (ब)

सर्वोक्षण एवं क्षेत्रीय प्रतिवेदन **20**

इकाई –4. सर्वेक्षण , समपटल सर्वेक्षण, प्रतिच्छेदन एवं स्थिति निर्धारण ।

इकाई –5. भूगोल में क्षेत्रीय कार्य का महत्व किसी छोटे क्षेत्र का भौतिक सामाजिक आर्थिक सर्वेक्षण और रिपोर्ट तैयार करना ।

प्रायोगिक पुस्तिका और मौखिक परिक्षण परीक्षा **10**

Books Recommended:

1. Archer, J.E. and Dalton, T.H. (1968): *Field Work in Geography*. William Clowes and Sons Ltd. London and Beccles.
2. Bolton, T. and Newbury, P.A. (1968): *Geography through Fieldwork*. Blandford Press, London.
3. Campell, J. B. (2003): Introduction to Remote Sensing. 4th edition. Taylor and Francis, London.
4. Chaunial, D. D. (2004): Remote Sensing and Geographical Information System(in Hindi), Sharda Pustak Bhawan, Allahabad
5. Cracknell, A. and Ladson, H. (1990): Remote Sensing Year Book. Taylor and Francis, London.
6. Curran, P.J. (1985): Principles of Remote Sensing. Longman, London.
7. Davis, R.E. and Foote, F.S. (1953): Surveying, 4th edition, McGraw Hill Publication, New York
8. `
9. Deekshatulu, B.L. and Rajan, Y.S. (ed.) (1984): Remote Sensing. Indian Academy of Science, Bangalore.
10. Floyd, F. and Sabins, Jr. (1986): Remote Sensing: Principles and Interpretation. W.H. Freeman, New York.
11. Gautam, N.C. and Raghavswamy, V. (2004). Land Use/ Land Cover and Management Practices in India. B.S. Publication., Hyderabad.
12. Jensen, J.R. (2004): Remote Sensing of the Environment: An Earth Resource Perspective. Prentice-Hall, Englewood Cliffs, New Jersey. Indian reprint available.

13. Jones, P.A.(1968): Fieldwork in Geography, Longmans, Green and Company Ltd., First Publication, London
14. Kanetker, T.P. and Kulkarni, S.V.(1967): Surveying and Levelling, Vol I and II V.G. Prakashan, Poona.
15. Lillesand, T.M. and Kiefer, R.W. (2000): Remote Sensing and Image Interpretation. John Wiley and Sons, New York.
16. Monkhouse, F. J. (1985): Maps and Diagrams. Methuen, London.
17. Nag, P. (ed.) (1992): Thematic Cartography and Remote Sensing. Concept Publishing Company, New Delhi.
18. Natrajan, V. (1976): Advanced Surveying, B.I. Publications., Mumbai.
19. Rampal, K.K. (1999): Handbook of Aerial Photography and Interpretation. Concept Publishing. Company, New Delhi.
20. Raisz, E. (1962): Principles of Cartography, McGraw Hill, New York.
21. Robinson, A. H., Sale. R. D., Morrison, J. L. and Muehrcke, P. C. (1984): Elements of Cartography. 5th edition, John Wiley and Sons, Inc. New York.
22. Sarkar, A. K. (1997): Practical Geography: A Systematic Approach. Orient Longman, Kolkata
23. Sharma, J. P. (2001): *Prayogik Bhugol*., Rastogi Publication, Meerut 3rd. edition.
24. Singh, R.L. and Singh Rana P.B. (1993): *Elements of Practical Geography*. (Hindi and English editions). Kalyani Publishers, New Delhi.
25. Stoddard, Robert H. (1982): *Field Techniques and Research Methods in Geography*. Kendall/Hunt Pub. Dubuque IO.

प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व
Ancient India History, Culture and Archaeology

बी.ए. तृतीय वर्ष

B.A. Part III Year

पाठ्यक्रम
Syllabus

सत्र : 2018–19

Session 2018-19

बी.ए. तृतीय वर्ष

प्राचीन भारतीय इतिहास, संस्कृति तथा पुरातत्व

प्रथम : प्रश्न–पत्र

B.A. Part III Paper I

भारतीय वास्तु तथा कला के मूल तत्व (पेपर कोड 0266)

Elements of Ancient Indian Architecture and Art

पूर्णांक : 50

इकाई– 1 हड़प्पा कालीन वास्तु, मौर्य कालीन वास्तु, स्तूप वास्तु (सांची, भरहुत तथा अमरावती), पश्चिमी भारत के चैत्यगृह तथा विहार– भाजा, कालें, कोण्डाने, अजंता और एलोरा।
(Architecture of Harappan period, Mauryan period; Stupa Architecture (Sanchi, Bharhut and Amravati), Chaityas and Viharas of Western India (Bhaja, Karle, Konden, Ajanta and Ellora)

इकाई– 2 मंदिर वास्तु का उद्‌भव एवं विकास, मंदिर वास्तु की विभिन्न शैली–नागर, बेसर एवं द्रविड़।
(Origin and development of Temple Architecture, Various Styles of Temple Architecture – Nagara, Vessara & Dravida)

इकाई– 3 मूर्तिकला–हड़प्पा कालीन, मौर्यकालीन, शुंभकालीन, कुषाण कालीन (गांधार एवं मथुरा)।
(Iconography – Harappa period, Mauryan period, Shunga period, Kushana period (Gandhara & Mathura)

इकाई– 4 प्राचीन भारत में मूर्ति पूजा का उद्‌भव एवं विकास (विष्णु, शिव, बौद्ध एवं जैन प्रतिमा के विशेष संदर्भ में)।
(Origin and development of idol worship in Ancient India, with special reference to Vishnu, Shiva, Jaina & Buddhist sculptures)

इकाई– 5 प्रागैतिहासिक चित्रकला, सिघंनपुर की चित्रकला, काबरा पहाड़ एवं अंजता और बाघ की चित्रकला।
(Pre-historic paintings, Painting of Singhanpur and Kabrapahar, Ajanta & Bagh Paintings)

अनुशंशित ग्रंथ :

1. वासुदेव शरण अग्रवाल – भारतीय कला भाग–1
2. रामनाथ मिश्र – भारतीय मूर्तिकला
3. कृष्णदत्त बाजपेयी – भारतीय वास्तुकला का इतिहास
4. वासुदेव उपाध्याय – प्राचीन भारतीय स्तूप, गुहा एवं मंदिर
5. कृष्णदत्त बाजपेयी एवं संतोष कुमार बाजपेयी – भारतीय कला
6. सच्चिदानंद पांडेय – मंदिर स्थापत्य का इतिहास
7. जयनारायण पांडेय – भारतीय कला
8. मारूतिनंदन प्रसाद तिवारी तथा कमल गिरी – भारतीय प्रतिमा विज्ञान
9. ए.एल. श्रीवास्तव – भारतीय कला
10. A.. Coomarswami - History of Indian and Indonesian Art
11. Percy Brown - Indian Architecture, Vol. I
12. Krishnadeva - Temples of North India
13. S.Kramrisch - Hindu Temple Part I & II

बी.ए. तृतीय वर्ष

द्वितीय : प्रश्न–पत्र (अ)

B.A. Part III Paper II (A)

भारतीय पुरातत्व के मूलतत्व (पेपर कोड 0267)

Elements of Indian Archaeology

पूर्णांक : 50

इकाई– 1 पुरातत्व विज्ञान की परिभाषा, विस्तार क्षेत्र का अध्ययन, अन्य विषयों से संबंध।
(Definition, extent and relationship of Archaeology with other branches of Studies)

इकाई– 2 भारत में पुरातत्व का इतिहास, प्राचीन स्थलों की खोज एवं तिथि निर्धारण।
(History of Indian Archaeology, Discovery of Ancient Sites and Dating Methods)

इकाई– 3 उत्खनन–विधियॉ, सर्वेक्षण, स्तर विन्यास, उत्खनन का लेखा–जोखा।
(Methods of Excavation, Survey, Stratification, Documentation of excavation)

इकाई– 4 भृदभाण्ड, गैरिक भृदभाण्ड, चित्रित धूसर भृदभाण्ड, काले और लाल भृदभाण्ड, उत्तरी कृष्ण मर्जित भृदभाण्ड (एन.वी.पी.)।
(Pottery: Ochre Coloured Pottery (O.C.P.), Painted Grey Ware (P.G.W.), Black & Red Ware (B.R.W.), Northern Black Polished Ware (N.B.P.W.)

इकाई– 5 प्रमुख पुरास्थलों का अध्ययन–
कालीबंगा, एरण, कौशाम्बी, हस्तिनापुर, ब्रह्यगिरी, सिरपुर, मल्हार।
(Important Archaeological sites: Kalibangan, Eran, Koshambi, Hastinapur, Brahmgiri, Sirpur, Malhar)

अनुशंशित ग्रंथ :

1. के.डी. बाजपेयी – मध्यप्रदेश का पुरातत्व
2. आर.एम. व्हीलर – पृथ्वी से पुरातत्व
3. बी.एन.पुरी – पुरातत्व विज्ञान
4. जयनारायण पाण्डेय – पुरातत्व विमर्श
5. राकेश प्रकाश पाण्डेय – पुरातत्व विज्ञान
6. मदन मोहन सिंह – पुरातत्व की रूपरेखा

''अथवा''

बी.ए. तृतीय वर्ष

द्वितीय : प्रश्न–पत्र (ब)

B.A. Part III Paper II (B)

(ब) पुराभिलेख एवं मुद्राशास्त्र के मूल तत्व (पेपर कोड 0268)

Elements of Palaeography and Numismatics

पूर्णांक : 50

इकाई– 1 (1) प्राचीन भारतीय इतिहास की पुनर्रचना में अभिलेखों का महत्व।
(Significance of Epigraphy for writing Ancient Indian History)
(2) लेखन कला का उद्‌भव एवं विकास।
(Origin and development of writing skill)
(3) अभिलेखों में प्रयुक्त भाषायें, लिपियॉ तथा सामग्री।
(Languages, Scripts and materials used for Inscriptions)

इकाई– 2 निम्नलिखित अभिलेखों का ऐतिहासिक महत्व : (Historic significance of the following Inscription)
(1) अशोक का द्वितीय शिलालेख। (2^{nd} rock edict of Ashoka)
(2) अशोक का बारहवां शिलालेख। (12^{th} rock edict of Ashoka)
(3) हेलियोडोरस का बेसनगर स्तम्भलेख। (Besnagar Pillar Inscription of Heliodorus)
(4) गौतमी पुत्र सातकर्णी का नासिक अभिलेख। (Nasik Inscription of Gautamiputra Satkarni)
(5) खारवेल का हाथिगुफा अभिलेख। (Hanthigumpha Inscription of Kharvela)
(6) रूद्र दामन का जूनागढ़ (Junagarh Inscription of Rudradaman)

इकाई– 3 (1) समुद्र गुप्त का प्रयाग प्रशस्ति अभिलेख। (Allahabad Pillar Inscription of Samudragupta)
(2) पुलकेशिन द्वितीय का एहोल लेख। (Aihole Inscription of Pulakeshin – II)
(3) हर्ष का बांसखेड़ा अभिलेख। (Banskhera Inscription of Harsha)
(4) महारानी वासटा का लक्ष्मण मंदिर अभिलेख। (Lakshman temple Inscription of Queen Vasta)
(5) जाजल्ल देव प्रथम का रतनपुर अभिलेख। (Ratanpur Inscription of Jajalladeva)

इकाई– 4 इतिहास की पुनर्रचान में मुद्रा का महत्व, मुदा का उद्‌भव एवं प्राचीनता, मुद्रा निर्माण तकनीक तथा आहत सिक्के ।
(Significance of Numismatics for writing Ancient Indian History, Origin and antiquity of Coins, Minting Techniques of Coins, Punch-Marked Coins)

इकाई– 5 कुषाण कालीन सिक्के, जनपदीय सिक्के (तक्षशिला, कौशाम्बी, एरण), गुप्त कालीन मुद्रायें, समुद्र गुप्त, चन्द्रगुप्त द्वितीय, एवं कुमारगुप्त की स्वर्ण रजत एवं ताम्र मुद्राये स्थानीय मुद्राये शरभपुरीय, नलवंशीय एवं कलचुरी राजवंश।
Kushana Coins, Janpada Coins (Taxila, Kaushambi, Eran), Gupta coins, Gold, Silver and Copper coins of Samudragupta, Chandragupta-II and Kumaragupta; Regional coins: Sharabhpuriya, Nala, Kalachuri)

अनुशंशित ग्रंथ :

1. डी.सी.सरकार – इंडियन एपिग्राफी
2. डी.सी.सरकार – सेलेक्ट इन्सक्रिप्शन्स भाग 1 व 2
3. एस.एच.दानी – इंडियन पैलियोग्राफी
4. वासुदेव बाजपेयी – प्राचीन भारतीय अभिलेखों का अध्ययय
5. कृष्णदत्त बाजपेयी, कन्हैयालाल अग्रवाल संतोष कुमार बाजपेयी –ऐतिहासिक भारतीय अभिलेख
6. परमेश्वरी लाल गुप्ता – प्राचीन भारतीय मुद्राऍ
7. डी.सी.सरकार – स्टडीज एवं इंडियन क्वाएन्स
8. ए.के.शरण – ट्राइबल क्वाएन्स
9. भास्कर चट्‌टोपाध्याय – द एज ऑफ दि कुषाणजःए न्यूमिस्मेटिक स्टडी
10. ए.एस. अल्तेकर – गुप्तकालीन मुद्राऍ
11. राजवंत राव – प्राचीन भारतीय मुद्राऍ

प्रायोगिक तथा मौखिक परीक्षा

पूर्णांक – 50

1. किसी महत्वपूर्ण पुरातात्विक/ऐतिहासिक स्थान का भ्रमण एवं विवरण प्रस्तुति – 20 अंक
2. पुरावस्तुओं की पहचान – 20 अंक
3. मौखिकी – 10 अंक

योग – 50 अंक

(डॉ. दिनेश नंदिनी परिहार)	(डॉ. अनुप परसाई)	(डॉ. नितेश कुमार मिश्र)
अध्यक्ष	सदस्य	सदस्य
केन्द्रीय अध्ययन मंड़ल	केन्द्रीय अध्ययन मंड़ल	केन्द्रीय अध्ययन मंड़ल

MATHEMATICS

There shall be three theory papers. Two compulsory and one optional. Each paper carrying 50 marks is divided into five units and each unit carry equal marks.

B.A. Part-III
PAPER - I
ANALYSIS

REAL ANALYSIS

UNIT-I Series of arbitrary terms. Convergence, divergence and oscillation. Abel's and Dirichlet's test. Multiplication of series. Double series. Partial derivation and differentiability of real-valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem. Fourier series. Fourier expansion of piecewise monotonic functions.

UNIT-II Riemann integral. Intergrability of continuous and monotonic functions. The fundamental theorem of integral calculus. Mean value theorems of integral calculus. Improper integrals and their convergence. Comparison tests. Abel's and Dirichlet' tests. Frullani's integral. Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter.

COMPLEX ANALYSIS

UNIT-III Complex numbers as ordered pairs. Geometrical representation of complex numbers. Stereographic projection. Continuity and differentiability of complex functions. Analytic functions. Cauchy-Riemann equations. Harmonic functions. Elementary functions. Mapping by elementary functions. Mobius transformations. Fixed points, Cross ratio. Inverse points and critical mappings. Conformal mappings.

METRIC SPACES

UNIT-IV Definition and examples of metric spaces. Neighbourhoods, Limit points, Interior points, Open and Closed sets, Closure and interior. Boundary points, Sub-space of a metric space. Cauchy sequences, Completeness, Cantor's intersection theorem. Contraction principle, construction of real numbers as the completion of the incomplete metric space of rationals. Real numbers as a complete ordered field.

UNIT-V Dense subsets. Baire Category theorem. Separable, second countable and first countable spaces. Continuous functions. Extension theorem. Uniform continuity, isometry and homeomorphism. Equivalent metrics. Compactness, sequential compactness. Totally bounded spaces. Finite intersection property. Continuous functions and Compact sets, Connectedness, Components, Continuous functions and Connected sets.

REFERENCES :

1. T.M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
2. R.R. Goldberg, Real Analysis, Oxford & IBH publishing Co., New Delhi, 1970.
3. S. Lang, Undergraduate Analysis, Springer-Verlag, New York, 1983.
4. D. Somasundaram and B. Choudhary, A First Coarse in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. Shanti Narayan, A Course of Mathematical Analysis, S. Chand & Co. New Delhi.
6. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.
7. R.V. Churchill and J.W. Brown, Complex Variables and Applications, 5th Edition, McGraw- Hill, NewYork, 1990.
8. Mark J. Ablowitz and A.S. Fokas, Complex Variables : Introduction and Applications, Cambridge University Press, South Asian Edition, 1998.
9. Shanti Narayan, Theory of Functions of a Complex Variable, S. Chand & Co., New Delhi.
10. E.T. Copson, Metric Spaces, Cambridge University Press, 1968.
11. P.K. Jain and K. Ahmad, Metric Spaces, Narosa Publishing House, New Delhi, 1996.
12. G.F. Simmons, Introduction to Topology and Modern Analysis, McGraw-Hill, 1963.

B.A. Part-III
PART - II
ABSTRACT ALGEBRA

UNIT-I Group-Automorphisms, inner automorphism. Automorphism of groups and their computations, Conjugacy relation, Normaliser, Counting principle and the class equation of a finite group. Center for Group of prime-order, Abelianizing of a group and its universal property. Sylow's theorems, Sylow subgroup, Structure theorem for finite Abelian groups.

UNIT-II Ring theory-Ring homomorphism. Ideals and quotient rings. Field of quotients of an integral domain, Euclidean rings, polynomial rings, Polynomials over the rational field. The Eisenstien criterion, polynomial rings over commutative rings, Unique factorization domain. R unique factorisation domain implies so is $R[x_1, x_2 ..... x_n]$. Modules, Submodules, Quotient modules, Homomorphism and Isomorphism theorems.

UNIT-III Definition and examples of vector spaces. Subspaces. Sum and direct sum of subspaces. Linear span, Linear dependence, independence and their basic properties. Basis. Finite dimensional vector spaces. Existence theorem for bases. Invariance of the number of elements of a basis set. Dimension. Existence of complementary subspace of a finite dimensional vector space. Dimension of sums of subspaces. Quotient space and its dimension.

UNIT-IV Linear transformations and their representation as matrices. The Algebra of linear transformations. The rank nullity theorem. Change of basis. Dual space. Bidual space and natural isomorphism. Adjoint of a linear transformation. Eigenvalues and eigenvectors of a linear transformation. Diagonalisation. Annihilator of a subspace. Bilinear, Quadratic and Hermitian forms.

UNIT-V Inner Product Spaces-Cauchy-Schwarz inequality. Orthogonal vectors. Orthogonal Complements. Orthonormal sets and bases. Bessel's inequality for finite dimensional spaces. Gram-Schmidt Orthogonalization process.

REFERENCES :

1. I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975.
2. N. Jacobson, Basic Algebra, Vols. I & II. W.H. Freeman, 1980 (also published by Hindustan Publishing Company).
3. Shanti Narayan, A Text Book of Modern Abstract Algebra, S.Chand & Co. New Delhi.
4. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd., New Delhi, 2000.
5. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal, Basic Abstract Algebra (2"" Edition) Cambridge University Press, Indian Edition, 1997.
6. K. Hoffman and R. Kunze, Linear Algebra, (2nd Edition), Prentice Hall. Englewood Cliffs, New Jersey, 1971.
7. S.K. Jain, A. Gunawardena and P.B. Bhattacharya, Basic Linear Algebra with MATLAB. Key College Publishing (Springer-Verlag) 2001.
8. S. Kumaresan, Linear Algebra, A Geometric Approach, Prentice-Hall of India, 2000.
9. Vivek Sahai and Vikas Bist, Algebra, Norosa Publishing House, 1997.
10. I.S. Luther and I.B.S.Passi, Algebra, Vol. I-Groups, Vol. II-Rings. Narosa Publishing House (Vol. I-1996, Vol. II-1999)
11. D.S. Malik, J.N. Mordeson, and M.K. Sen, Fundamentals of Abstract Algebra, McGraw- Hill International Edition, 1997.

B.A. Part-III
PAPER - III - (OPTIONAL)
(I) PRINCIPLES OF COMPUTER SCIENCE

UNIT-I **Data Storage** - Storage of bits. Main Memory. Mass Storage. Coding Information of Storage. The Binary System. Storing integers, storing fractions, communication errors.
Data Manipulation - The Central Processing Unit. The Stored-Program Concept. Programme Execution. Other Architectures. Arithmetic/Logic Instructions. Computer- Peripheral Communication.

UNIT-II **Operating System and Networks -** The Evolution of Operating System. Operating System Architecture. Coordinating the Machine's Activities. Handling Competition Among Process. Networks. Networks Protocol.
Software Engineering - The Software Engineering Discipline. The Software Life Cycle. Modularity. Development Tools and Techniques. Documentation. Software Ownership and Liability.

UNIT-III **Algorithms -** The Concept of an Algorithm, Algorithm Representation. Algorithm Discovery. Iterative Structures. Recursive Structures. Efficiency and Correctness. (Algorithms to be implemented in C++).
Programming Languages - Historical Perspective. Traditional Programming Concepts, Program Units. Language Implementation. Parallel Computing. Declarative Computing.

UNIT-IV **Data Structures -** Arrays. Lists. Stacks. Queues. Trees. Customised Data Types. Object Oriented Programming.
File Structure - Sequential Files. Text Files. Indexed Files. Hashed Files. The Role of the Operating System.
Database Structure - General Issues. The Layered Approach to Database Implementation. The Relational Model. Object-Oriented Database. Maintaining Database Integrity. E-R models

UNIT-V **Artifical Intelligence -** Some Philosophical Issues. Image Analysis. Reasoning, Control System Activities. Using Heuristics. Artificial Neural Networks. Application of Artificial Intelligence.
Theory of Computation - Turning Machines. Computable functions. A Non computable Function. Complexity and its Measures. Problem Classification.

REFERENCES :

1. J. Glen Brookshear, Computer Science : An Overview, Addition -Wesley.
2. Stanley B. Lippman, Josee Lojoie, C++ Primer (3rd Edition), Addison-Wesley.

B.A. Part-III
PAPER - III - (OPTIONAL)
(II) DISCRETE MATHEMATICS

UNIT-I **Sets and Propositions -** Cardinality. Mathematical Induction, Principle of inclusion and exclusion. **Computability and Formal Languages -** Ordered Sets. Languages. Phrase Structure Grammars. Types of Grammars and Languages. Permutations. Combinations and Discrete Probability.

UNIT-II **Relations and Functions -** Binary Relations, Equivalence Relations and Partitions. Partial Order Relations and Lattices. Chains and Antichains. Pigeon Hole Principle.

Graphs and Planar Graphs - Basic Terminology. Multigraphs. Weighted Graphs. Paths and Circuits. Shortest Paths. Eulerian Paths and Circuits. Travelling Salesman Problem. Planner Graphs. Trees.

UNIT-III **Finite State Machines -** Equivalent Machines. Finite State Machines as Language Recognizers. **Analysis of Algorithms -** Time Complexity. Complexity of Problems. Discrete Numeric Functions and Generating Functions.

UNIT-IV **Recurrence Relations and Recursive Algorithms -** Linear Recurrence Relations with constant coefficients. Homogeneous Solutions. Particular Solution. Total Solution. Solution by the Method of Generating Functions. Brief review of Groups and Rings.

UNIT-V **Boolean Algebras -** Lattices and Algebraic Structures. Duality, Distributive and Complemented Lattices. Boolean Lattices and Boolean Algebras. Boolean Functions and Expressions. Prepositional Calculus. Design and Implementation of Digital Networks. Switching Circuits.

REFERENCES :

1. C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, Computer Science Series, 1986

B.A. Part-III

PAPER - III - (OPTIONAL)

(III) PROGRAMMING IN C AND NUMERICAL ANALYSIS

(Theory & Practical)

Theory component will have maximum marks 30.

Practical component will have maximum marks 20.

UNIT-I Programmer's model of a computer. Algorithms. Flow Charts. Data Types. Arithmetic and input/output instructions. Decisions control structures. Decision statements. Logical and Conditional operators. Loop. Case control structures. Functions. Recursions. Preprocessors. Arrays. Puppetting of strings. Structures. Pointers. File formatting.

Numerical Analysis

UNIT-II **Solution of Equations:** Bisection, Secant, Regula Falsi, Newton's Method, Roots of Polynomials. **Interpolation:** Lagrange and Hermite Interpolation, Divided Differences, Difference Schemes, Interpolation Formulas using Differences. Numerical Differentiation. Numerical Quadrature: Newton-Cote's Formulas. Gauss Quadrature Formulas, Chebychev's Formulas.

UNIT-III **Linear Equations:** Direct Methods for Solving Systems of Linear Equations (Guass Elimination, LU Decomposition, Cholesky Decomposition), Iterative Methods (Jacobi, GaussSeidel, Relaxation Methods).

The Algebraic Eigenvalue problem: Jacobi's Method, Givens' Method, Householder's Method, Power Method, QR Method, Lanczos' Method.

UNIT-IV **Ordinary Differential Equations:** Euler Method, Single-step Methods, Runge-Kutta's Method, Multi-step Methods, Milne-Simpson Method, Methods Based on Numerical Integration, Methods Based on Numerical Differentiation, Boundary Value Problems, Eigenvalue Problems.

Approximation: Different Types of Approximation, Least Square Polynomial Approximation, Polynomial Approximation using Orthogonal Polynomials, Approximation with Trigonometric Functions, Exponential Functions, Chebychev Polynomials, Rational Functions.

Monte Carlo Methods

Unit-V Random number generation, congruential generators, statistical tests of pseudo-random numbers. Random variate generation, inverse transform method, composition method, acceptance rejection method, generation of exponential, normal variates, binomial and Poisson variates.

Monte Carlo integration, hit or miss Monte Carlo integration, Monte Carlo integration for improper integrals, error analysis for Monte Carlo integration.

REFERENCES :

1. Henry Mullish and Herbert L. Cooper, Spirit of C: An Introduction to Modern Programming, Jaico Publishers, Bombay.
2. B.W. Kernighan and D.M. Ritchie. The C Programming Language 2nd Edition, (ANSI features) Prentice Hall, 1989.
3. Peter A Darnel and Philip E. Margolis, C : A Software Engineering Approach, Narosa Publishing House, 1993.
4. Robert C. Hutehisonand Steven B. Just, Programming using C Language, McGraw Hill, 1988.
5. Les Hancock and Morris Krieger, The C Primer, McGraw Hill, 1988.
6. V. Rajaraman, Programming in C, Prentice Hall of India, 1994.
7. Byron S. Gottfried, Theory and Problems of Programming with C, Tata McGraw-Hill Publishing Co. Ltd., 1998.
8. C.E. Froberg, Introduction to Numerical Analysis, (Second Edition), Addison-Wesley, 1979.
9. James B. Scarborough, Numerical Mathematical Analysis, Oxford and IBHPublishing Co. Pvt. Ltd. 1966.

10. Melvin J. Maron, Numerical Analysis A Practical Approach, Macmillan publishing Co., Inc. New York, 1982.
11. M.K. Jain, S.R.K. lyengar, R.K. Jain, Numerical Methods Problems and Solutions, New Age International (P) Ltd., 1996.
12. M.K. Jain, S.R.K. lyengar, R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International (P) Ltd., 1999.
13. R.Y. Rubistein, Simulation and the Monte Carlo Methods, John Wiley, 1981.
14. D.J. Yakowitz, Computational Probability and Simulation, Addison-Wesley, 1977.

PAPER - III - (OPTIONAL)
(IV) PRACTICAL
PROGRAMMING IN C AND NUMERICAL ANALYSIS

LIST OF PRACTICAL TO BE CONDUCTED...

1. Write a program in C to find out the largest number of three integer numbers.
2. Write a program in C to accept monthly salary from the user, find and display income tax with the help of following rules :

Monthly Salary	Income Tax
9000 or more	40% of monthly salary
7500 or more	30% of monthly salary
7499 or less	20% of monthly salary

3. Write a program in C that reads a year and determine whether it is a leap year or not.
4. Write a program in C to calculate and print the first n terms of fibonacci series using looping statement.
5. Write a program in C that reads in a number and single digit. It determines whether the first number contains the digit or not.
6. Write a program in C to computes the roots of a quadratic equation using case statement.
7. Write a program in C to find out the largest number of four numbers using function.
8. Write a program in C to find the sum of all the digits of a given number using recursion.
9. Write a program in C to calculate the factorial of a given number using recursion.
10. Write a program in C to calculate and print the multiplication of given 2D matrices.
11. Write a program in C to check that whether given string palindrome or not.
12. Write a Program in C to calculate the sum of series:

$$1 + x + \frac{1}{2!}x^2 + \frac{1}{3!}x^3 + \ \ldots\ldots + \frac{1}{n!}x^n$$

13. Write a program in C to determine the grade of all students in the class using Structure. Where structure having following members - name, age, roll, sub1, sub2, sub3, sub4 and total.
14. Write a program in C to copy one string to another using pointer. (Without using standard library functions).
15. Write a program in C to store the data of five students permanently in a data file using file handling.

इतिहास अध्ययनशाला

पं.रविशंकर शुक्ल विश्वविद्यालय, रायपुर

केन्द्रीय अध्ययन मण्डल की बैठक (इतिहास)

विषय– इतिहास प्रश्न पत्र – प्रथम

संकाय– सामाजिक विज्ञान

कक्षा का नाम – बी.ए. तृतीय वर्ष प्रश्न पत्र का नाम – भारत का इतिहास 1761 ई. से 1947 ई. तक

नवीन संशोधित पाठ्यक्रम

इकाई–1

1. भारत में यूरोपीयनों का आगमन
2. आंग्ल–फ्रांसीसी प्रतिस्पर्धा– कर्नाटक युद्ध
3. ब्रिटिश साम्राज्य का विस्तार – प्लासी एवं बक्सर युद्ध
4. ब्रिटिश साम्राज्य का विस्तार – वेलेजली की सहायक संधि, डलहौजी की हड़प नीति

इकाई–2

5. ब्रिटिश प्रशासनिक सुधार – लार्ड विलियम बैंटिंग
6. लार्ड कर्जन का प्रशासन
7. यूरोपीय वाणिज्यवाद का भारत में प्रभाव–उद्योगों व व्यापार का पतन
8. विभिन्न सामाजिक वर्ग–कृषक, मजदूर, महिलाएं

इकाई–3

9. कृषि का पतन एवं कृषक आंदोलन
10. भूराजस्व व्यवस्थाएं – स्थायी बंदोबस्त, रैयतवाड़ी, महालवाड़ी
11. भारतीय पुनर्जागरण–ब्रह्म समाज, आर्य समाज
12. मुस्लिम समाज सुधार आंदोलन–अलीगढ़ आंदोलन

इकाई–4

13. रेल यातायात का उद्‌भव एवं विकास
14. हस्तशिल्प उद्योगों का पतन
15. ईस्ट इंडिया कंपनी का रियासतों से संबंध
16. पाश्चात्य शिक्षा का विकास एवं प्रेस

इकाई–5

17. ब्रिटिश नियंत्रण काल में छत्तीसगढ़ की प्रशासनिक व्यवस्था
18. ब्रिटिश कालीन प्रशासनिक व्यवस्था
19. छत्तीसगढ़ में सामाजिक सुधार–कबीर पंथ एवं सतनाम पंथ
20. छत्तीसगढ़ की जनजातीय संस्कृति

इतिहास अध्ययनशाला

पं.रविशंकर शुक्ल विश्वविद्यालय, रायपुर

केन्द्रीय अध्ययन मण्डल की बैठक (इतिहास)

विषय– इतिहास प्रश्न पत्र – द्वितीय

संकाय– सामाजिक विज्ञान

कक्षा का नाम – बी.ए. तृतीय वर्ष प्रश्न पत्र का नाम – भारत के राष्ट्रीय आन्दोलन का इतिहास 1857ई. से 1947ई. तक

नवीन संशोधित पाठ्यक्रम

इकाई–1

1. राष्ट्रवाद का उदय
2. 1857ई. की क्रांति : कारण एवं परिणाम
3. भारतीय राष्ट्रीय कांग्रेस की स्थापना – उद्देश्य, उदारवाद, उग्रवाद
4. बंगाल का विभाजन एवं स्वदेशी आंदोलन

इकाई–2

5. क्रांतिकारी आंदोलन– प्रथम एवं द्वितीय चरण
6. भारतीय राजनीति में साम्प्रदायिकता का उदय– मुस्लिम लीग की स्थापना
7. होमरूल आंदोलन
8. लखनऊ समझौता

इकाई–3

9. गांधीवादी आंदोलन – असहयोग आंदोलन
10. सविनय अवज्ञा आंदोलन
11. आदिवासी मजदूर एवं कृषक आंदोलन
12. भारत छोड़ो आंदोलन

इकाई–4

13. आजाद हिन्द फौज
14. भारत का विभाजन एवं स्वतंत्रता
15. रियासतों का विलिनीकरण
16. भारतीय संविधान की प्रमुख विशेषताएं

इकाई–5

17. छत्तीसगढ़ में 1857ई. की क्रांति– नारायण सिंह एवं हनुमान सिंह
18. बस्तर का मुरिया विद्रोह एवं भूमकाल आंदोलन
19. छत्तीसगढ़ में गांधीवादी आंदोलन
20. छत्तीसगढ़ में रियासतों का विलिनीकरण

बी.ए. तृतीय वर्ष, इतिहास
प्रश्न पत्र – प्रथम
भारत का इतिहास 1761 ई. से 1947 ई. तक

इकाई–1

1. भारत में यूरोपीयनों का आगमन
2. आंग्ल–फ्रांसीसी प्रतिस्पर्धा– कर्नाटक युद्ध
3. ब्रिटिश साम्राज्य का विस्तार – प्लासी एवं बक्सर युद्ध
4. ब्रिटिश साम्राज्य का विस्तार – वेलेजली की सहायक संधि, डलहौजी की हड़प नीति

इकाई–2

5. ब्रिटिश प्रशासनिक सुधार – लार्ड विलियम बैंटिंग
6. लार्ड कर्जन का प्रशासन
7. यूरोपीय वाणिज्यवाद का भारत में प्रभाव–उद्योगों व व्यापार का पतन
8. विभिन्न सामाजिक वर्ग–कृषक, मजदूर, महिलाएं

इकाई–3

9. कृषि का पतन एवं कृषक आंदोलन
10. भूराजस्व व्यवस्थाएं – स्थायी बंदोबस्त, रैयतवाड़ी, महालवाड़ी
11. भारतीय पुनर्जागरण–ब्रह्म समाज, आर्य समाज
12. मुस्लिम समाज सुधार आंदोलन–अलीगढ़ आंदोलन

इकाई–4

13. रेल यातायात का उद्‌भव एवं विकास
14. हस्तशिल्प उद्योगों का पतन
15. ईस्ट इंडिया कंपनी का रियासतों से संबंध
16. पाश्चात्य शिक्षा का विकास एवं प्रेस

इकाई–5

17. ब्रिटिश नियंत्रण काल में छत्तीसगढ़ की प्रशासनिक व्यवस्था
18. ब्रिटिश कालीन प्रशासनिक व्यवस्था
19. छत्तीसगढ़ में सामाजिक सुधार–कबीर पंथ एवं सतनाम पंथ
20. छत्तीसगढ़ की जनजातीय संस्कृति

संदर्भ ग्रन्थ सूचीः–

1) एल.पी. शर्मा – आधुनिक भारत

(2) ए.आर. देसाई – आधुनिक राष्ट्रवाद की सामाजिक पृष्ठभूमि

(3) रजनी पामदत्त – इंडिया टुडे

(4) ग्रोवर एवं यशपाल – आधुनिक भारत का इतिहास एवं नवीन मूल्यांकन (1707–1969)

(5) एस.आर. शर्मा – मेकिंग आफ मार्डन इंडिया

(6) प्रताप सिंह – आधुनिक भारत–1, खंड–3

(7) एम.एस. जैन – आधुनिक भारत का इतिहास

(8) एस.पी. नायर – सोशल एंड इकॉनामिक हिस्ट्री आफ मॉडर्न इंडिया

(9) S.P. Nanda - Economic and Social History of Modern India

(10) V.A. Narain - Social History of Modern India

(11) एग्नेस ठाकुर – भारत का आर्थिक इतिहास (1757–1950)

(12) पुरी, दास, चोपड़ा –भारत का सामाजिक आर्थिक एवं सांस्कृतिक इतिहास

(13) अरूण भट्टाचार्य – हिस्ट्री आफ माडर्न इंडिया (1757–1947)

(14) नीलकंठ शास्त्री –एडवांस हिस्ट्री ऑफ इंडिया

(15) आर.सी. मजुमदार एवं एच.सी. राय – ऐन एडवांश हिस्ट्री ऑफ इंडिया

(16) कौलेश्वर राय – आधुनिक भारत 1757–195

(17) सीमा पाल – भारतीय संस्कृति एवं ब्रिटिश उपनिवेशवाद

(18) यशपाल एवं ग्रोवर – आधुनिक भारत का इतिहास

(19) शेखर बंदोपाध्याय – प्लासी से विभाजन तक

(20) दीलीप मेनन – आधुनिक भारत का इतिहास

(21) दीलीप मेनन –कल्चरल हिस्ट्री ऑफ मार्डन इंडिया

(22) ए.पी.सिंह – भारत में उपनिवेश

(23) घनश्याम शाह – भारत में सामाजिक आंदोलन

(24) किशोर अग्रवाल – बीसवीं शताब्दी का छत्तीसगढ़

(25) अशोक शुक्ला – छत्तीसगढ़ का राजनीतिक इतिहास

(26) भगवान सिंह वर्मा – छत्तीसगढ़ का इतिहास

(27) सुरेश चंद्र – छत्तीसगढ़ का समग्र इतिहास

(28) हीरालाल शुक्ल – छत्तीसगढ़ का जनजातीय इतिहास

(29) आभा पाल एवं डिश्वर नाथ खुटे – बस्तर का राजनीतिक, सामाजिक एवं आर्थिक इतिहास

बी.ए. तृतीय वर्ष, इतिहास
प्रश्न पत्र –द्वितीय
भारत के राष्ट्रीय आन्दोलन का इतिहास 1857 ई. से 1947 ई. तक

इकाई 1

.1. राष्ट्रवाद का उदय
2. 1857ई. की क्रांति : कारण एवं परिणाम
3. भारतीय राष्ट्रीय कांग्रेस की स्थापना – उद्देश्य, उदारवाद, उग्रवाद
4. बंगाल का विभाजन एवं स्वदेशी आंदोलन

इकाई 2.

5. क्रांतिकारी आंदोलन– प्रथम एवं द्वितीय चरण
6. भारतीय राजनीति में साम्प्रदायिकता का उदय– मुस्लिम लीग की स्थापना
7. होमरूल आंदोलन
8. लखनऊ समझौता

इकाई 3.

9. गांधीवादी आंदोलन – असहयोग आंदोलन
10. सविनय अवज्ञा आंदोलन
11. आदिवासी मजदूर एवं कृषक आंदोलन
12. भारत छोड़ो आंदोलन

इकाई 4.

13. आजाद हिन्द फौज
14. भारत का विभाजन एवं स्वतंत्रता
15. रियासतों का विलिनीकरण
16. भारतीय संविधान की प्रमुख विशेषताएं

इकाई 5.

17. छत्तीसगढ़ में 1857ई. की क्रांति– नारायण सिंह एवं हनुमान सिंह
18. बस्तर का मुरिया विद्रोह एवं भूमकाल आंदोलन
19. छत्तीसगढ़ में गांधीवादी आंदोलन
20. छत्तीसगढ़ में रियासतों का विलिनीकरण

संदर्भ ग्रन्थ सूचीः–

(1) ताराचंद – भारतीय स्वाधीनता आंदोलन का इतिहास भाग 1 व 2

(2) सुमित सरकार – आधुनिक भारत

(3) पं.सुंदरलाल शर्मा – भारत में अंग्रेजी राज

(4) डॉ. आभा सक्सेना – इंडियन नेशनल मूवमेंट एंड द लिबरलस

(5) ए.आर. देसाई – भारतीय राष्ट्रवाद की सामाजिक पृष्ठभूमि

(6) शर्मा एवं शर्मा – भारतीय राष्ट्रीय आंदोलन एवं राजनैतिक विकास

(7) कौलेश्वर राय – फ्रीडम स्ट्रगल

(8) विपिन चन्द्र – भारतीय स्वतंत्रता संग्राम का इतिहास

(9) बीरकेश्वर प्रसाद सिंह – भारतीय राष्ट्रीय आंदोलन एवं संवैधानिक विकास

(10) रामलखन शुक्ला – आधुनिक भारत का इतिहास

(11) विनोद कुमार सक्सेना – द पार्टीशन ऑफ बंगाल

(12) के.पी. बहादुर – हिस्ट्री ऑफ फ्रीडम मूवमेंट इन इंडिया

(13) योगेन्द्र श्रीवास्तव – हिस्ट्री ऑफ फ्रीडम मूवमेंट 1857–1947

(14) यशपाल एवं ग्रोवर – आधुनिक भारत का इतिहास

(15) कौलेश्वर राय – आधुनिक भारत 1757–1950

(16) दामोदर धर्मानंद कौसंबी – भारतीय इतिहास का अध्ययन

(17) उषा ठक्कर एवं जयश्री मेहता – गांधी बोध

(18) माधुरी बोस – बोस बंधु और भारतीय स्वतंत्रता

(19) अजय गुडावर्थी – भारत मे राजनीतिक आंदोलनों का समकालीन इतिहास

(20) एम.आजाद – आजादी का कहानी

(21) ए.पी. सिंह – भारत में राष्ट्रवाद

(22) सुमीत सरकार – मॉर्डन टाइम्स

(23) रजनी कोठारी – पोलिटिक्स इन इंडिया

(24) एम.के. गांधी – हिन्द स्वराज

(25) किशोर अग्रवाल – बीसवीं शताब्दी का छत्तीसगढ़

(26) अरविंद शर्मा – छत्तीसगढ़ का इतिहास

(27) अशोक शुक्ला – छत्तीसगढ़ का राजनीतिक इतिहास

(28) भगवान सिंह वर्मा – छत्तीसगढ़ का इतिहास

(29) सुरेश चंद्र – छत्तीसगढ़ का समग्र इतिहास

(30) सुरेश चंद्र शुक्ला, एवं अर्चना शुक्ला – छत्तीसगढ़ की रियासतों का विलीनीकरण

(31.) आभा पाल एवं डिश्वर नाथ खुटे – बस्तर का राजनीतिक, सामाजिक एवं आर्थिक इतिहास

REVISED SYLLBUS

B. A. Part- III (Economics)

Subject : Development and Environmental Economics, Paper-I (Paper Code:0242)

UNIT 1

Economic Growth and Development: Factor affecting economic growth (Labour, capital and technology), Developed and under developed Economy, Poverty-absolute & relative, Marxian model of Economic Growth, Mahalanobis Model of Economic Growth. Balanced and unbalanced growth.

UNIT 2

Problems of Population and growth pattern of population. Theory of demographic transition. Population, poverty and environment. Schumpeter's theory of economic growth, Theory of Big-Push, Nelson's theory of low-level income equilibrium trap , Theory of Critical minimum efforts ,

UNIT 3

Harrod and Domar growth model, Solow's model of economic growth, Meades Neo classical models, , Mrs. Joan Robinson's growth model , A. Lewis theory of unlimited supply of labour.

UNIT 4

Environment: Environmental and use, environmental disruption as an allocation, problem. valuation of environmental damages- land, water , air & forest , prevention control and abatement of pollution, choice of policy instruments in developing countries, environmental legislation, indicators of sustainable development, environmental accounting

UNIT 5

Concept of Intellectual Capital : Food Security, Education, Health & Nutrition, Role of agriculture in economic development, Land reforms, Efficiency & Productivity in Agriculture, new technology & Sustainable agriculture, Globalization & agriculture growth, the choice of technique appropriate technology & employment.

Reference :-

1. Behrman, S. And T.N. Shrinivasan (1995) “Hand book of Development Economics,” Vol 1, 2, & 3 Elsevier; Amsterdam.
2. Ghatak,s (1986) “An introduction to development Economics”, Allen & Elnein, London.
3. Sen, A.K. (Ed.) 1990 “Growth Economics”, Penguin, Harmonds worth.
4. Mehrotra, S. And J. Richard (1998), Development with a Human Face, Oxford University Press new Delhi.

REVISED SYLLBUS

B.A. Part- III (Economics)

Subject : Statistical Methods, Paper-II, (Paper Code: 0243)

UNIT 1 :-

Statistics : Definition of Statistics, Importance and Limitations of Statistics, Importance of Statistics in Economics, Statistical investigation, Census and sampling methods of statistical investigation, Statistical data, Collections of Data, Primary & Secondary Data.

UNIT 2

Measuring of Central Tendency: Mean, Median, Mode, measures of Skewness, Probability-basic concepts meaning and definitions

UNIT 3

Dispersion : Meaning of Dispersion, Methods of measuring Dispersion, Range, Quartiles Deviation ,Mean Deviation, Coefficient of Mean Deviation, Standard Deviation.

UNIT 4

Correlation Analysis : Meaning and types of correlation ,Degree of correlation, Coefficient of correlation-Karl Pearson's Method, Spearman's Rank Difference Method. Probable error and standard error.

UNIT 5

Index Number- Methods of constructing of Index Numbers, Fisher's methods, Dorbish-Bowles method, Paasches method, Laspeyres method**,** Consumer price index numbers, Reversal test, Circular Test, Time series analysis-Meaning, Components of time series, Measurement of long term trend by average method.

Reference :-

1. Shukla, S.M. and S.P. Sahay – "Quantitative Methods" Sahitya Bhawan Publication, Agra.
2. Agrawal, D.R., "Quantitative Methods", Vrinda Publications (P) Ltd.
3. Sancheti, D.C.," Quantitative Methods", Sultanchand and Sons, New Delhi.

4. Gupta, S.P. and others, "Qunatitative Techniques", Sultanchad and Sons, New Delhi.
5. मेहता एवं मदनानी, अर्थशास्त्र में प्रारंभिक गणित, लक्ष्मीनारायण अग्रवाल, आगरा–3
6. Dr. Amrendra, "An Introduction to Mathematical concepts in Economics", Pragtisheel Prakashan, New Delhi.

==*==

संशोधित पाठ्यक्रम
बी. ए. भाग– 3
हिन्दी साहित्य
प्रथम प्रश्न पत्र
जनपदीय भाषा– साहित्य (छत्तीसगढ़ी)
(पेपर कोड– 0233)

प्रस्तावना–

हिन्दी केवल खड़ी बोली नहीं है, बल्कि एक बहुत बड़ा भाषिक समूह है। हिन्दी जगत में अनेक विभाषाएं, बोलियाँ और उपबोलियाँ विद्यमान हैं जिनमें सकल साहित्य सम्पदा है। इनके सम्यक अध्ययन और अन्वेषण की आवश्यकता है। जनपदीय भाषा छत्तीसगढ़ी निरन्तर विकास की ओर अग्रसर हो रही है अस्तु, इस भाषा का और इसमें रचित साहित्य का इतिहास– विकास स्पष्ट करते हुए इनसे संबंधित प्रमुख रचनाकारों का आलोचनात्मक अनुशीलन करना हिन्दी के वृहत्तर हित में होगा। छत्तीसगढ़ी भाषा का पाठ्यक्रम निम्न बिन्दुओं पर आधारित हैं–

(क) छत्तीसगढ़ी भाषा का इतिहास– विकास
(ख) छत्तीसगढ़ी भाषा में रचित साहित्य का इतिहास
(ग) छत्तीसगढ़ी भाषा के प्रमुख प्राचीन एवं अर्वाचीन रचनाकारों की कृतियों का अध्ययन।

पाठ्य विषय–

रचनाएँ–

(1) प्राचीन कवि संत धर्मदास के 3 पद
   1. गुरू पइंया लागों नाम लखा दीजो हो।
   2. नैना आगे ख्याल घनेरा।
   3. भजन करौ भाई रे, अइसन तन पाय के।
   (सन्दर्भ– धर्मदास के शब्दावली से उद्घृत)
(2) लखनलाल गुप्त का गद्य–
   1. सोनपान
   (गद्य– पुस्तक' सोनपान' के उद्घृत)
(3) अर्वाचीन रचनाकार
   डॉ. सत्यभामा आडिल रचित गद्य
   1. सीख सीख के गोठ
   (गद्य पुस्तक 'गोठ' के उद्घृत)
(4) डॉ. विनय पाठक की कविताएँ–
   1. तँय उठथस सुरूज उथे
   2. एक किसिम के नियाव
   ('अकादसी और अनचिन्हार' पुस्तक से उद्घृत)
(5) मुकुन्द कौशल– छत्तीसगढ़ी गजल
   ''छै बित्ता के मनखे देखों..... से– मछरी मन लाख लेथे'' तक

(पुस्तक' छत्तीसगढ़ी गजल' के पृष्ठ 17 से उद्घृत)

द्रुतपाठ के रचनाकार– (व्यक्तित्व एवं कृतित्व)

1. सुन्दर लाल शर्मा
2. कपिलनाथ कश्यप
3. रामचन्द्र देशमुख (रंगकर्मी)

अंक विभाजन– व्याख्याएं (3)	– 21 अंक
आलोचनात्मक प्रश्न (2)	– 24 अंक
लघुउत्तरीय प्रश्न (5)	– 15 अंक
वस्तुनिष्ठ (15)	– 15 अंक
कुल अंक	75

इकाई विभाजन

इकाई एक	–	व्याख्या
इकाई दो	–	प्राचीन एवं अर्वाचीन रचनाकार
इकाई तीन	–	(अ) छत्तीसगढ़ी भाषा का इतिहास
		(ब) छत्तीसगढ़ी साहित्य का इतिहास
इकाई चार	–	द्रुत पाठ के तीन रचनाकार
इकाई पाँच	–	वस्तुनिष्ठ / (सम्पूर्ण पाठ्यक्रम से)

संशोधित पाठ्यक्रम

बी.ए. भाग– 3

द्वितीय प्रश्न पत्र

हिन्दी भाषा– साहित्य का इतिहास तथा काव्यांग विवेचन

(पेपर कोड– 0234)

प्रस्तावना–

हिन्दी भाषा का इतिहास जितना प्राचीन है, उतना ही गुढ़– गहन भी। इसमें रचित साहित्य ने लगभग डेढ़ हजार वर्षो का इतिहास पूरा कर लिया है इसलिए हिन्दी भाषा और साहित्य के ऐतिहासिक विवेचन की बड़ी आवश्यकता है। इसी के साथ– साथ हिन्दी ने अपना जो स्वतंत्र साहित्य शास्त्र निर्मित किया हैं, उसे भी रूपायित करने की आवश्यकता है। इसके संज्ञान द्वारा विद्यार्थी की मर्मग्राहिणी प्रतिभा का विकास होगा और ऐतिहासिक परिप्रेक्ष्य में शुद्ध साहित्यिक विवेक का सन्निवेश होगा।

पाठ्य विषय–

(क) हिन्दी भाषा का स्वरूप विकास– हिन्दी की उत्पत्ति, हिन्दी की मूल आकर भाषाएँ तथा विभिन्न विभाषाओं का विकास। हिन्दी भाषा के विभिन्न रूप–

1. बोलचाल की भाषा
2. रचनात्मक भाषा
3. राष्ट्रभाषा
4. राजभाषा
5. सम्पर्क भाषा
6. संचार भाषा

हिन्दी का शब्द भण्डार– तत्सम, तद्भव, देशज, आगत शब्दावली।

(ख) हिन्दी साहित्य का इतिहास :– आदिकाल, पूर्व मध्यकाल, उत्तर मध्यकाल और आधुनिक काल की सामाजिक , सांस्कृतिक पृष्ठभूमि, प्रमुख युग प्रवृत्तियाँ, विशिष्ट रचनाकार और उनकी प्रतिनिधि कृतियाँ, साहित्यिक विशेषताएँ।

(ग) काव्यांग	–	काव्य का स्वरूप एवं प्रयोजन। रस के विभिन्न भेद, विभिन्न अंग, विभावादि तथा उदाहरण।
प्रमुख 5 छंद	–	दोहा, सोरठा, चौपाई, कुण्डलियाँ, सवैया।
शब्दालंकार	–	अनुप्रास, यमक, श्लेष, वक्रोक्ति, पुररूक्ति प्रकाश।
अर्थालंकार	–	उपमा, रूपक, उत्प्रेक्षा, अतिशयोक्ति, भ्रांतिमान।

संदर्भ ग्रन्थ–

(1) हिन्दी साहित्य का इतिहास संपादक– डॉ. सुशील त्रिवेदी व बाबूलाल शुक्ल (प्रकाशक– म. प्र. उ. शि. अनुदान आयोग)

(2) राजभाषा हिन्दी– मलिक मोहम्मद (प्रभात प्रकाशन दिल्ली)
(3) हिन्दी भाषा– डॉ. भोलानाथ तिवारी।

अंक विभाजन–

आलोचनात्मक (4)	– 44 अंक
लघुउत्तरीय प्रश्न (4)	– 16 अंक
वस्तुनिष्ठ प्रश्न (15)	– 15 अंक
	कुल अंक– 75 अंक

इकाई विभाजन–

इकाई– 1 हिन्दी भाषा का स्वरूप– विकास– (खण्ड– 'क')
इकाई– 2 हिन्दी का शब्द भण्डार– (खण्ड 'क' का अंतिम भाग)
इकाई– 3 हिन्दी साहित्य का इतिहास– (खण्ड– ख)
इकाई– 4 काव्यांग– रस, छंद, अंलकार (भाग– ग)
इकाई– 5 लघुउत्तरीय एवं वस्तुनिष्ठ प्रश्न (सम्पूर्ण पाठ्यक्रम से)

<u>नवीन संशोधित पाठ्यक्रम</u>

दर्शन शास्त्र

बी.ए. भाग तीन दर्शन शास्त्र विषय में कुल दो प्रश्न पत्र होंगे तथा प्रत्येक में 75 अंक होंगे। प्रत्येक प्रश्न पत्र पांच इकाईयों में विभाजित है । प्रथम प्रश्न पत्र 'तर्कशास्त्र ' अनिवार्य है । द्वितीय प्रश्न पत्र में दो विकल्प दिये गये हैं –

1. ज्ञान मीमांसा एवं तत्व मीमांसा (भारतीय एवं पाश्चात्य)
2. ग्रीक दर्शन

बी.ए. भाग – तीन

दर्शन शास्त्र

प्रश्न पत्र– प्रथम

तर्क शास्त्र (कुल 75 अंक)

इकाई –1
1. तर्क शास्त्र : अर्थ, परिभाषा, स्वरूप, उपयोगिता
2. आगमनात्मक एवं निगमनात्मक तर्क
3. अनाकारिक तर्कदोष

इकाई–2
1. सत्यता एवं वैधता
2. प्रतिज्ञप्ति – वर्गीकरण, प्रतिज्ञप्ति की बुलीय व्याख्या
3. निरपेक्ष न्याय वाक्यों के मानक आकार एवं न्याय वाक्यों के परीक्षण हेतु वेन रेखा पद्धति
4. आकारिक तर्कदोष

इकाई–3
1. (अ) संयोजन (ब) निषेधक (स) वियोजक (द) आपादन (इ) द्विआपादन
2. तार्किक युक्तियों की वैधता की परीक्षा के लिए सत्यता सारिणी विधि

इकाई –4
1. विज्ञान एवं प्राक्कल्पना
2. वैज्ञानिक व्याख्या की प्रकृति
3. वैज्ञानिक व्याख्या एवं अवैज्ञानिक व्याख्या में भेद
4. मिल की पद्धतियां (अन्वय, व्यतिरेक, अन्वय व्यतिरेक की संयुक्त पद्धति)

इकाई–5
1. अनुमान
2. अनुमान के प्रकार
3. हेत्वाभास

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

नवीन संशोधित पाठ्यक्रम

बी.ए. भाग –तीन

दर्शन शास्त्र

प्रश्न पत्र– द्वितीय (वैकल्पिक)

(अ) ज्ञान मीमांसा एवं तत्व मीमांसा (भारतीय एवं पाश्चात्य)

इकाई –1 1. ज्ञान मीमांसा एवं तत्व मीमांसा : स्वरूप एवं विषय वस्तु

ज्ञान प्रमाण : प्रमा एवं अप्रमा

इकाई –2 1. प्रामाण्य : स्वतः प्रामाण्य एवं परतः प्रामाण्य

ख्यातिवाद : सत्ख्यातिवाद, अख्यातिवाद, अन्यथा ख्याातिवाद , अनिवर्चनीय ख्यातिवाद

इकाई–3 1. कारणता का सिद्धांत (कारणकार्यवाद)

अ. सत्कार्यवाद

ब. असत्कार्यवाद

2. सत्य के सिद्धांत

अ. संवादिता

ब. संसक्तता

स. अर्थक्रियावादी सिद्धांत

इकाई–4 1. जड़वाद

2. अध्यात्मवाद

3. वस्तुवाद

इकाई–5 1. बुद्धिवाद

2. अनुभववाद

3. कांट का परीक्षावाद

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

नवीन संशोधित पाठ्यक्रम

बी.ए. भाग –तीन

दर्शन शास्त्र

प्रश्न पत्र– द्वितीय (वैकल्पिक)

ग्रीक दर्शन

इकाई –1
1. ग्रीक दर्शन : मुख्य विशेषताएं
2. थेलिस
3. एनेक्जिमेंडर
4. एनेक्जिमेनीज

इकाई–2
1. हेराक्लाइट्स
2. जेनोफेनीज
3. पार्मेनाइडीज
4. जीनो

इकाई–3
1. एम्पीडोक्लीज
2. एनेक्जागोरस
3. ल्यूसिपस
4. डेमोक्राइट्स

इकाई–4
1. सोफिस्ट विचारक : प्रोटागोरस, गार्जियस
2. सुकरात – सुकरात पद्धति, नैतिक विचार

इकाई –5
1. प्लेटो– प्रत्ययवाद, आत्मा
2. अरस्तू – प्लेटो के प्रत्ययवाद की आलोचना, कारणता सिद्धांत

उपरोक्त समस्त संशोधन विषय की स्पष्टता व ज्ञानवर्धन को ध्यान में रखकर समिति के सभी सदस्यों की सहमति से किया गया ।

बी. ए. भाग 3 B.A. Part III

राजनीति विज्ञान Political Science

प्रथम प्रश्नपत्र : अन्तर्राष्ट्रीय राजनीति एवं भारत की विदेश नीति

Paper I : Internatioal Politics and Foreign Policy of India

इकाई 1 : अन्तर्राष्ट्रीय राजनीति : अर्थ, प्रकृति, क्षेत्र ।

अन्तर्राष्ट्रीय राजनीति : अध्ययन उपागम – यथार्थवाद, आदर्शवाद, नवयथार्थवाद, विश्व व्यवस्था सिद्धान्त । राष्ट्रीय हित एव राष्ट्रीय शक्ति : अर्थ, परिभाषा एवं तत्व ।

Unit 1 : International Politics : meaning, Nature, Scope. International Politics : Approaches to the study : Realism, Idealism, New realism, World System theory. National interest and National power: Meaning Definition and Elements.

इकाई 2 : अन्तर्राष्ट्रीय राजनीति के विभिन्न सिद्धान्त : व्यवस्था, खेल, निर्णय निर्माण,सौदेबाजी का सिद्धान्त ।

शक्ति संतुलन । सामूहिक सुरक्षा । निशस्त्रीकरण । शीतयुद्ध । राजनय ।

Unit 2 : Various theories of International Politics : System, Game, Decision making, Barganing theory. Balance of Power, Collective Security, Disarmament, Cold war, Diplomacy.

इकाई 3 : भारत की विदेश नीति : निर्धारक तत्व, विशेषताएं । गुटनिरपेक्षता : अर्थ, विशेषताएं, प्रासंगिकता ।

Unit 3 : Foreign Policy of India : Determinating elements, characteristics. Non-alignment : meaning, features , relevance.

इकाई 4 : भारत का पडोसियों से सम्बंध –चीन,पाकिस्तान,नेपाल,श्रीलंका। भारत का महाशक्तियों से सम्बंध – संयुक्त राज्य अमेरिका, रुस, ब्रिटेन एवं फ्रांस

Unit 4 : Indias' relations with neighboring countries : China , Pakistan, Nepal, Sri lanka, Relations with Super Powers - USA, Russia, Britain and France.

इकाई 5 : अन्तर्राष्ट्रीय राजनीति के कुछ प्रमुख मुद्दे :

पर्यावरणवाद । अन्तर्राष्ट्रीय आतंकवाद। वैश्वीकरण । मानव अधिकार । परमाणविक निशस्त्रीकरण ।

Unit 5 : Some major issues of International Politics :

Environmentalism, International Terrorism, Globalisation, Human Rights , Nuclear Disarmament.

बी.ए.अंतिम वर्ष
प्रथम प्रश्न पत्र
अंतर्राष्ट्रीय राजनीति एवं भारत की विदेश नीति

सन्दर्भ ग्रन्थ सूची:–

क्र	पुस्तक का नाम	लेखक का नाम
1.	अन्तर्राष्ट्रीय राजनीति के सैद्धान्तिक पक्ष	महेन्द्र कुमार
2.	अन्तर्राष्ट्रीय राजनीति के सिद्धान्त एवं व्यवहार	यू.आर.घई
3.	अन्तर्राष्ट्रीय राजनीति सिद्धान्त समकालिन एवं मुद्दे	बी.एल. फाडिया
4.	अन्तर्राष्ट्रीय संबंध	पुष्पेष पन्थ
5.	अन्तर्राष्ट्रीय संबंध	दीनानाथ बर्मा
6.	थीयरी ऑफ इन्टरनेषनल पालिटिक्स	के.वाल्टज
7.	इन्टरनेषनल रिलेषन्स	जे.गोल्ड स्टीन
8.	द इन्टरनेषनल पालिटिक्स	पी.कलवरठ
9.	इन्टरनेषनल रिलेषन्स	सी.ब्राउन
10.	समकालीन विष्व एवं भारत	अरूणोदय बाजपेयी

Reference :-

- M.S. Agwani, **Détente: Perspectives and Repercussions,** Vikas, 1975
- John Gray, **False Dawn: The Delusions of Global Capitalism,** Grant Book, U.K. , 1998
- Hans J. Morgenthan, **Politics Among Nations: The Struggle for Power and Peace,** Scientific Book Agency, Calcutta, 1972
- Mahendra Kumar, **Theoretical Aspects of International Politics,** Agra: Shiva Lal Agarwala & Co. Educational Publishers
- K.J. Holsti, **International Politics: A Framework for Analysis,** Prentice Hall of India, New Delhi, 1995.
- Paul Kennedy, **Preparing for the Twenty-First Century,** New York, 1993
- Hutchings, Kimbley, **International Political Theory,** Sage, New Delhi
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- Karen Mingst, **Essentials of International Relations**, New York: W.W. Norton & Company, 2007
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Robert Jackson and Georg Sørensen, **Introduction to International Relations: Theories and Approaches,** Oxford University Press, 2003

- Joshua S. Goldstein & Jon C. Pevehouse, **'International Relations'** 5th Edition, Pearson Education, 2002

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- Paul Kennedy, **Preparing for the Twenty-First Century,** New York, 1993
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- Kate Kelly S. Pease, **International Organizations**, New Jersey: Prentice Hall, 2000
- Robert Jackson and Georg Sørensen, **Introduction to International Relations: Theories and Approaches,** Oxford University Press, 2003
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- J. W. Burton, **'International Relations: A General Theory'**, Cambridge University Press, New York, 1965.

- John Baylis & Steve Smith, **'Globalization of World Politics'** OUP, U.S.A. & Delhi, 2008.

बी. ए. भाग 3 B. A. Part III

राजनीति विज्ञान Political Science

द्वितीय प्रश्नपत्र : लोक प्रशासन Paper : II : Public Administration

इकाई 1 : लोक प्रशासन : अर्थ, परिभाषा, प्रकृति, क्षेत्र । लोक प्रशासन और निजी प्रशासन । अध्ययन पद्धतियां । नवीन लोक प्रशासन । तुलनात्मक लोक प्रशासन ।

Unit 1 : Public Administration : meaning and definition, nature, scope. Public Administration and Private Administration. Method of Studies. New Public Administration. Comparative Public Administration.

इकाई 2 : संगठन के सिद्धान्त : पदसोपान, नियंत्रण का क्षेत्र , आदेश की एकता, प्रत्यायोजन ।

मुख्य कार्यपालिका । सूत्र एवं स्टाफ अभिकरण । विभागीय संगठन , लोक निगम । कार्मिक प्रशासन

: भर्ती, पदोन्नति , प्रशिक्षण ।

Unit 2 : Principles of Organisation : Hierarchy, Span of Control, Unity of Command, Delegation. Chief Executive. Line and Staff Agencies. Departmental Organisation. Public Corporation. Personnel Administration : Recruitment, Promotion, Training.

इकाई 3 : विकास प्रशासन : प्रकृति, मुद्दे और विशेषताएं । रिग्स मॉडल । प्रशासन में नागरिक सहभागिता ।

सुशासन और ई शासन । संध लोक सेवा आयोग ।

Unit 3 : Development Administration : Nature, Issues, Characteristics.Riggs Model.

Public participation in Administration.Good Governance and

e- Governance. Union Public Service Commission.

इकाई 4 : वित्तीय प्रशासन : बजट के सिद्धान्त । भारत में बजट प्रक्रिया । भारत में प्रशासनिक सुधार ।

प्रशासन पर कार्यपालिका, विधायी, न्यायिक और जन नियन्त्रण ।

Unit 4 : Financial Administration: Principles of Budget. Budget procedure in India. Administrative reforms in India. Executive, Legislative, Judicial and Public Control on Administration.

इकाई 5 : प्रशासन में भ्रष्टाचार : आम्बुड्समैन, लोकपाल और लोक आयुक्त ।

वैश्वीकरण के युग में लोक प्रशासन । उदारीकरण । नौकरशाही । लोक सम्पर्क ।

Corruption in Administration: Ombudsman, Lokpal and Lok Ayukta.

Public Administration in the age of Globalisation. Liberalisation. Bureaucracy.

Public Relation.

बी.ए.अंतिम वर्ष

द्वितीय प्रश्न पत्र

लोक प्रषासन

सन्दर्भ ग्रन्थ सूचीः–

क्र	पुस्तक का नाम	लेखक का नाम
1.	लोक प्रषासन	अवस्थी और माहेष्वरी
2.	लोक प्रषासन सिद्धान्त एवं व्यवहार	सुषमा यादव और बलराम गौतम–(सम्पा)
3.	तुलनात्मक लोक प्रषासन	रमेश अरोड़ा
4.	लोक प्रषासन सिद्धान्त एवं व्यवहार	पी.डी. शर्मा और हरीषचन्द्र शर्मा
5.	वित्त प्रषासन	गौतम पद्मनाम
6.	लोक प्रषासन के सिद्धान्त	सी.पी. भामरी
7.	लोक प्रषासन	बी.एल. फाडिया
8.	प्रशासनिक सिद्धान्त	अवस्थी और अवस्थी

Reference :-

- Avasthi & S.R. Maheshwari: **Public Administration,** (Agra: L. N. Agrawal, latest Hindi and English editions)
- R. R. Jha: **Lokayukta : The Indian Ombudsman,** Rishi Publications, Varanasi, 1991
- F.A. Nigro and G.I. Nigro, **Modern Public Administration,** New York, Harper Row, 1980
- M. P. Sharma, B. L. Sadana, **'Lok Prashasan : Siddhanth Evam Vyavahar'**,(Allahabad: Kitab Mahal, Latest Hindi and English editions) .
- R. K. Arora & R. Goyal: **Indian Public Administration,** (New Delhi: Vishwa Prakashan, 2008).
- S. Kataria**, 'Personnel Administration'**, (RBSA Publishers, Jaipur, 2003).

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सत्र 2020–21 से प्रस्तावित

बी.ए. अन्तिम वर्ष

संस्कृत साहित्य

टीप – बी.ए. अंतिम वर्ष में संस्कृत साहित्य के दो प्रश्न–पत्र होंगें एवं दोनों प्रश्न –पत्र 75– 75 अंकों के होंगें ।

प्रथम प्रश्नपत्र

नाटक, व्याकरण और अनुवाद पूर्णांक – 75

इकाई –1 अभिज्ञानशाकुन्तलम् (नाटक) अंक – 15
दो श्लोकों की व्याख्या
(प्रथम, चतुर्थ, पंचम तथा सप्तम अंक से व्याख्या, शेष द्रुतपाठ)

इकाई –2 अभिज्ञानशाकुन्तलम् – समीक्षात्मक प्रश्न अंक – 15

इकाई –3 निर्धारित छन्दों के लक्षण तथा उदाहरण – अंक – 15
अनुष्टुप्, इन्द्रवज्रा, उपेन्द्रवज्रा, उपजाति, वंशस्थ, आर्या, मालिनी, शिखरिणी, वसन्ततिलका, शार्दूलविक्रीडित, स्रग्धरा, मन्दाक्रान्ता ।

इकाई –4 व्याकरण – लघुसिद्धान्तकौमुदी अंक – 15
कृदन्त प्रकरण
तव्यत् , अनीयर् , यत् , क्यप् , ण्यत् , शतृ , शानच् , क्त्वा, ल्यप् , तुमुन् , क्त , क्तवतु , ण्वुल् , तृच् , ल्युट् , अण् ।

इकाई –5 व्याकरण – लघुसिद्धान्तकौमुदी अंक – 15
1.तद्धितप्रत्यय –
अण् , ढक् , ष्यञ् , त्व, तल् , इमनिच् , ठक् , इञ् , मतुप्
इनि, इतच् , ईयसुन् , इष्ठन् , तरप् , तमप् , ण्य, यञ् ।
2.स्त्रीप्रत्यय –
टाप् , ङीप् , ङीष् , ङीन् ।

अनुशंसित ग्रन्थ –

1. अभिज्ञानशाकुन्तलम् – कालिदास, प्रकाशक – मोतीलाल बनारसीदास, वाराणसी
2. छन्दोमंजरी – प्रकाशक – चौखम्बा विद्याभवन, वाराणसी
3. लघु सिद्धान्त कौमुदी – श्रीधरानन्द शास्त्री
4. लघु सिद्धान्त कौमुदी – श्री महेश सिंह कुशवाहा, प्रकाशक – चौखम्बा विद्याभवन, वाराणसी
5. शीघ्रबोधव्याकरणम् – डा. पुष्पा दीक्षित, पाणिनीय शोध संस्थान, तेलीपारा, बिलासपुर
6. संस्कृत हिन्दी कोश – वामन शिवराम आप्टे, प्रकाशक – मोतीलाल बनारसीदास,

सत्र 2020–21 से प्रस्तावित

बी.ए. अन्तिम वर्ष

संस्कृत

द्वितीय प्रश्नपत्र

नाटक, व्याकरण और अनुवाद पूर्णांक – 75

इकाई –1 किरातार्जुनीयम् (भारवि) प्रथमसर्ग अंक – 15
दो श्लोकों की ससन्दर्भ व्याख्या

इकाई –2 किरातार्जुनीयम् – आलोचनात्मक प्रश्न अंक – 15

इकाई –3 मूलरामायणम् –वाल्मीकि अंक – 15
व्याख्या अथवा आलोचनात्मक प्रश्न

इकाई –4 अलंकार – अंक – 15
अनुप्रास, यमक, शब्दश्लेष, उपमा, रूपक, उत्प्रेक्षा, अनन्वय, अर्थान्तरन्यास, स्वभावोक्ति, अतिशयोक्ति, दीपक, विभावना, विशेषोक्ति, अपह्नुति, दृष्टान्त, निदर्शना, प्रतिवस्तूपमा, सन्देह, भ्रान्तिमान् , काव्यलिंग ।

टिप्पणी – अलंकारों के लक्षण चन्द्रालोक, काव्यप्रकाश अथवा साहित्यदर्पण से अध्येतव्य हैं, उदाहरण पाठ्यक्रमों से भी दिये जा सकते हैं ।

इकाई –5 निबन्ध (संस्कृत भाषा में) 15 वाक्यों में अंक – 15
टिप्पणी – निबन्ध समीक्षात्मक अथवा विश्लेषणात्मक न होकर वर्णनात्मक पूछे जायेंगे ।

अनुशंसित ग्रन्थ –

1. संस्कृतनिबन्धशतकम् – डा. कपिलदेव द्विवेदी, चौखम्बा प्रकाशन, वाराणसी
2. निबन्धपारिजात – डा. रजनीकान्त लहरी, चौखम्बा प्रकाशन, वाराणसी
3. प्रबन्धरत्नाकर – डा. रमेशचन्द्र शुक्ल, चौखम्बा प्रकाशन, वाराणसी
4. रचनानुवादकौमुदी – डा. कपिलदेव द्विवेदी, चौखम्बा प्रकाशन, वाराणसी

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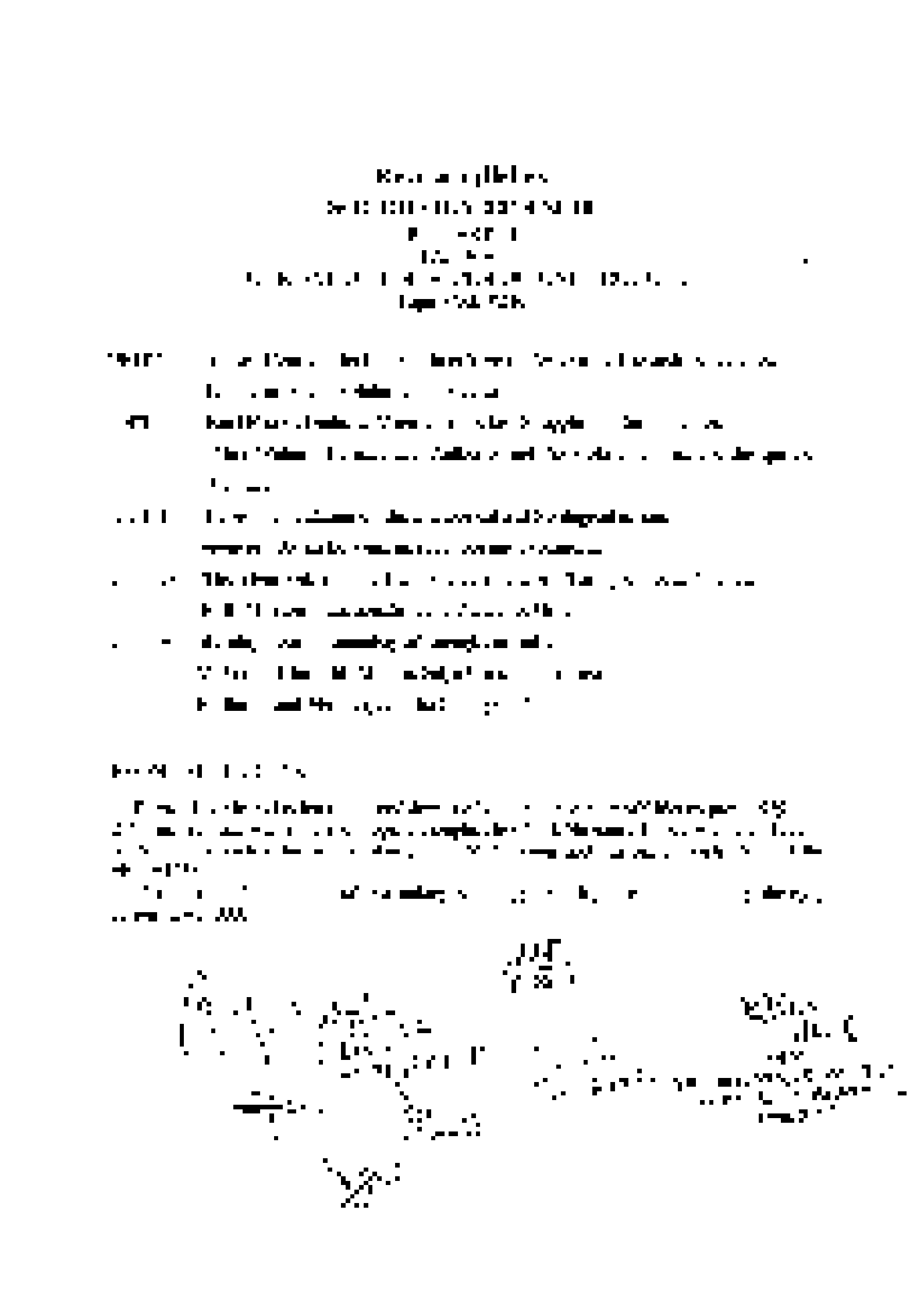
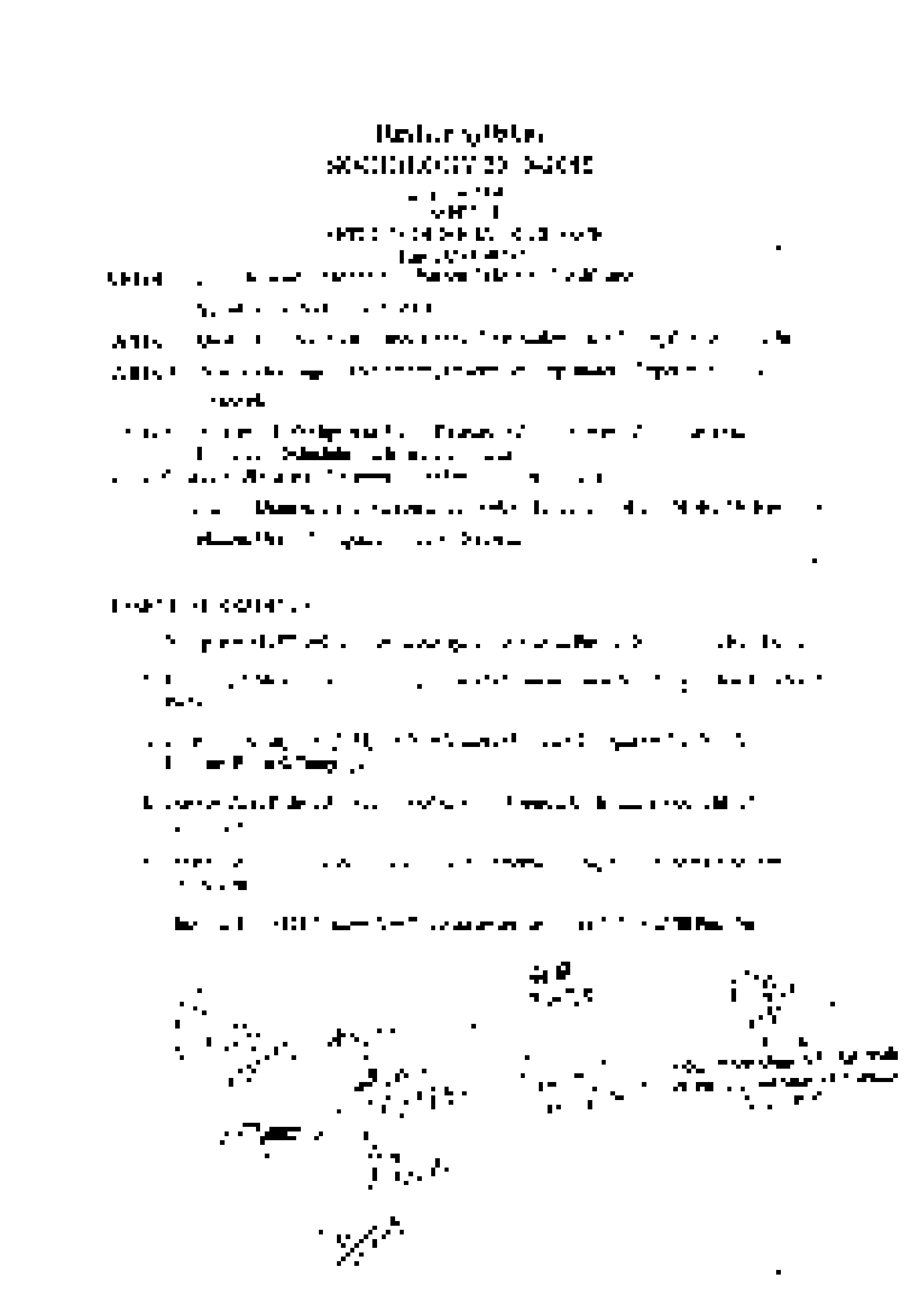
केन्द्रीय अध्ययन मंडल

समाजशास्त्र





B. A. - III

P S Y C H O L O G Y

Paper	Name of the Paper	Max. Marks	Duration
I	Psychological Statistics	50	3 hrs.
II.	Human Development/ or Environmental Psychology	50	3 hrs.
III.	Practicum	50	4 Hrs.

PAPER - I

PSYCHOLOGICAL STATISTICS (Paper Code-0250) M.M.: 50

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-1 Statistics: Meaning and Application in Psychology; Nature of Score, Categorical and Continuous variables; Frequency Distribution; Graphic representation of data.

UNIT-2 Measures of Central Tendency: Mean, Median and Mode of grouped and ungrouped data, Measures of Variability: Range, Standard Deviation (S.D.), Quartile Deviation (Q.D.), Average Deviation (A.D.). Applications of the measures of Central Tendency and Variability.

UNIT-3 Nature and Characteristics of Normal Probability Curve (NPC): The concept of Skewness and Kurtosis; Correlation: Concept, Types and Methods- Rank Difference and Product Moment (in ungrouped data).

UNIT-4 Inferential Statistics: Concept of Null Hypothesis; Level of Significance; Type-I Error & Type-II Error, t-test (for uncorrelated data).

UNIT-5 Distribution-Free Statistics: Chi-square test, Median and Sign test. Applications of Computer in Psychological Statistics.

References

1. Siegel, S. (1994). Non Parametric Statistics. New York: Mcgraw Hill.
2. Garret. Statistics in Psychology and Education. Times of India Publisher.
3. dfiy, ,p- d-A lkf[;dh d ey rRoA
4. xjVA eukfoKku ,o f'k{kk e lkf[;dhA

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B. A. - III

P S Y C H O L O G Y

PAPER- II (Optional)

(A) HUMAN DEVELOPMENT (Paper Code-0251) M.M.:50

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-I The Concept of Human Development; Theories of Human Development: Psycho-anaytical and Maslow's (Humanistic); Determinants of Human Development: Biological, Social, and Cultural; Approaches to study Human Development: Longitudinal and Cross-sectional.

UNIT-II Socialization: Role of Family, Peers and School; Media and Socialization; Cognitive Development: Theoretical Perspectives- Piaget's, Information Processing, Vygotsky's.

UNIT-III Self and Identity: Emergence of Self; Development of Personal Identity; Identity Crises; Physical and Sexual Development; Sequential Development of Emotions.

UNIT-IV Development of Morality and Self-control; Development of Gender Differences and Gender Roles; Role of Marriage, Family and Occupation in Human Development.

UNIT-V Problems of Aging: Cognitive, Conative, and Affective; Developmental Disabilities.

References

1. Berk L.E. (1989) Child Development. Boston: Allyn and Bacon.
2. Santrock, J.W. (1999). Lifespan Development. New York: McGraw-Hill.
3. Hurlock, E.B. (1997). Developmental Psychology: A Life-span Approach.
4. 'kkg] xko/kuA fodk ▌kRed eukfoKkuA

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B. A. - III

P S Y C H O L O G Y

PAPER- II (Optional)

(B) ENVIRONMENTAL PSYCHOLOGY (Paper Code-0252) M.M.:50

Note: This paper consists of five units. From each unit a minimum of two questions would be set and the candidates would be required to attempt one from the each unit.

UNIT-1 Evaluating Environmental Ethics from Values about nature in the ancient Indian systems; Earth as a Living System; Psychological Approaches to the Environment: Eco Cultural Psychology (Berry), Bio-social Psychology (Dawson), Ecological Psychology (Berkar), and Person Environment Transactions (Sokols, Itlelson etc.)

UNIT-2 Effects of Environment on Behavior: Noise Pollution, Chemical Pollution, Crowding and Personal Space; Effect of Behavior on Environment: Perception, Preferences and Awareness of Environment.

UNIT-3 Human Nature and Environmental Problems; Pro-social and pro environment Behaviors; Eco-systems and their components; Demography: Mortality and Fertility; Resource Use: Common Property Resources; Sustainable Development; Ecology: Acculturation and Psychological Adaptation.

UNIT-4 Methods: Naturalistic Observation and Field Surveys; Environmental Assessment: Naturalistic Observation and Field Surveys; Socio-psychological Dimensions of Environments Impact; Environmental Deprivation: Nature and Consequences; Creating Environmental Awareness: Social Movements: Chipko, Tehri, and Narmada Bachao.

UNIT-5 Applications of Psychology in Man Environment Fit: Education- Classroom Environment, Industry- Industrial/ Organisational Effectiveness, Health- Physical, Mental and Spiritual, Social- Communal harmony and National integration.

References

1. Goldsmith, E. (1991). The Way: The Ecological World. Boston: Shambhala.
2. Jain, U. (1987). The Psychological Consequences of Crowding. New Delhi: Sage.
3. Mishra, R.C., Sinha, D & Berry, J.W. (1996). Ecology, Community and Life style. New Delhi.

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B. A. - III

P S Y C H O L O G Y

PAPER- III

PRACTICUM **M.M.:50**

Note: This paper consists of two parts:

Part-A

(a) Comprises of Laboratory E**xperiments**.
(b) Comprises of Psychological **Testing** and understanding of self and others.

(a) **Experiments** (Any five of the following):-

1. Bilateral Transfer of Training.
2. Measurement of Illusion.
3. Habit Interference.
4. Effect of Need priority on Selection of advertising material.
5. Effect of Mental Fatigue on Performance.
6. Reaction Time.
7. Effect of Frustration on Learning.
8. Depth Perception.

(b) **Psychological Tests** (Any four of the following):-

1. Level of Aspiration.
2. Need for Guidance.
3. Maturity Scale.
4. Attitude Scale.
5. Classroom Environment Scale.
6. Mental Health.
7. Family Environment Test
8. Test of Moral Values.

Part- B

The condidate will be alloted a topic of the project by the departmental committee. He/she is required to carry out a small scale project based on a small sample. He/she is required to complete the project and submit its report in 15-20 pages, covering all the major steps of scientific enquiry under the supervision of a departmental teacher. This will be the part of practical work. The suggested areas for the project work are as under Mental Health, Sibling Rivarly, Deprivation, Identity Crises, Drug Abuse, Aging, Media effect, Woman Employment, Job Satisfaction, Stress, Stress Management, and Problems of Adolescents etc.

Distribution of Marks

Conduction of Experiment	-	10 marks
Administration of test	-	10 marks
Evaluation of Project Report and Practical record	-	10 marks
Viva - Voce	-	10 marks

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PART - II

ENGLISH LANGUAGE M.M. 75

(Paper Code-0232)

The question paper for B.A./B.Sc./B.Com./B.H.Sc. III Foundation course, English Language and General Answers shall comprise the following items :

Five question to be attempted, each carrying 3 marks.

UNIT-I Essay type answer in about 200 words. 5 essay type question to be asked three to be attempted. 15

UNIT-II Essay writing 10

UNIT-III Precis writing 10

UNIT-IV (a) Reading comprehension of an unseen passage 05

(b) Vocabulary based on text 10

UNIT-V Grammar Advanced Exercises 25

Note : Question on unit I and IV (b) shall be asked from the prescribed text. Which will comprise of popular create writing and the following items. Minimum needs housing and transport Geo-economic profile of M.P. communication Educate and culture. Women and Worm in Empowerment Development, management of change, physical quality of life. War and human survival, the question of human social value survival, the question of human social value, new Economic Philosophy Recent Diberaliation Method) Demoration docontralisation (with reference to 73, 74 constitutional Amendment.

Books Prescribed :

Aspects of English Language And Development - Published by M.P. Hindi Granth Academy, Bhopal.

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ENGLISH LETERATURE

PAPER -I

INDIAN WRITING IN ENGLISH M.M.: 75

(Paper Code-0235)

All questions are compulsory.

Note : 1. Uint - I is compulsory. Two passages from each of the units II to V to be set and three to be attempted. (3x5 = 15)

2. Short answer questions from unit VII, seven to be set and five to be attempted. (5x2 = 10)

3. Long-answer questions from unit II to VI. Êive questions from each unit with internal choice to be set. (5x10 = 50)

UNIT-I Annotations and short answer questions.

UNIT-II **Poetry -**

Toru Dutt	-	'Our Casurina Tree'
Tagore	-	Songs 1 & 103 from 'Gitanjali'
Sarojini Naidu	-	'The Ecstasy', 'The Lotus'

UNIT-III

Kamla Das	-	'The old playhouse'
Gauri Deshpandey	Or	' The female of the species
Jayant Mahapatra	-	'Dawn at Puri'
K.N. Daruwala	Or	'Death by Burial'
Shiv K. Kumar	-	'Indian Women'

UNIT-IV **Prose -**

Nirad C.Choudhary	-	My Birth Place.
Dr. S. Radhakrishnan	-	The call of the suffering.

UNIT-V **Drama -**

Girish Karnad	-	Hayavadana
	Or	
Tendulkar	-	Silence ! The Court is in session.

UNIT-VI **Fiction -**

R.K. Narayan - Guide

UNIT-VII 1. Lyric, 2. Subjective poetry, 3. Couplet, 4. Fable, 5. Hymn, 6. Allegory, 7. Autobiography,

BOOK RECOMMENDED :

1. Indian Poetry in English, Ed. Hari Mohan prasad, Sterling Publication.
2. An Introduction to the study of English Literature, B. Prasad.
3. A Glossary of Literary Terms - M.H. Abrams.
4. Prose of To day - M.C. Millan.

PAPER - II

(A) AMERICAN LITERATURE

(Paper Code-0236)

All questions are compulsory.

Note : 1. Uint-I is compulsory. Two passages from each of the units II to V to be set and three to be attempted. (3x5 = 15)

2. Short answer questions from unit VII, seven to be set and five to be attempted. (5x2 = 10)

3. Long-answer questions from unit II to VI. (word limit for each answer is 300-400 words) internal choice to be set. (5x10 = 50)

UNIT-I Annotations and short answer question.

UNIT-II **Poetry -**

Wait whitman	-	O Captain ! My Captain, when the Lilacs Last in the Dooryard Bloomed.
Carl Sandberg	-	'Who Am I ?', 'I am the People, The Mob'
UNIT-III Emily Dickinson	-	'Hope is the thing with Feather' I Felt a funeral in My Brain'
E.E. Cummings	-	'The Cambridge Ladies' 'As Freedom is a Breakfast food'

UNIT-IV **Prose -**

William Faulkner	-	Nobel Award Acceptence Speech
W. Carlos Williams	-	In the American Grain
Walt Whitman	-	Preface to "Leaves of Grass'

UNIT-V **Drama -**

Miller	-	All My Sons
	Or	
Eugene O'Neill	-	The Hairy Ape

UNIT-VI **Fiction -**

E. Hemingway	-	A Farewell to Arms
	Or	
W. Faulkner	-	The Sound and the Fury

UNIT-VII 1. Naturalism, 2. Realism, 3. Art for Art's sake, 4. Poetic-Drama, 5. Symbolism, 6. American Renaissance, 7. Existentialism.

BOOK RECOMMENDED :

1. American Literature, An Anthology, Ed. Fr. Egbert S. Oliver.
2. A Glossary of Literary Terms - M.H. Abrams.

PAPER - II

(B) 20TH CENTURY LITERATURE IN ENGLISH

(Paper Code-0237)

The paper will be taught as an optional paper to Paper-II(A) which is a paper on American Literature. The Principle focus will be to probe the students a general background and cultural history of this period and also to make them aware of the Literary trends of the twentieth century. The Paper will comprise six units and in all six quetions are to be attempted, one from each unit.

UNIT-I The following historical and literary topics will be included in this unit. Students are required to write short notes of not more than three hundred words on any two of the following topics. (10 Marks)

i) The Two world wars.

ii) The Russian Revolution.

iii) The Great Depression.
iv) The Vietnam war.
v) Freudian Thought
vi) Existentialism.
vii) Absurdism.
viii) Modernism and Post Modernism.
ix) New Development in fiction and Drama.

UNIT-II Ten objective type questions on the life History and major poetical works of the following poets of the twentieth century will be asked in this unit. (10 Marks)

i) W.B. Yeats (1865-1939)
ii) Siegfried Sasson (1886-1967)
iii) Rupert Brooke (1887-1915)
iv) T.S. Eliot (1888-1965)
v) Wilfred Owen (1893-1918)
vi) W.H. Auden (1907-1937)
vii) Louis Macneice (1907-1963)
viii) Stephen Spender (1909-)
ix) Dylan Thomas (1914-1953)
x) Philip Larkin (1922-1985)

UNIT-III (15 marks)

T.S. Eliot - 'The Waste Land'
Or
Wilfred Owen - 'Disabled'
Siegfried Sassoon - 'Attack', 'Falling Asleep'
Rupert Brooke - 'The Hill'
W.H. Auden - 'Miss Gee'

UNIT-IV (15 marks)

Joseph Conrad - 'Heart of Darkness'
Or
Chinua Achebe - 'Things Fall Apart'

UNIT-V (Non Fictional Prose) (10 marks)

Virginia Woolf - 'The Death of the Moth'
Graham Greene - 'The Lost Childhood'

UNIT-VI (Drama) (15 marks)

Bernard Shaw - 'Pygmalion'
Or
Samuel Beckett - 'Waiting for Godot'

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MUSIC

PAPER - I

THEORY OF INDIAN MUSIC, VOCAL/INSTRUMENTAL M.M.:50

(Paper Code-0264)

I Definitions and Elementary Knowledge of the following terms : Shruti, Gram, Murchana, Jaati, Sadaj-Pancham Bhav, Sadaj-Madhyam Bhav, Sada-jantar Bhav, Chatuh Sarana by acharya Bharat, Praman Shruti, Kaku Bhed, Jhala, Razakhani gat, Maseetkhani gat, Toda.

II. Introduction of Harmony and Melody Characteristics and comparative study of Harmony and Melody.

III. Methods of Placement of swars :

(a) Method of placing shudha and Vilkrit Swaras on Veena by Ahobal, Pt. Srinivas and Pt. V.N. Bhatkhande.

(b) Shruti Swar system of different granthakars (authors) Ancient, Medieval and Modern period.

IV. Evolution and Development of Swar Saptaka of western and Indian scales :

(a) Phthogorian Scale.

(b) Scale from Sadaj-Pancham Bhav,

(c) Scale from Sadaj-Madhyam Bhav,

(d) Equally tempered Scale

(e) Diatonic Scale

(f) Mean tempered Scale

(g) Concept of Acharya Bharat and Bilawal Thata.

(h) Chromatic Scale.

V. Definition and prime elements of Gharana and their history.
Gwalior, Agra, Kirana, Patiyala, Jaipur, Senia Gharana of Instrumental Music.

VI. Difinition of Gram and Gram Bhed -
Sadaj Gram, Madhyam Gram, Gandhar Gram and their Swaras.

VII. Writing of Talas in Natation with Dugun and Chaugun layakaris in all the Talas prescribed in Ist and IInd Year.

PAPER - II

THEORY OF MUSIC, VOCAL/INSTRUMENTAL M.M.:50

(Paper Code-0265)

1. Study of Theoritical details of Ragas prescribed for practical course and their comparative study.

2. Writing in notation of Bandish / Gat of prescribed Ragas.

3. Biographics and contributions of the musicians : Haddu - Hassu khan, Inayat Kan, Pandit Omkar Nath Thakur, Matang, Ramamatya, Srinivas, Lochan, Hrideya Narayan Dev, Somnath, Bhav Bhatta.

4. History of Indian Music : Medieval and Modern period; Analytical study of the styles, position and effects of granthkaras and eminent musician of medieval and modern Period.

5. Classical Music and Folk Music : Comparative study of Classical and Folk music. Intensive study of the Folks of Chhattisgarh.

6. Voice-Culture : Definition, Importance and utility of vioce-culture. Construcution of throat and production of sound. General sicentific methods of voice-culture.
7. Guided listening to Radio and T.V. national Programmes of Indian classical Music and ability to write their critical appreciation.
8. Essay on topics related to music.

PRACTICAL
VOCAL/INSTRUMENTAL

I Study of Eight Ragas from the following :
Ramkali, Jaijaiwanti, Miyan ki Malhar, Pooriya, Basant, Bahar, Darbavi Kanhada, Miyan ki Todi, Adana, Kalavati, Hansdhwani, Shuddhkalyan, Pooriyadhamashri, Marwa.

1. Two Vilambit Khayalas / Maseetkhani Gats in any of the above mentioned Ragas with Alap and Tanas / Todas.
One Vilambit Khayalas / Maseethkhani / Gat choice Raga and one asked by the examiner. (5+5 = 10 marks)
3. Lakshan Geets, Sargams, Madhayalaya Khyals / Razakhani Gats with Tanas / Todas in all the eight Ragas. (5+5 = 10 marks)
4. Study of One Dhrupad and one dhamar with Dwigun, Trigun Chaugun / study of Two Madhayata gats in other than Trital out of the Ragas precribed in the course. 8 marsk
5. Study of one Tarana, One Bhajan / One Dhun. 4 marks
6. Ability to demonstrate (orally by given Tali Khali on hand) Talas prescribed in 1st year and IInd year Matta Tala, Panjabi Trital, Ganesh Tal, Rudra Tala. 4 marks

SESSIONAL WORK

1. Keeping upto date practical and theory note Books. Attendence and activities in the class and college.
2. Ten descriptions of Music programmes of Radio, T.V. or personally attended.

BOOK RECOMMENDED :

1. Kramik pustak Malika Part I, II, III, IV by Pt. V.N. Bhatkhande.
2. Sangeetanjali Part I, II, III, IV, V, VI by Pt. Omkarnath Thakur.
3. Raga Vigyan Part I, II, III, IV, V by Pt. V.N. Patvardhan.
4. Rag Bodh. B.R. Devdhar, Part I, II & III.
5. Sitar Vadan, S.G. Vyas.
6. Sangeet Visharad, Vasant
7. Sangeet Bodh - S.C. Paranjape
8. Sangeet Darshika - Navigopal Banerjee
9. Sangeet Shastra Darpan - Shanti Gowardhan Part I, II & III
10. Dawadhavi and Sangeet - Lalit Kishore singh
11. Shrimallakshay Sangeetam - Chatur Pandit.

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HOME SCIENCE

Paper - I

"HUMAN DEVELOPMENT"

(Paper Code-0253)

UNIT-I

1. Development-meaning of child growth and developement. Defferent aspects of gowth, principles of development, factors affecting child development, heredity and environment.
2. Stages of development -
   1. Physiology of pregnancy
   2. Prental
      (a) Reproductive system
      (b) Prenatal development
   3. Infancy
      (a) Early infancy
      (b) Babyhood
   4. Childhood
      (a) Early childhood
      (b) Late childhood
   5. Adolescence
      (a) Early adolescence
      (b) Late adolescence

   (ii) Prental growth and development -
      (a) Sources of studing prenatal life
      (b) Stages of growth prenatal and development
      (c) Factors affecting prenatal and development growth
         (1) Mother's food
         (2) Health of mother
         (3) Narcotics
         (4) Age of parents
         (5) Effect of season
         (6) Emotion of mother

UNIT-2

1. Effect of normal and scissoring delivery.
2. Adjustment to new environment -
   (a) Temperature
   (b) Respiration
   (c) Food consumption
   (d) Excretion
3. Physical development of infant-
   (a) Physical proportion
   (b) Height
   (c) Weight
   (d) Pulse rate
   (e) Respiration rate
   (f) Body temperature
   (g) Frequency of hunger.
4. Sensory development of infant
   (a) Light

(b) Sound
(c) Taste
(d) Smell
(e) Skin sensitivity

5. Motor activity of infants -
   (a) Mass activities
   (b) Specific activities -
      (i) Reflex activities
      (ii) Advanages of reflex action

6. Emotions of infants -
   (a) Types of emotions
   (b) Significance of emotions

7. Characteristics of infant behaviour -
   (a) Dependancy
   (b) Individual difference
   (c) Adjustment

UNIT-3 Childhood : Adolescence.

1. Characterstics of this stage.
2. Factors affecting growth and development during childhood and adolescence.
3. Physical growth height, weight, body proportion, teeth
4. Growth and development of internal organs (a) Nervous (b) Mental (c) Circulatory system (d) Digestive system, (e) Respiratory system (f) Tissues and muscles systems.
5. Development of motor abilities (i) Types of motor abilities (ii) importance and characteristics of motor abilities in childhood (iii) Development of motor skills, Types of motor skills (iv) Delayed motor development.

UNIT-4

6. Development of emotional behaviour-characteristics special emotions (affection, anger, fear, jealousy and worries) factors affecting emotional behaviour.
7. Social developments stages - (a) during infancy, (b) nursery school period (c) elementory school period (d) Factor affecting social development.
8. Development of intelligence - Types according to throndyke, theories regarding intellegence.

UNIT-5

9. Play meaning of play, work and play, theories of play, characteristics of children's play, types of play, factors effecting play and importance of play.
10. Habits :
    1. Definition.
    2. Functions performed by habits.
    3. Habits and learning
    4. Laws of habit formation-identical to laws of learning.
    5. Habit formation.
       (a) Principles of habit formation.
       (b) Rules for habit formation.
11. Children delinquency-Types causes and remedial measures.

निसाब उर्दू अदब

पहला पर्चा — नं. 75

'नस्र' (पेपर कोड-0262)

(दास्तान, ड्रामा, अफसाना)

निसाब :

दास्तान :	1.	किस्सा आजाद बख्त	इन्तेखाब बागोबहार मीर अमान ।
	2.	मुलात मलकए महन निगार	इन्तेखाब फसनए अजाइब रजब अली बेग शुरुर ।
ड्रामा	1.	डाक्टर तयकीन की उलझन	अज इब्राहीम युसुफ
	2.	आगरा बाजार	अज हवीब तनवीर
अफसाना	1.	कफन	प्रेमचंद
	2.	नया कानून	सजादत हुसैन मन्टी
	3.	यूकिलिप्टस की हाली	कृष्ण चन्द्र
	4.	लाजवंती	राजेन्द्र सिंह वैदी
	5.	दो भीगे हुए लोग	इकबाल मजीद
	6.	झूठा संच/काठ का घोड़ा	रतन सिंह
	7.	दीमक	गयास अहमद गद्दी
	8.	अफसाना	जीलानी बानो

इकाईयाँ :

इकाई-1	शामिले निसाब असनाप पर सवालात	नं. 15
इकाई-2	दास्तान निगारो पर सवालात	नं. 15
इकाई-3	ड्रामा निगारों पर सवालात	नं. 15
इकाई-4	अफसाना निगारों पर सवालात और अफसानों का खुलासा और जायजा	नं. 15
इकाई-5	दस्तान और अफसानों से तशरीह	नं. 15

दूसरा पर्चा (शायरी) (पेपर कोड-0263)

(कसायूद, मरासी और मजमून निगारी) — नं. 75

निसाब :-

कसाइद :	1.	फज्र होते जो गई आज मेरी आँख झपकअज सौदा देहलबी	
	2.	सावन में दिया फिर महे शव्वाल दिखाईअज जौक देहलवी	
	3.	समते काशी से जानिबे मथुरा बादल अज मोहसिन काकोरवी	
मरासी :	1.	किस शेर की आमद है के रन कॉफ रहा हैअज दबीर	(15 बंद)
	2.	ब खुदा फारसे मैदाने तहव्वुर या हुर अज अनील	(15 बंद)

मजमून निगारी : किसी अदबी मोजू पर मजनून

इकाईया :

इकाई-1	शामिले निसाब असनाफ पर सवालात	नं. 15
इकाई-2	कसोदा निगारों पर सवालात	नं. 15
इकाई-3	मर्तिया निगारों पर तन्कीदी सवालात	नं. 15
इकाई-4	तशरीहजशारे कसाइद और गरासी	नं. 20
इकाई-5	अदबी मोजू पर मजमून	नं. 10

Structure & Syllabi for 3 Year Degree Programme of Bachelor of Computer Applications (B.C.A.)

1. The title of the programme is Bachelor of Computer Application (B.C.A.) and introduced from the academic year 2014-15.
2. **Objectives:** The objectives of the Programme shall be to provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer usage as well as its practical software application will be provided.
3. **Eligibility for admission** : In order to be eligible for admission to Bachelor of Computer Applications a candidate must have passed
   a. HSC (10+2) from any stream with English as passing Subject with minimum 40% marks in aggregate.
   b. Three years Diploma Course of Board of Technical Education, conducted by Government of CG or its equivalent.
   c. Three Year Diploma Course (after S.S.C. i.e. 10th Standard), of Board of Technical Education conducted by Government of CG or its equivalent.
4. **Duration**: The duration of the B.C.A. Degree Program shall be three years.
5. **The scheme of Examinations:** The BCA Examination will be of 2400 marks as given Below:
   I) Basic and Compulsory papers: 550 marks
   II) For Theory Papers and Practical Papers: 1850 marks
6. **The Standard of Passing and Award of Class**
   In order to pass in the examination the candidate has to obtain 33% marks out of 100. (Min 33% marks must be obtained in theoretical papers as well as practical papers of University Examination).
   The class will be awarded on the basis of aggregate marks obtained by the candidate for all three years examinations.
7. **RULES OF Promotion**
   As per section 14 of promotion rule.
8. The Medium of Instruction and Examination (Written and Viva) shall be English/Hindi.
9. **Instructions to Paper Setters:**
   a. In each theory paper, six questions are to be set and paper has maximum 100 marks. Question paper should be in English as well as Hindi.

b. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.

c. Apart from Question No. 1, rest of the paper shall consist of five units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 15 marks.

10. The Year wise Structure & plan of the programme shall be as follows :

SCHEME OF EXAMINATION BCA PART-I

Paper no.	Title of Paper/s	Maximum Marks		Maximum Marks	Minimum Passing Marks
		Theory	Practical		
1.	आधार पाठ्यक्रम–हिन्दी भाषा	75	--	75	26
2.	Foundation Course- English Language	75	--	75	26
3.	Environmental Studies & Human Rights **(Additional & Compulsory)**	75	25	100	33
4.	Discrete Mathematics	100	--	100	33
5.	Computer Fundamental and Concepts of Software	100	--	100	33
6.	PC Software Packages and Programming in C	100	--	100	33
7.	Data Structure	100	--	100	33
8.	Lab-1 Software Packages Lab	--	75	75	25
9.	Lab-2 Programming lab in C	--	75	75	25
	Total Marks	**650**	**150**	**800**	

SCHEME OF EXAMINATION BCA PART-II

Paper no.	Title of Paper/s	Maximum Marks		Maximum Marks	Minimum Passing Marks
		Theory	Practical		
1.	आधार पाठ्यक्रम–हिन्दी भाषा	75	--	75	26
2.	Foundation Course- English Language	75	--	75	26
3.	Operating System	100	--	100	33
4.	Digital Electronics and Microprocessor	100	--	100	33
5.	Computer Networks and Cyber Technology	100	--	100	33
6.	Object Oriented Programming Using C++	100	--	100	33
7.	Computer Graphics and Multimedia	100	--	100	33
8.	Lab-1 Programming Lab Using C++	--	75	75	25
9.	Lab- 2 Multimedia Lab	--	75	75	25
	Total Marks	**650**	**150**	**800**	

SCHEME OF EXAMINATION BCA PART-III

Paper no.	Title of Paper/s	Maximum Marks		Maximum Marks	Minimum Passing Marks
		Theory	Practical		
1.	आधार पाठ्यक्रम–हिन्दी भाषा	75	--	75	26
2.	Foundation Course- English Language	75	--	75	26
3.	Computer Organization and Architecture	100	--	100	33
4.	Software Engineering	100	--	100	33
5.	Database Design and RDBMS (Oracle)	100	--	100	33
6.	Web Technology	100	--	100	33
7.	Numerical Analysis	100	--	100	33
8.	Lab-1 RDBMS & Web Technology	--	75	75	25
9.	Lab-2 Minor Project	--	75	75	25
	Total Marks	**650**	**150**	**800**	
	Grand Total Marks of BCA- I, II & III			**2400**	

आधार पाठ्यक्रम
प्रश्न पत्र–प्रथम
हिन्दी भाषा

पूर्णांक – 75

नोट :

1. प्रश्न पत्र 75 अंक का होगा।
2. प्रश्न पत्र अनिवार्य होगा।
3. इसके अंक श्रेणी निर्धारण के लिए जोड़े जावेंगे।
4. प्रत्येक इकाई के अंक समान होंगे।

पाठ्य विषय –

इकाई–1 पल्लवन, पत्राचार तथा अनुवाद एवं पारिभाषिक शब्दावली।

इकाई–2 मुहावरे – लोकोक्तियॉ, शब्दशुद्धि, वाक्य शुद्धि, शब्द ज्ञान – पर्यावाची, विलोम, अनेकार्थी, समश्रुत (समानोचरित) अनेक शब्दों के लिए एक शब्द।

इकाई–3 देवनागरी लिपि की विशेषता, देवनागरी लिपि एवं वर्तनी का मानक रूप।

इकाई–4 कम्प्यूटर में हिन्दी का अनुप्रयोग, हिन्दी में पदनाम।

इकाई–5 हिन्दी अपठित, संक्षेपण, हिन्दी में संक्षिप्तीकरण।

पाठ्य क्रम के लिए पुस्तकें –

1. भारतीयता के स्वर साधन धनंजय वर्मा – म. प्र. ग्रंथ अकादमी।
2. नागरी लिपि और हिन्दी – अनंत चौधरी – ग्रंथ अकादमी पटना।
3. कम्प्यूटर और हिन्दी – हरिमोहन – तक्षशिला प्रकाशन, दिल्ली।

FOUNDATION COURSE
PAPER – II
ENGLISH LANGUAGE

M.M 75

UNIT -1

Basic Language skills: Grammar and Usage.

Grammar and Vocabulary based on the prescribed text. To be assessed by objective / multiple choice tests.

(Grammar – 20 Marks
Vocabulary – 15 Marks)

UNIT -2

Comprehension of an unseen passage. 05

This should simply not only (a) an understanding of the passage in question, but also (b) a grasp of general language skills and issues with reference to words and usage within the passage and (c) the Power of short independent composition based on themes and issues raised in the passage.

To be assessed by both objective multiple choice and short answer type tests.

UNIT – 3

Composition: Paragraph writing 10

UNIT – 4

Letter writing 10

Two letters to be attempted of 5 marks each. One formal and one informal.

UNIT - 5

Texts: 15

Short prose pieces (Fiction and not fiction) short poems' the pieces should cover a range of authors, subjects and contexts' With poetry if may sometimes be advisable to include pieces from earlier periods, which are often simpler than modern examples In all cases, the language should be accessible (with a minimum of explanation and reference to standard dictionaries) to the general body of students schooled in the medium of an Indian language.

Students should be able to grasp the contents of such place; explain specific words, phrases and allusions; and comment on general points of narrative or argument Formal Principles of Literary criticism should not be taken up at this stage. To be assessed by live short answers of three marks each.

BOOKS PRESCRIBED –

English Language and Indian Culture – Published by M.P. Hindi Granth Academy Bhopal.

BCA PART- I/II/III
ENVIRONMENTAL STUDIES & HUMAN RIGHTS
(Additional & Compulsory)
SYLLABUS FOR "ENVIRONMENTAL STUDIES" FOR UNDER GRADUATE

M.M. 75

UNIT- I

THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES:

Definition, scope and importance

Need for public awareness.

Natural Resources:

Renewable and non-renewable resources:

Natural resources and associated problems.

(a) Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction, mining, dams and their effects on forests and tribal people.

(b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.

(c) Mineral resources: Use and exploitation, Environmental effects of extracting and using mineral resources case studies.

(d) Food resources: World food problems, changes caused by agriculture a Dover grazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.

(f) Land resources: Land as resources, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources tor sustainable life-styles.

UNIT- II

ECOSYSTEMS

Concept of ecosystems.

Structure and function of an ecosystem.

- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem:

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (Ponds, streams, lakes, rivers, oceans, estuaries)

UNIT-III

Biodiversity and its Conservation

- Introduction - Definition: genetic, species and ecosystem diversity.
- Bio geographical classification of India.
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as mega - diversity nation.
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wild if conflicts.
- Endangered and endemic species of India.
- Conservation of biodiversity: In situ and Ex-situ conservation of biodiversity

UNIT-IV

Environmental Pollution

Definition

Causes, effects and control measures of -

a. Air Pollution
b. Water Pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
g. Nuclear hazards.

- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides.

Human population and the Environment

- Population growth, variation among nations,
- Population explosion – Family Welfare programme.
- Environment and human health.
- Human Rights.

UNIT-V

Social issues and the Environment

- From Unsustainable to Sustainable development.
- Urban problems related to energy.
- Water conservation. Rain water harvesting, watershed management.
- Resettlement and rehabilitation of people, its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.

- Wasteland reclamation.
- Consumerism and waste products.
- Environment protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environmental legislation.
- Public awareness.
- Value Education.
- HIV/AIDS
- Women and Child Welfare.
- Role of Information Technology in Environment and Human Health.
- Case Studies.

FIELD WORK

- Visit to a local area to document environmental assets- river/forest/ grassland/hill/mountain.
- Visit to local polluted site: Urban/Rural/Industrial/Agriculture.
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes' etc' (Field work Equal to 5 lecture hours)

REFERENCES:

1. K.C 2OO1 Environmental Biology, Nidi Publ. Ltd Bikaner.
2. Bharucha Erach, the Biodiversity of India, Mapin Publishing Pvt. Ltd. Ahmedabad 380 013, India. Email : mapin@icenet net(R)
3. Bruinner R.C., 1989, Hazardous Waste Incineration, Mc Graw Hill Inc, 480p.
4. Clark R.S., Marine Pollution, Clanderson Press oxford (TB).
5. Cuningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 200.
6. Dr. A.K. Environmental chemistry, Wiley Estern Ltd.
7. Down to Earth, Centre for science and Environment (R)
8. Gloick, H.P. 1993 Water in crisis, Pacific Institute for studies in Deve, Environment & Security. stockholm Eng. Institute, oxford Univ, Press 473p.
9. Hawkins B.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R)
10. Heywood, V.H. & Watson, R.T. 1995 Global Biodiversity assessment, Cabridge Univ. Press 1140p.
11. Jadhav H. & Bhosale, V.H. 1995, Environmental Protection and Laws, Himalaya Pub. House. Delhi 284p.
12. Mckinney M.L. & School R.M. 1996, Environmental Science systems & Solution Pub. Web enhanced edition, 639p.
13. Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB).

14. Miller T.G. Jr., Environmental Science, Wadsworth Publishing Co. (TB).
15. Odum, E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.
16. Rao M. N. & Datta, A.K. 1987, Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
17. Sharma B.K., 2001, Environmental Chemistry, Goel Publ. House, Meerut.
18. Survey of the Environment, The Hidu (M).
19. Townsend C., Harper J., and Michael Begon, Essentials of Ecology, Blackwell Science (TB).
20. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Environment Media (R).
21. Trivedi R.K., and P.K. Goel, Introduction to air pollution, Techno – Science Publications (TB).
22. Wagner K.D., 1998, Environmental Management, W.B. Saunders Co. Philadelphia, USA 499p.
23. Magazine
24. Reference
25. Textbook.

PAPER-III
DISCRETE MATHEMATICS

Unit – I

Recall of statements and logical connectives, tautologies and contradictions, logical equivalence, algebra of propositions quantifiers, existential quantifiers and universal quantifiers.

Unit –II

Boolean algebra and its properties, algebra of propositions as an example, De Morgan's Laws, partial order relations g.l.b., l.u.b. Algebra of electric circuits and its applications. Design of simple automatic control system.

Unit –III

Boolean functions - disjunctive and conjugative normal forms. Boolean's expansion theorem, fundamental forms. Many terminal Networks.

Unit –IV

Arbitrary Cartesian product of sets. Equivalence relations, partition of sets, injective, subjective, objective maps, binary operations, countable, uncountable sets.

Unit – V

Basic Concept of Graph Theory, Sub graphs, Trees and their properties, Binary Trees, Spanning Trees, Directed Trees, Planar graphs, Euler Circuit, Hamiltonian Graph. Chromatic number.

Text Books:

1. Boolean algebra and Its Applications, J. Eldon Whitesitt, Addison-Wesley.
2. A Textbook of Discrete Mathematics, Swapan Kumar Sarkar, S. Chand.
3. Discrete Math with Proof, Eric Gossett, Pearson.
4. Discrete Math Workbook: Interactive Exercises, James R Bush, Pearson.

Reference Books:

1. Discrete Mathematics, Prof. H K Pathak, Shiksha Sahitya Prakashan.
2. Discrete Maths, C.L.Liu, T McGraw Hill.

PAPER-IV
COMPUTER FUNDAMENTAL AND CONCEPTS OF SOFTWARE

Unit – I
Basics of Computer
What is Computer?, Introduction to Computing, History of Computers, Application and Issues of Computer, Components of Computer: Input Devices, Output Devices, System Unit, Storage Devices, Communication Devices; Computer Building Blocks: CPU, Hardware Devices: External Connectivity, Video Port, USB Port, all other Ports.

Unit – II
Processing Unit
Processor Building Blocks: Control Unit, Arithmetic Logic Unit, Register Unit, Comparison of Personal Computer Processors, Processor for Mini, Mainframe, Large and Super Computers, Examples of Various Processor and their families, Category of Processor on basis of Word length, Working of Processor and Execution Process, Machine Cycle, System Clock.

Unit – III
Memory and I/O Devices
Types of Memory: RAM, Cache, ROM, Flash Memory, CMOS, Cloud Storage, Optical Discs: CDs, DVDs. Memory Hierarchy, Input Devices: Keyboard, Mouse, Trackball, Touchpad, Pointing Stick, and others; Output Devices: LCD & Plasma Monitors, other Monitors, Printers: Nonimpact, Ink-Jet, Photo, Laser Printers, Plotters, Speakers, Headphones, and Ear-buds, Data Projectors, Interactive Whiteboards.

Unit – IV
Category of Software with example and brief features
Introduction to Software (s/w), Types of s/w: Application Software & System Software, Various Application Software s/w and their examples, System Programming and System Programs, Needs of System Software, BIOS, POST sequence, Concept & introduction to various system s/w such as: Assemblers, Loaders, linkers ,macro processors, Macros, Compilers, Interpreters, Operating system and formula system, Translators and its types, Editor, Simulator, Emulator, Debugger, Device Drivers, Firmware etc. Assemblers: Structure of assembler, Overview of the assembly process, Basic function, Machine dependent and machine independent features of assembler, Types of assemblers – single pass, multi-pass, cross assembler, Macros & Macro processors.

Unit – V
Loaders and Compilers
Basic Loader Functions, Linking and Concept of Static & Dynamic Relocation, Various loader schemes with their advantages and disadvantages, Compilers, Phases of a Compiler, Comparison of Compilers & Interpreters, Machine dependent & Machine Independent Compiler Features, Aspects of Compilation, Lexical Analysis, Syntax Analysis, Memory Allocation, Compilation of Expressions; Code optimization – local and global optimization.

Text Books:

1. Computer science: an overview, Brookshear, J.G., Pearson Education
2. Fundamental of Computers, Raja Raman V., Prentice Hall of India, New Delhi.
3. System Programming- J. J. Donovan, Tata McGraw-Hill Education.
4. System Programming and Operating systems- D. M. Dhamdhere, Tata McGraw-Hill
5. System Software: An introduction to systems programming- Leland L. Beck, Pearson Education
6. Principles of Compiler Design-Aho and Ullman, Pearson Education.
7. Linkers and Loaders, John R. Levine; Morgan Kaufman

Reference Books: 1. PC Upgrade & Repair Black Book by Ron Gilster.
2. Compiling Techniques, J P Bennett, TMH .
3. Modern Compiler Design, Dick Grune, Koen G.L, Henri Bal, Wiley India.
4. Compiler Construction, Principles and Practice, Kenneth C. Louden; Cengage Learning
5. Fundamentals of Computers & Information Technology, A. Jaiswal, Dreamtech Press.

PAPER-V
PC SOFTWARE PACKAGES AND PROGRAMMING IN C

Unit – I
MS WINDOWS 7 and MS Word

Installing WINDOWS, Basic Elements of WINDOWS, Working with Windows, Connecting to the Internet: Dial-Up Connections, Broadband Connections, Installing New Hardware & Printer, Installing & Removing Software, Power Settings, MS Word: Menus, Shortcuts, Document types; Working with Documents: Function of tool bar and menu bar. MS Power Point: Creating new Presentation, Different presentation templates, Setting backgrounds, Function of Tool Bar and Menu Bar, Inserting pictures, movies, tables, etc into the presentation, Setting Animation & transition effect, Adding audio and video, Printing Handouts, Generating standalone presentation viewer.

Unit – II
MS Excel and MS Access

Introduction: Spreadsheet & its Applications, Menus & Toolbars & icons, Shortcuts, Working with Spreadsheets, Computing data: Formula, Formatting Spreadsheets, Worksheet: Sheet Formatting & style background, Graphs, Printing worksheet. MS Access: Database concepts: Tables, Queries, Forms, Reports, Opening & Saving database files: Creating Tables, Table Design, Indexing, Entering data, Importing data, Creating Queries: SQL statements, Setting relationship, Creating Forms: GUI, Form, Creating & printing reports.

Unit-III
C Programming Concepts

History of C language, C Language Character set, Tokens, Constant, Keywords and Identifiers, Variables Data Types and operators, Loop and Branch statements, .

Unit-IV
Arrays, String, Structures and Unions in C

Arrays, Arrays and Strings, Structures and Unions: Definitions, Initialization and Assigning Values to Members, Arrays of Structures and Arrays Within Structures, Structure with in Structure, Unions- Size of Structures, Functions and Pointers: Recursion - Functions with Arrays, Pointers: Declaration and Initialisation of Pointers, Pointer Expression, Operation on Pointers, Pointer and Arrays, Arrays of Pointers, Pointer and Character Strings, Pointers and Functions, Pointers and Structures, Pointer on Pointers.

Unit-V
File Maintenance in C

File Input/Output: Introduction, Defining, Opening and closing a file, Study of file I/O Operations: fopen (), fclose( ), fputs ( ), fgets ( ), fread ( ), fwrite(), Input / Output Operations on a file, Random access to file, Command line arguments, Time, Date and Localization Functions, Dynamic Allocation Functions, Utility Functions, Wide-Character Functions.

Text Books:

1. Comdex Computer Course Kit (windows 7 with office 2010), Gupta Vikas, Dreamtech Publication
2. Mastering MS Office 2000, Professional Edition by Courter, BPB Publication.
3. MS Office 2000 Training Guide by Maria, BPB Publications.
4. MS Office complete by SYBEX.
5. LET US C, Yashwant Kanetkar, BPB PUBLICATIONS
6. The Complete Reference C, Herbert Schildt, Tata McGraw HILL
7. PROGRAMMING IN ANSI C - by E. Balgurusamy – Tata McGraw HILL
8. PROGRAMMINGWITH C, Byron Govtfred, Tata McGraw HILL

Reference Books:

1. The “C” Programming Language, Briain W. Kenigham & Dennis Ritchie, Pearson
2. The Spirit of “C”- Henrry Mulish, Herbert L. Cooper.
3. Mastering “C”- Crain Bolon.

PAPER-VI
DATA STRUCTURE

Unit – I
Introduction and Array
Data Types, Data Structure and its Classification, Arrays: Array concept (one dimension, two dimension), Operations for one dimension array (insertion, deletion, traversal), Examples.

Unit –II
Linked Lists
Concept of a linked list, Circular & Doubly linked list, Operations on linked lists, List Manipulation with Pointers, Insertion & Deletion of elements, Applications of linked lists.

Unit –III
Stacks-Queues and Binary Tree
Definitions and Structure, Representation using Array & Linked List, Application of Stack and Queues, Postfix and Prefix Conversion, Evolution of Arithmetic Expressions, Binary Trees: Definition, Memory Representation, Trees traversal algorithms (recursive and non-recursive), threaded trees, BFS, DFS.

Unit –IV
Searching and Sorting
Linear and Binary Search Algorithms, Complexity, Binary Search Trees (construction, insertion, deletion & search), Sorting Algorithms: Bubble Sort, Insertion Sort, Selection Sort, Tree sort, Heap Sort, Quick Sort, Merge Sort & Radix sort, External Sorting.

Unit –V
Analysis of Algorithm
Time and Space Complexity of Algorithms, Average Case & Worst Case Analysis, Asymptotic Notation, Big O notations, Analysis of sorting algorithms -Selection sort, Bubble sort, Insertion sort, Heap sort, Quick sort and Analysis of searching algorithms –Linear Search & Binary Search.

Text Book:

1. Data Structures using C, A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.
2. Data Structures using C by A. K. Sharma, Pearson Education
3. Data Structures and Algorithms, A.V. Aho, J.E. Hopcroft and T.D. Ullman, Addison-Wesley, Low Priced Edition.
4. Fundamentals of Data structures, Ellis Horowitz & Sartaj Sahni, AW Pub.
5. Fundamentals of computer algorithms, Horowitz Sahni and Rajasekaran, Pearson Edu.
6. Data Structures and Program Design in C, Robert Kruse, PHI.

Reference Books:

1. Theory & Problems of Data Structures, Jr. Symour Lipschetz, Schaum's outline by TMH
2. Introduction to Computers Science -An algorithms approach , Jean Paul Tremblay, Richard B. Bunt, 2002, T.M.H.
3. Data Structure and the Standard Template library – Willam J. Collins, 2003, T.M.H

LAB-I
SOFTWARE PACKAGES LAB

The lab exercise should be based on MS Windows 7 or higher version and MS Office 2007 or higher version and comprises the theoretical paper as well as practical paper.

Section-A

WINDOWS 7 : Basic Elements of WINDOWS, My Computer, Sharing Devices, Windows Explorer, Accessories: Entertainment, Communication, System Tools, Paint Brush, Calculator, Calendar, Clock, Note Pad, Word Pad Etc., Control Panel, Changing Color and Theme, Changing the Desktop Background, Screen Saver, Adjusting Display Settings, Adjusting Sound, Adjusting the Mouse, Changing the Date and Time.

Section-B

Introduction to MS Word: Menus, Shortcuts, Document types; Working with Documents: Opening Files – New & Existing, Saving Files, Formatting page and Setting Margins, Converting files to different formats- Importing, Exporting, Sending files to others, Editing text documents- Inserting, Deleting, Cut, Copy, paste, Undo, Redo, Find, Search, Replace, Using Tool bars, Ruler- Using Icons, Using help; Formatting Documents: Setting Font Styles, Setting Paragraph style, Setting Page Style, Setting Document Styles, Creating Tables, Drawing, Tools, Printing Documents.

Section-C

Introduction to MS Power Point: Opening new Presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts, Creating a presentation, Formatting a presentation-Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout, Inserting pictures, movies, tables.

Section-D

Introduction to MS Excel: Introduction: Spreadsheet & its Applications, Opening spreadsheet, Menus & Toolbars & icons, Shortcuts, Working with Spreadsheets-Opening a File, Saving Files, Setting Margins, Converting files to different formats- Importing, Exporting and Sending files to others, Spreadsheet addressing, Entering and Editing Data, Computing data- Setting Formula, Finding total in a column or row, Mathematical operations, Formulas, Formatting Spreadsheets & Printing worksheet.

Section-E:

Introduction MS Access: Database concepts: Tables, Queries, Forms, Reports, Opening & Saving database files: Creating Tables, Table Design, Indexing, Entering data, Importing data, Creating Queries: SQL statements, Setting relationship, Creating Forms: GUI, Form, Creating & printing reports.

LAB-II
PROGRAMMING LAB IN C

1. Program to find area and circumference of circle.
2. Program to find the simple interest.
3. Program to convert temperature from degree centigrade to Fahrenheit.
4. Program to calculate sum of 5 subjects & find percentage.
5. Program to show swap of two no's without using third variable.
6. Program to reverse a given number.
7. Program to print a table of any number.
8. Program to find greatest in 3 numbers.
9. Program to show the use of conditional operator.
10. Program to find that entered year is leap year or not.
11. Program to find whether given no is even or odd.
12. Program to shift inputed data by two bits to the left.
13. Program to use switch statement. Display Monday to Sunday.
14. Program to display arithmetic operator using switch case.
15. Program to display first 10 natural no & their sum.
16. Program to print Fibonacci series up to 100.
17. Program to find GCD & HCF of given Numbers using Recursion.
18. Program to find whether given no is a prime no or not.
19. Program to display sum of series 1+1/2+1/3+…….+1/n.
20. Program to display series and find sum of 1+3+5+……..+n.
21. Program to use bitwise AND operator between the two integers.
22. Program to add two number using pointer.
23. Program to find sum, subtraction, multiplication & transpose of matrices.
24. Program to reverse a number using pointer.
25. Program to show input and output of a string.
26. Program to find square of a number using functions.
27. Program to swap two numbers using functions.
28. Program to find factorial of a number using functions.
29. Program to show table of a number using functions.
30. Program to show call by value.
31. Program to show call by reference.
32. Program to find largest of two numbers using functions.
33. Program to find factorial of a number using recursion.
34. Program to find whether a string is palindrome or not.

The break-up of marks for second Year's Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Lab Record	15	
2.	Viva-voce	20	
3.	Program Development and Execution	40	
Total Marks		75	25

SCHEME OF EXAMINATION

Paper no.	Title of Paper/s	Maximum Marks		Maximum Marks	Minimum Passing Marks
		Theory	Practical		
1.	आधार पाठ्यक्रम–हिन्दी भाषा	75	--	75	26
2.	Foundation Course- English Language	75	--	75	26
3.	Operating System	100	--	100	33
4.	Digital Electronics and Microprocessor	100	--	100	33
5.	Computer Networks and Cyber Technology	100	--	100	33
6.	Object Oriented Programming Using C++	100	--	100	33
7.	Computer Graphics and Multimedia	100	--	100	33
8.	Lab-1 Programming Lab Using C++	--	75	75	25
9.	Lab- 2 Multimedia Lab	--	75	75	25
	Total Marks	**650**	**150**	**800**	

आधार पाठ्यक्रम
प्रश्नपत्र–प्रथम
हिन्दी भाषा

पूर्णांक – 75

खण्ड–क

निम्नलिखित 5 लेखकों के एक–एक निबंध पाठ्यक्रम में सम्मिलित होंगे– अंक–30

1. महात्मा गांधी – सत्य और अहिंसा
2. विनोबा भावे – ग्राम सेवा
3. आचार्य नरेन्द्र देव – युवकों का समाज में स्थान
4. वासुदेव शरण अग्रवाल – मातृ–भूमि
5. भगवतशरण उपाध्याय – हिमालय की व्युत्पत्ति
6. हरि ठाकुर – डॉ. खूबचंद बघेल

खण्ड–ख

हिन्दी भाषा और उसके विविध रूप अंक–20

– कार्यालयीन भाषा
– मीडिया की भाषा
– वित्त एवं वाणिज्य की भाषा
– मशीनी भाषा

खण्ड–ग

अनुवाद व्यवहार : अंग्रेजी से हिन्दीं में अनुवाद अंक–25

हिन्दी की व्यवहारिक कोटियाँ–

रचनागत प्रयोगगत उदाहरण, संज्ञा, सर्वनाम, विश्लेषण, समास, संधि एवं संक्षिप्तियां, रचना एवं प्रयोगगत विवेचन।

FOUNDATION LANGUAGE
PAPER-II
ENGLISH LANGUAGE

M.M. 75

The question paper for B.A./B.Sc./B.Com./B.H.Sc. English Language and cultural values Shall Comprise the following units :

UNIT-I
Short answer questions to be passed by (Five short answer questions of three marks each)
15 Marks

UNIT-II
(a) Reading comprehension of an unseen passage 05 Marks
(b) Vocabulary

UNIT-III
Report-Writing 10 Marks

UNIT-IV
Expansion of an idea 10 Marks

UNIT-V
Grammar and Vocabulary based on the prescribed text book. 20+15 Marks

PAPER-III
OPERATING SYSTEM

Unit – I
Introduction to Operating System

What is an Operating System, Operating Systems Architecture, Operating Systems as an Extended Machine & Resource Manager, Process Model, Process States and Transitions, Types of System Calls, System Boot, Multi-Programming, Multi-Tasking, Multi-Threading; Operating Systems Classification: Simple Batch Systems, Multi-programmed Batches systems, Time-Sharing Systems, Parallel & Distributed Operating Systems.

Unit – II
Process Management

Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, Threads, CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Multiple- Processor Scheduling, Process Synchronization: Background, The Critical-Section Problem, Synchronization Hardware, Semaphores, Classical Problems of Synchronization, Critical Regions, Monitors, Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Recovery from Deadlock, Combined Approach to Deadlock Handling.

Unit –III
Memory Management

Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging, Page Replacement, Page replacement Algorithms, Performance of Demand Paging, Allocation of Frames, Thrashing, Demand Segmentation.

Unit –IV
Device and StorageManagement

File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management.

Unit –V
File-System Implementation

A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

Text Books:

1. Operating System Concepts, Silbersachatz and Galvin, Pearson Education Pub.
2. Operating Systems, Madnick E., Donovan J., Tata McGraw Hill,
3. Operating Systems, A. S. Tannenbaum, PHI

Reference Books:

1. Operating Systems Internals and Design Principle, William Stallings, Prentice Hall Publishers
2. Operating Systems- AConcept-Based Approach, Dhananjay M. Dhamdhere, McGraw-Hill

PAPER-IV
DIGITAL ELECTRONICS AND MICROPROCESSOR

Unit – I
Background of Digital Electronics

Digital Signals, Different Type of Numbering Systems: Decimal, Octal, Binary, Hexadecimal, Conversation from one number system to another number system, Binary Math: Binary Addition, Binary Subtraction, Binary Complements, One's & Two's Complement, Binary Subtraction using Two's Complement, Signed Magnitude, Floating Point Binary, IEEE Standard 754 Floating-Point Formats, Logic Gate Basics: NOT Gate, AND Gate, OR Gate, Exclusive-OR (XOR) Gate , Truth Tables for Logic Gates, Truth Tables for Combinational Logic.

Unit – II
Logic Families

Introduction to Semiconductor, Fundamentals of Semiconductor Devices, Diode and Transistor Characteristics, Diode And Transistor As A Switch, Evolution of Logic Gates, Types of Logic Family: Circuit of RTL, DTL, TTL and Working Function as a Gate, Emitter Coupled Logic (ECL), CMOS Logic Family, NMOS and PMOS Logic, Comparison of Different Logic Families.

Unit – III
Boolean Algebra and Karnaugh Maps

Boolean Algebra, Boolean Expressions of Combinational Logic, Laws of Boolean Algebra, Rules of Boolean Algebra: NOT Rule, OR Rules, AND Rules, XOR Rules, Derivation of Other Rules, Simplification, DeMorgan's Theorem, Boolean Expression Formats: Sum-of-Products, Product-of-Sums, Converting SOP & POS to Truth Table & Truth Table to Expression, Karnaugh Maps, Minimization techniques of Boolean Expression using K-Maps, "Don't Care" Conditions, Minimization of Multiple Output Boolean Functions, VEM Theory of K-Map, MEV and Minimization of Two, Three, Four, Five and Six Variable Maps using VEM.

Unit – IV
Combinational and Sequential Circuit

Creation of Different Combinational Circuits using K-Map: Adders, Seven-Segment Displays Circuits, BCD to Gray code Convertor, BCD to Ex-3 code Convertor, BCD to 84-2-1 code converter, Digital Comparator and other Combinational Circuit, Carry Propagation–Look-Ahead Carry Generator, Decoders, Multiplexers, De-multiplexers, State Machine Design Process: Mealy Versus Moore State Machines, S-R Latch/ Flip-Flop, D Latch, J-K Flip-Flop, Divide-By-Two Circuit, Registers, Counter: Ripple (Asynchronous) Counter and Synchronous Counter, UP/DOWN Counters, Design of Synchronous Counter using K-Map.

Unit – V
Fundamentals of Microprocessor

What is Microprocessor, Evolution of Microprocessor, Various Microprocessor Families and Examples, Generic Architecture of Microprocessor, Pin Diagram & Pin Functions of Intel 8085 Microprocessor, Instruction Set for Microprocessor, Definition and Need of Addressing mode, Addressing modes of Intel 8085 & 8086 Microprocessor, Machine Cycle and Instruction Cycle of Microprocessor, Working of Microprocessor.

Text Books:

1. Modern Digital Electronics, R.P. Jain, TMH
2. Digital Principles & Application, Leach & Malvino, TMH
3. Digital Logic Design, Morries Mano, PHI
4. Digital design- Principles and Practices, J. F. Wakerly, Pearson India.
5. Microprocessor - Architecture, Programming and Applications with the 8085", Ramesh S.Gaonkar, PHI.
6. The 8085A Microprocessor software, programming and Architecture, Brarry B.Bray, PHI

Reference Books:

1. Digital Integrated Electronics, H.Taub & D. Shilling, McGraw Hill.
2. Digital Principles & Design, Givone, TMH
3. Digital Circuit & Design, S. Aligahanan, S. Aribazhagan, Bikas Publishing House.
4. Fundamentals of Digital Electronics & Microprocessor, Anokh Singh, A.K. Chhabra, S. Chand
5. Digital circuits and Logic Design, Samuel Lee, PHI publication

PAPER-V
COMPUTER NETWORKS AND CYBER TECHNOLOGY

Unit – I
Introduction to Computer Network and Physical Layer

Computer network Fundamentals and Types of computer networks: LAN, MAN, WAN, Wireless and wired networks, broadcast and point to point networks, Network topologies, ISO-OSI reference model, TCP/IP model, Concept of Analog & Digital Signal, Bandwidth, Multiplexing: TDM, FDM, WDM, CDMA, Transmission Media : Twisted pair, Coaxial cable, Fiber-optics, Wireless transmission (radio, microwave, infrared), Switching: Circuit Switching, Message Switching ,Packet Switching & their comparisons, Line Coding techniques: Bipolar, Unipolar, RZ, NRZ, Manchester, AMI, B8ZS, Block coding techniques.

Unit –II
Data Link Layer

Functions at Data Link Layer, Framing, Error detection and correction codes: checksum, CRC, hamming code, Flow Control: Stop & Wait and Sliding Window Protocols, Data link protocols: HDLC and PPP, Medium Access Sub-Layer: LLC Protocol, IEEE 802.2, Overview of IEEE 802.3,802.4,802.5, 802.6 and brief knowledge of 802 series up to present scenario.

Unit –III
Network Layer and Transport Layer

Functions of Network Layer, Routing Protocols & Algorithms, Principles of Congestion Control, IPv4 addresses, IPv4 Addressing, IPv6 addresses, Internetworking basics, Functions of Transport Layer, Flow Control & Buffering, Introduction to TCP/UDP protocols and their comparison.

Unit –IV
Common Network Architecture

Protocol Stack for Example Networks, Connection oriented & Connectionless N/Ws, Frame Relay, Example of N/Ws-P2P, X.25, ATM, Ethernet, Wireless LANs - 802.11, 802.11x, Gigabit, Broad Band Networks: Integrated Service Digital Networks (ISDN), Broad Band ISDN, ATM, Introduction to Very Small Aperture Terminal (VSAT).

Unit –V
Application Layer

World Wide Web (WWW), Domain Name System (DNS), E-mail, File Transfer Protocol (FTP), Hyper Text Transfer Protocol (HTTP), Email Protocols: MIME & SMTP, POP, IMAP, Telnet – Remote Communication Protocol, Proxy Server, Proxy Web Servers.

Cyber Laws in India

Information Technology Act, 2000 – a brief overview; E – commerce; E – governance; Concept of Electronic Signature; Concept of Cyber contraventions and Cyber Offences, IT Act, 2000.

Text Books:

1. Computer Networks, Andrew S. Tanenbaum, PHI / Pearson Education Inc.,
2. Data Communication and Networking, Behrouz A. Forouzan, Tata McGraw-Hill.
3. Internet Law-Text and Materials, Chris Reed, Universal Law Publishing Co., New Delhi
4. Hand book of Cyber Laws, Vakul Sharma, Macmillan India Ltd, New Delhi

Reference Books:

1. Data and Computer Communication, William Stallings, Pearson Education.
2. Computer and Communication Networks, Nader F. Mir, Pearson Education, 2007.
3. Data & Computer Communication, Black, PHI.

PAPER-VI
OBJECT ORIENTED PROGRAMMING USING C++

Unit-I
Features of C++, OOP vs. procedure-oriented programming, OOP Concepts: Abstraction, Inheritance, Polymorphism, Data Binding, Encapsulation, Classes, subclasses and Objects; Basics of C++: Data Types and sizes, Variable, Constants and its types, Use of << and >> operators, Operators and Expressions: Operators:-Arithmetic, Relational, Assignment, Logical, Increment and Decrement Operators (++ and --), 'Operate-Assign' Operators (+=, *=, ...); Expressions, Operator Precedence, Precedence and Order of Evaluation, Conditional Expression, Casting and type conversion.

Unit-II
Program Flow & Decision Control: if, if – else, if - else if, Loop Control: while, do – while, for, break, continue, Case Control: switch, goto; Functions/Procedures, Returning values from functions, Arguments Passed by Value, Passing Addresses of Arguments, Pointers and Arrays: Pointer Initialization, Pointer Operators, Pointer Arithmetic, Functions and pointers, Arrays, Initializing Arrays, Passing Arrays to Functions, Pointers and Arrays, Pointer to an Array, Array of pointers, Strings: String I/O, Arrays of Strings, Structures, Arrays of Structures.

Unit-III
Binding Data & Functions: Defining a Class, Creating an Object, Scope, Data Abstraction, Data Encapsulation, 'this' Pointer, Dynamic Creation of Objects, Constructors and Destructors: Parameterized & Copy constructor, Member Functions & Methods, Friend Class and Friendly Functions, Returning Objects, Arrays of Objects.

Unit-IV
Function and Operator Overloading, Rules for Overloading, Operator overloading and its uses: Overloading unary and binary operators, Overloading the Assignment Operator, Overloading the << Operator, Overloading the Increment & Decrement Operator, Converting data types: Basic to class type, Class to Basic Type, Class to Another Class Type.

Unit-V
Reusing Classes: Inheritance-Base and Derived classes, Inheritance types, Scope Resolution Operator, Access Modifiers, Multiple & Multilevel Inheritance, Calling Base Class Constructor, Overriding Base Class Members, Virtual functions and Polymorphism: Virtual & non-virtual Overriding, Rules for Virtual Functions, Pure Virtual Functions, Static and Dynamic Binding, Virtual Base Classes, Templates, Exception Handling, Throwing an exception.

Text books:

1. C++, The Complete Reference, 4th Edition, Herbert Schildt, TMH.
2. Object Oriented Programming in C++, 4th Edition, R.Lafore, SAMS, Pearson Education

Reference Books:

1. An Introduction to OOP, 3rd Edition, T. Budd, Pearson Education,2008.
2. Programming Principles and Practice Using C++, B.Stroutstrup, Addison- Wesley, Pearson Education.
3. Problem solving with C++, 6th Edition, Walter Savitch, Pearson Education,2007..
4. The Art, Philosophy and Science of OOP with C++, R.Miller,SPD.

PAPER-VII
COMPUTER GRAPHICS AND MULTIMEDIA

Unit-I
An Introduction Graphics System

Computer Graphics Fundamentals, Application of Computer Graphics, Video Display Devices, Raster & Random Scan Systems, Input Devices, Graphics Software, Interactive devices, Output Primitives, Line Drawing & Circle Generating Algorithms, Scan-Line Polygon Fill Algorithm, Inside-Outside tests, Boundary-Fill Algorithm, Flood Fill Algorithm.

Unit-II
2D Transformations

2-D Viewing and Clipping: Viewing Transformations, Point Clipping & Line Clipping Algorithms, Polygon Clipping algorithms, 2D Geometric Transformations: Basic transformations (Translation, Rotation, Scaling), Matrix Representation & Homogeneous Coordinates, Composite transformations, Reflection and Shear.

Unit-III
3D transformations

3D Viewing Transformation, Projections: Parallel Projection (Orthographic & Oblique Projections, Isometric Projections), Perspective Projections, 3D Geometric Transformations: Translation, Rotation, Scaling, Matrix Representation, 3D Object Representations: Polygon Surface and Polygon table, Bezier curves and surfaces.

Unit-IV
Multimedia and Photoshop s/w

Fundamentals of Multimedia, Adobe Photoshop CS4: Menus and panels, Exploring the Toolbox, Working with Images: Working with Multiple Images, Rulers, Guides & Grids, Image Size Command, Adjusting Canvas Size & Canvas Rotation, Creating, Selecting, Linking & Deleting Layers, Painting with Selections, Red Eye Tool, Clone Stamp Tool, Color creation, Quick Mask Options, Creating Straight & Curved Paths, Creating Special Effects.

Unit-V
CorelDraw X4

CorelDraw X4 Command Bars & Tools, Drawing Area-Objects-Lines, Working with Text & Artistic Media Tool, Fills & Modifying Outlines, Drop Shadows, Importing and Editing OCR Text, Templates, Drawing and Editing Curves and Lines, Three-point Tools, Clipart, Special Characters and Creating Symbols, Working with Layers & Creating a Master Layer, Brush Tools and Adding Objects, Interactive Tools, PowerClip Feature and the Envelope Tool.

Text Books:

1. Procedural Elements for Computer Graphics, D.F. Rogers, Tata McGraw Hill
2. Fundamentals of Interactive Computer Graphics, J.D. Foley and A.D. Van, Addison-Wesley.
3. How to Do Everything Adobe Photoshop CS4, Chad Perkins, Tata McGraw Hill
4. Corel Draw X4: The Official Guide, (Paperback), Gary David Bouton, Tata McGraw Hill

Reference Books:

1. Photoshop CS4 Quicksteps, Carole Matthews & Gary David Bouton, Tata McGraw Hill
2. CorelDRAW X4 , Deborah Miller, Pearson Education
3. Coreldraw X5 In Simple Steps, Hindi Ed., ISBN : 9789350042885, Kogent, Wiley Publications
4. Mathematical Elements for Computer Graphics,, Rogers and Adam, Tata McGraw Hill.
5. Theory & Problem of Computer Graphics, Plastock, Schaum Series.
6. Computer Graphics, Tosijasu, L.K., Springer-verleg
7. Principles of Interactive Computer Graphics, Newman, Tata McGraw Hill.

LAB-I
PROGRAMMING LAB USING C++

List of Sample Problems/Experiments:

1. Write a C++ program to find the sum of individual digits of a positive integer.
2. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1.Subsequent terms are found by adding the preceding two terms in the sequence.Write a C++ program to generate the first n terms of the sequence.
3. Write a C++ program to generate all the prime numbers between 1 and n , where n is a value supplied by the user.
4. Write C++ programs that use both recursive and non-recursive functions
   a. To find the factorial of a given integer. b. To find the GCD of two given integers.
   c. To find the nth Fibonacci number.
5. Write a C++ program that uses a recursive function for solving Towers of Hanoi problem.
6. Write a C++ program to find both the largest and smallest number in a list of integers.
7. Write a C++ program to implement the matrix ADT using a class. The operations supported by this ADT are:
   a)Reading a matrix. c) Addition of matrices.
   b)Printing a matrix. d) Subtraction of matrices.
   e)Multiplication of matrices.

Note: Practical must be as per syllabus of theoretical paper.

LAB-II
MULTIMEDIA LAB

Series of Practical Curriculums

Photoshop:

1. (i) Handling different file formats and interchanging them, changing the resolution, color, grayscales and size of the images
(ii) Using brushes and creating multicolor real life images
2. Cropping, rotating, overlapping, superimposing, pasting photos on a page
3. Creation of a single image from selected portions of many
4. Developing a commercial brochure with background tints
5. Creating an image with multi-layers of images and texts.
6. Applying masks and filtering on images

7. CorelDRAW X4 Part 1

- Getting Started with CorelDRAW
- Starting CorelDRAW
- Working with Command Bars
- Working with Layers
- Examining a Master Page
- Creating a Master Layer
- Working with Layers
- Using Brush Tools and Adding Objects
- Working with Interactive Tools
- Using Advanced Techniques for Text Manipulation
- Working with Paragraph Text
- The PowerClip Feature and the Envelope Tool
- Creating Bulleted Lists
- Working with Vector and Bitmap Graphics
- Converting Vector Objects to Bitmaps
- Working with Bitmap Graphics
- Introduction to CorelTRACE
- Advanced Output Options
- Preparing a Document For Printing
- Other Printing Options

The break-up of marks for Fourth Year's Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Lab Record	15	
2.	Viva-voce	20	
3.	Program Development and Execution	40	
Total Marks		75	25

SCHEME OF EXAMINATION

Paper no.	Title of Paper/s	Maximum Marks		Maximum Marks	Minimum Passing Marks
		Theory	Practical		
1.	आधार पाठ्यक्रम–हिन्दी भाषा	75	--	75	26
2.	Foundation Course- English Language	75	--	75	26
3.	Computer Organization and Architecture	100	--	100	33
4.	Software Engineering	100	--	100	33
5.	Database Design and RDBMS (Oracle)	100	--	100	33
6.	Web Technology	100	--	100	33
7.	Numerical Analysis	100	--	100	33
8.	Lab-1 RDBMS & Web Technology	--	75	75	25
9.	Lab-2 Minor Project	--	75	75	25
	Total Marks	**650**	**150**	**800**	
	Grand Total Marks of BCA- I, II & III			**2400**	

आधार पाठ्यक्रम
हिन्दी भाषा
प्रथम प्रश्नपत्र

पूर्णांक–75

(बी.ए,/बी.एससी,/बी.एच.एससी,/बी.कॉम. तृतीय वर्ष के पुनरीक्षित एकीकृत आधार पाठ्यक्रम और पाठ्य सामग्री का संयोजन)

!! सम्प्रेषण कौशल, हिन्दी भाषा और सामान्य ज्ञान!!

आधार पाठ्यक्रम की संरचना और अनिवार्य पाठ्य पुस्तक–हिन्दी भाषा एवं समसमायिकी– का संयोजन इस तरह किया गया है कि सामान्य ज्ञान की विषय–वस्तु विकासशील देशों की समस्याओं के माध्यम और साथ–साथ हिन्दी भाषा का ज्ञान और उसमें सम्प्रेषण कौशल अर्जित किया जा सके। इसी प्रयोजन से व्याकरण की अन्तर्वस्तु को विविध विधाओं की संकलित रचनाओं और सामान्य ज्ञान की पाठ्य सामग्री के साथ अन्तर्गुम्फित किया गया है। अध्ययन–अध्यापन के लिए पूरी पुस्तक की पाठ्य सामग्री है। और अभ्यास के लिये विस्तृत प्रश्नावली है। यह प्रश्नपत्र भाषा का है। अतः पाठ्य सामग्री का व्याख्यात्मक या आलोचनात्मक अध्ययन अपेक्षित नहीं है। पाठ्यक्रम और पाठ्य सामग्री का संयोजन निम्नलिखित पांच इकाइयों में किया जाता है। प्रत्येक इकाई को दो भागों में विभक्त किया गया है।

इकाई–1 (क) भारत माताः सुमित्रानंदन पंत, परशुराम की प्रतीज्ञाः रामधारी सिंह दिनकर, बहुत बड़ा सवालः मोहन राकेश, संस्कृति और राष्ट्रीय एकीकरणः योगेश अटल।
(ख) कथन की शैलियाँः रचनागत उदाहरण और प्रयोग।

इकाई–2 (क) विकासशील देशों की समस्यायें, विकासात्मक पुनर्विचार, और प्रौद्योगिकी एवं नगरीकरण।
(ख) विभिन्न संरचनाएं।

इकाई–3 (क) आधुनिक तकनीकी सभ्यता, प्र्यावरण प्रदूषण तथा धरणीय विकास
(ख) कार्यालयीन पत्र और आलेख।

इकाई–4 (क) जनसंख्याः भारत के संदर्भ और गरीबी तथा बेरोजगारी।
(ख) अनुवाद।

इकाई–5 (क) ऊर्जा और शक्तिमानता का अर्थशास्त्र।
(ख) घटनाओं, समारोहों आदि का प्रतिवेदन और विभिन्न प्रकार के निमंत्रण–पत्र।

मूल्यांकन योजनाः प्रत्येक इकाई से एक–एक प्रश्न पूछा जायेगा। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के 15 अंक होंगे। प्रत्येक इकाई दो–दो खंड क्रमशः 'क' और 'ख' में) विभक्त है, इसलिए प्रत्येक प्रश्न के भी दो भाग, (क्रमशः 'क' और 'ख') होंगे। 'क' का अर्थात पाठ एवं सामान्य ज्ञान से संबद्ध प्रश्न के अंक 8 एवं 'ख' अर्थात भाषा एवं सम्प्रेषण कौशल से संबद्ध प्रश्न के अंक 7 होंगे। इस प्रकार पूरे प्रश्न पत्र के पूर्णांक 75 होंगे।

FOUNDATION COURSE
PAPER-II
ENGLISH LANGUAGE

M.M. 75

The question paper for B.A./B.Sc./B.Com./B.H.Sc. III Foundation course, English Language and General Answers shall comprise the following items :
Five question to be attempted, each carrying 3 marks.

UNIT-I	Essay type answer in about 200 words. 5 essay type question to be asked three to be attempted.	15
UNIT-II	Essay writing.	10
UNIT-III	Precise writing.	10
UNIT-IV	(a) Reading comprehension of an unseen passage	05
	(b) Vocabulary based on text	10
UNIT-V	Grammar Advanced Exercises	25

Note:
Question on unit I and IV (b) shall be asked from the prescribed text. Which will comprise of popular create writing and the following items. Minimum needs housing and transport Geo-economic profile of M.P. communication Educate and culture. Women and Worm in Empowerment Development, management of change, physical quality of life. War and human survival, the question of human social value survival, the question of human social value, new Economics philosophy Recent Liberalization Method) Decoration decentralisation (with reference to 73, 74 constitutional Amendment.

PAPER-III
COMPUTER ORGANIZATION AND ARCHITECTURE

Unit-I

Top Level Organization:

Computer function, Difference between program compilation and Program Execution, Programs and Data, Data Representation, Computer Organization: Registers and Memory, Computer Arithmetic: Integer and Floating point arithmetic, Instructions, Machine instructions, Types of operands, Instruction Types, Instruction format, Instruction Execution, A Simple Machine instruction cycle, Instructions Mnemonics and Syntax, Instruction set, Addressing Mode, Type of Addressing Mode.

Unit-II

Internal Organization and Design:

Instruction Set Architecture, Architecture Space, Architecture Examples, Binary Arithmetic, ALU Design, Overflow, Floating Point Arithmetic, Processor Design: Introduction, Simple Design, Multi Cycle Approach, Processor Design Micro programmed Control, Processor Design Exception Handling, Processor Activities, Controller Design: Micro programmed and Hardwired, Typical Micro Instructions, Micro-Operations, Hardwired Implementation, Micro programmed Control: Microinstruction Sequencing, Microinstruction execution, Application of Microprogramming.

Unit-III

Classification and Uni-processor Architecture:

Classification of Computer, Flynn's Classification, Classification of computer on the basis of speed, size, capacity, generation etc., Types of Parallel Computer, Pipeline technique, Different Types of Pipelining, Instruction Pipeline, RISC & CISC Pipeline, Pipeline hazards, Vector Processing, Array Processor.

Unit-IV

Memory Organization:

Memory Hierarchy: Basic Idea, Main Memory: RAM & ROM chip, Auxillary Memory, Advanced DRAM Organization, Cache Memory: Cache Memory Principles, Elements of Cache Design, Cache operation, Cache Organization, Pentium 4 and PowerPC Cache Organization, Type of Cache Coherence, Virtual Memory: Basic Idea, Theory, Implementation of Virtual Memory.

Unit-V

I/O Organization and Multi-Processor Architecture

External Devices, I/O Modules, Input / Output Subsystem: Introduction, Interfaces and buses, I/O Operations, Designing I/O Systems, Programmed I/O , Interrupt Driven I/O , OMA : Direct Memory Access, Device Service Routines, Input-Output Processor, Tightly Coupled MIMD Architecture: Shared Memory and Message Passing Architecture with examples.

Text Books: 1. Computer System Architecture, M. Morris Mano, PHI Pearson Edu.
2. Computer Organization, C Hamacher, Z Vranesic, SafwatZaky, McGraw Hill.
3. Computer Architecture and Organization, J. P. Hayes, Tata McGraw-Hill.

Reference Books: 1. Structured Computer Organization, A. S. Tanenbaum, Pearson Edu.
2. Fundamentals of Computer Organization, P. Dandamudi , Springer.
3. Computer Organization and Architecture, William Stallings, Pearson/PHI.
4. Computer Organization and Design ,D.A.Paterson & John L. Hennessy, Elsevier.
5. Computer Architecture and Organization, M. Murdoccaand V. Heuring, Wiley India.

PAPER-IV
SOFTWARE ENGINEERING

UNIT I

Software Process Models:

The Evolving role of Software, Software - The changing Nature of Software, Legacy software, A generic view of process, layered Technology, Process Framework, The Capability Maturity Model Integration (CMMI), Process Assessment, Personal and Team Process Models, Product and Process, Process Models, Waterfall Model, Incremental Process Model, RAD Model, Evolutionary Process Models, Prototyping, Spiral Model, Concurrent Development Model, Specialized Process Models, Unified Process.

UNIT II

Requirement Engineering:

Software Engineering Practice, communication Practice, Planning practice Modelling practice, Construction Practice, Deployment. Requirements Engineering, Requirements Engineering tasks, initiating the requirements Engineering Process- Eliciting Requirements Developing Use cases, Building the Analysis Models, Elements of the Analysis Model, Analysis pattern, Negotiating Requirements, Validating Requirements.

Unit III

Analysis Modelling:

Requirements Analysis, Analysis Modelling approaches, data modelling concepts, Object oriented Analysis, Scenario based modelling, Flow oriented Modelling, Class based modelling, creating a behavior model.

Unit IV

Design & Testing:

Design Engineering, Design process, Design Quality, Design model, User interface Design Testing strategies, Testing Tactics, strategies Issues for conventional and object oriented software, validation testing, system testing, Art of debugging, Project management

Unit V

Quality & Maintenance:

Software evolution, Verification and Validation, Critical Systems Validation, Metrics for Process, Project and Product, Quality Management, Process Improvement, Risk Management Configuration Management, Software Cost Estimation

Text Books:

1. Fundamentals of Software Engineering, Rajib Mall, PHI Learning Pvt. Ltd.
2. Software Engineering, Ian Sommerville, Pearson Education Inc., New Delhi.
3. Software Engineering: A Practitioner's Approach, Roger S. Pressman, Tata McGraw-Hill
4. Software Project Management, Walker Royce, Pearson Education.

Reference Books:

1. Software Engineering, Shari L, Joanne M. Atlee, Pearson Education, Inc. New Delhi.
2. Software Engineering, Pankaj Jalote, Wiley India Pvt. Ltd., New Delhi.
3. Software Engineering, Dines Bjørner, Springer India Pvt. Ltd., New Delhi.

PAPER-V
INTRODUCTION TO RDBMS (ORACLE)

UNIT-I

Overview of database management system

Database, Definition of DBMS, Purpose of Database System, Data abstraction, Instances and Schema, Data Independence, Data administration roles, Different kinds of DBMS users, Data Dictionary, Data base languages- DDL, DML, DCL Data Models The Relational approach, The Network approach, The Hierarchical approach, DBMS storage structure and access method.

UNIT-II

Entity-relationship model:

Entity - Relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; Concept of keys: candidate key, primary key, alternate key, foreign key; Strong and weak entities, Case studies of ER modelling Generalization; specialization and aggregation. Converting an ER model into relational Schema.

UNIT-III

Structured Query Language Relational Algebra

Select, project, cross product different types of joins (inner join, outer joins, self join); set operations, Simple and complex queries using relational algebra. Integrity constraints: Not null, unique, check, primary key, foreign key.

UNIT-IV

Relational Database Design

Normalization concept in logical model; Pitfalls in database design, update anomalies: Functional dependencies, Join dependencies, Normal forms (1NF, 2NF, 3NF). Boyce Code Normal form, Decomposition, Multi-Valued Dependencies, 4NF, 5NF.

UNIT-V

INTRODUCTION TO ORACLE

Introduction to Commercial database query language, SQL & its environment. SQL as a data definition language- creating tables, altering tables, drop tables. SQL as data manipulation language- Inserting, Deleting, Retrieving and updating data in a table. SQL as query language. Introduction to SQL constructs (SELECT ... FROM, WHERE ... GROUP BY ... HAVING ... ORDERBY ...) Temporary tables, Nested queries

Text Books:

1. Fundamentals of Database Systems, R Elmasri & S B. Navathe, Pearson Education.
2. Database Systems Concepts, A Silberschatz, H F. Korth & S. Sudarshan, McGraw-Hill.
3. Fundamentals of Database Management Systems, Mark L. Gillenson, Wiley India Pvt.
4. Introduction To Database Systems, C.J.Date, Longman, Pearson Education

Reference Books:

1. Database Systems: A Complete Book, Molina, Ullman, J. Widom, Pearson Education.
2. Database Systems: Design, Implementation, and Management, Peter Rob & Carlos Coronel, CENGAGE Learning India Pvt. Ltd., New Delhi.
3. Database Systems Using Oracle, Nilesh Shah, PHI Learning Pvt. Ltd., New Delhi.
4. Database Management Systems, R Ramakrishnan, J Gehrke, McGraw-Hill Education
5. Database Development and Management, Lee Chao, Auerbach Publications.

PAPER-VI
WEB TECHNOLOGY

Unit-I
Introduction
Introduction to web, protocols governing the web, web development strategies, Web applications, Introduction to Web Publishing: Introduction, Domain Name Registration, choosing a web host and signing up for an Account, web hosting, web design and development, Testing web site, uploading web pages.

Unit-II
HTML
Introduction, Basic formatting tags: heading, paragraph, line break, bold, italic, underline, superscript, subscript, font and image. Different attributes like align, colour bgcolor, font face, border, size. Navigation Links using anchor tag: internal, external, mail and image links, Link to different web pages and sections. Lists: ordered, unordered and definition, Table tag, HTML Form controls: form, text, password, text area, button, checkbox, radio button, select box, hidden controls, Frameset and frames

Unit-III
Cascading Style Sheet (CSS) and JAVA Script
Usefulness of Style Sheets, Creating Style sheets, Classes and Pseudo Classes, CSS Tags, Background, Font, Text, Position etc.
JavaScript: Overview, Syntax & Conventions, Variables, Expression, Branching & Looping, Function, Array, Objects, Events & Document Object model, Alerts, prompts and conforms.

Unit-IV
PHP
Introduction to PHP, Server side scripting, Role of Web Server software, including files, comments, variables and scope, echo and print, Operators: Logical, Comparison and Conditional operators, Branching statements, Loops, break and continue PHP functions. Passing information between pages, HTTP GET and POST method, String functions: strlen, strops, strstr, strcmp, substr, str_replace, string case, Array constructs: array(),list() and foreach(), PHP advanced functions: Header , Session, Cookie, Object Oriented Programming using PHP: class, object, constructor, destructor and inheritance.

Unit-V
MySQL
Features of MySQL, data types, Introduction to SQL commands-SELECT, DELETE, UPDATE, INSERT, PHP functions for MySQL operations: mysql_connect, mysql_select_db, mysql_query, mysql_fetch_row, mysql_fetch_array, mysql_fetch_object, mysql_result, Insertion and Deletion of data using PHP, Displaying data from MYSQL in webpage.

Text Book:

1. Xavier, C, "Web Technology and Design", New Age International.
2. Ivan Bayross, "HTML, DHTML, Java Script, Perl & CGI", BPB Publication.
3. Ramesh Bangia, "Internet and Web Design", New Age International.
4. Ullman, "PHP for the Web: Visual Quick Start Guide", Pearson Education.
5. Jim Converse & Joyce Park, "PHP & MySQL Bible", Wiley India Publication "Internet and Internet Engineering", Daniel Minoli, TMH.
6. Chuckmusiano & Bill Kenndy, O Reilly, HTML The Definite Guide"
7. Joseph Schmuller, Dynamic HTML, BPB, 2000.

PAPER-VII
NUMERICAL ANALYSIS

UNIT-I

Algebric Equations

Solution of Polynomial and Transcendental Algebraic Equations: Bisection method, Regulafalsi method & Newton's method, Solution of Cubic & Biquadrate Equation, Complex roots of polynomial equations.

UNIT- II

Simultaneous Equations

Simultaneous Equations and Matrix, Gauss-Jordan method, Cholesky's method, Reduction to lower or upper Triangular forms, Inversion of matrix, method of partitioning, Characteristics equation of matrix, Power methods, Eigen values of matrix, Transformation to diagonal forms.

UNIT - III

Curve-Fitting

Curve-Fitting from Observed Data Divided difference table for evenly or unevenly spaced data, polynomial curve-fitting - Newton's, Gauss and Languages form of interpolation and Divided Differences, method of least square for polynomials,.

UNIT - IV

Numerical Differentiation and Integration

Numerical Differentiation and Integration, Forward and Backward differential operators, Newton - cotes integration formula: Trapezoidal Rule, Simpson's Rule, Boole's Rule, Weddle Rule, Legendre's rule, method of weighted coefficients.

UNIT - V

Solution of Differential Equations

Solution of Differential Equations, Numerical Solution of ordinary differential equations, one step method, Taylor's Series, Predictor- Corrector Method, Euler's Method, Runga-Kutta Method, Milne's method.

Text Books:

1. Garewal B.S., "Numerical methods", Khanna Publication.
2. Gupta & Mallic, "Numerical Methods", Krishna Prakashan.
3. Hamming R.W., "Numerical Methods for scientist & Engineers", McGraw Hill.
4. Conle S.D., "Elementary numerical analysis Carl De Boor", International Book Company London.
5. Jain M.K., "Numerical methods for Science and Engineering" Iyengar S.R.K. Calculations (John Willey & Sons).

LAB-I
RDBMS & WEB TECHNOLOGY
Practical as per syllabi of theoretical paper.

The break-up of marks for Third Year Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Lab Record	15	
2.	Viva-voce	20	
3.	Program Development and Execution	40	
	Total Marks	75	25

BCA PART-III
LAB-II
Minor Project

The break-up of marks for Project will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Project Report	25	
2.	Viva-voce/ Presentation	25	
3.	Project Execution	50	
Total Marks		100	50

B.Sc.- I (BOTANY) PAPER-I

BACTERIA, VIRUSES, FUNGI, LICHENS AND ALGAE

UNIT-I

VIRUSES: General characteristics, types of viruses based on structure and genetic material. Multiplication of viruses (General account), Lytic and Lysogenic cycle. Economic importance. Structure and multiplication of Bacteriophages. General account of Viroids, Virusoids, Prions, and Cyanophages. Mycorrhiza-Types and Significance.

UNIT –II

BACTERIA: General characteristics and classification (on the basis of morphology), fine structure of bacterial cell, Gram positive and Gram negative bacteria, mode of nutrition and reproduction vegetative, asexual and recombination (Conjugation, transformation and transduction), Economic importance. Microbial Biotechnology, *Rhizobium, Azatobactor, Anabena.*

UNIT-III

FUNGI: General account of habit and habitat, structure (range of thallus organization), cell wall composition, nutrition and reproduction in fungi. Heterothallism and Parasexuality. Outlines of classification of fungi. Economic importance of fungi. Life cycles of *Saprolegnia, Albugo,, Aspergillus, Peziza, Agaricus, Ustilago, Puccinia, Alternaria and Cercospora*. VAM Fungi

UNIT-IV

ALGAE: Algae: General characters, range of thallus organization, Gaidukov phenomenon, reproduction, life cycle patterns and economic importance.Classification, Systematic position, occurrence, structure and life cycle of following genera : *Nostoc, Gloeocaspsa, Volvox,, Oedogonium, Vaucheria, Chara, Ectocarpus, Polysiphonia.*

UNIT –V

Lichens- General account, types, structure, nutrition, reproduction and economic importance. Mycoplasma: Structure and importance. Blue Green Algae (BGA) in nitrogen economy of soil and reclamation of Ushar land.Mushroom Biotechnology

Books Recommended:

Dubey R.C. and Maheshwari D.K. ***A text book of Microbiology,*** S. Chand Publishing, New Delhi

Presscott, L. Harley, J.and Klein, D. ***Microbiology***, 7th edition, Tata Mc Graw-Hill Co.New Delhi.

Sharma P.D., ***Microbiology and Plant pathology,*** Rastogi Publication. New Delhi.

Alexopolous, C.J. Mims, C.W. and Blackwell, MM. ***Introduction to Mycology,*** John Wiley & Sons.

Dubey H.C. ***An Introduction to Fungi,*** Vikas Publishing, New Delhi

Mehrotra R.S. & Agrawal A., ***Plant Pathology,*** Tata McGraw, New Delhi

Sharma P.D. ***Plant Pathology***, Rastogi Publishers, Meruth.

Sristava, H.N. ***Fungi***, Pradeep Publications, Jalandhar

Webster, J. & Weber, R. ***Introduction to Fungi***, Cambridge University Press, Cambridge

Kumar H.D. ***Introduction to phycology***, Aff. East-west Press, New Delhi

Lee RE, ***Phycology***, Cambridge University Press U.K.

Srivastava, H.N., ***Algae***, Pradeep Publications, Jalandhar

Pandey S.K. Quick ***Concept of Botany***, Lambert Academic publishing, Germany

Pandey S.N., Mishra S,P. & Trivedi P.S. ***A Text Book of Botany*** (Vol.-I), Vikas Publishing, New Delhi

Singh, Pandey and Jain, ***A Text book of Botany,*** Rastogi Publication, Meerut.

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(Mr. Shivakant Mishra)

(Mr Sudheer Tiwari)

Govt. Bilasa Girls College, Bilaspur

B.Sc.-I (BOTANY) PAPER –II

(BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY)

UNIT –I

BRYOPHYTA: General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in *Riccia, Marchantia, Pellia, Anthoceros, Funaria.* Vegetative reproduction in Bryophytes, Evolution of sporophytes.

UNIT-II

PTERIDOPHYTES: General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy, Telome theory, *Azolla* as Biofertilizer.

UNIT-III

Systematic position, occurrence. Morphology, anatomy and reproductive structure of *Psilotum, Lycopodium, selaginella, Equisetum, Marsilea.*

UNIT-IV

Gymnosperm: General characteristics, affinities, economic importance and classification, Morphology, anatomy and reproduction in *Cycas, Pinus* and *Ephedra.*

UNIT-V

PALAEOBOTANY: Geological time scale, types of fossils and fossilization, Rhynia, study of some fossil gymnosperms. *Lygenopteris*

Books Recommended:

Parihar, N.S. ***The Biology and Morphology of Pteridophytes,*** Central Book Depot, Allahabad.

Parihar,N.S. ***An introduction to Bryophyta Vol.I:Bryophytes*** Central Book Depot, Allahabad.

Sambamurty,AVSS, ***A textbook of Bryophytes, Pteridophytes, Gymnosperms and Palaeobotany***, IK International Publishers.

Pandey SN, Mishra SP and Trivedi PS ***A text Book of Botany (Vol.II)***, Vikas Publishing, New Delhi

Bhatanagar, SP and Moitra, A. ***Gymnosperm***, New Age International (P) Ltd., Publishers, New Delhi

Biswas C. and Johri BM, ***The Gymnosperms***, Springer-Verlag, Germany.

Srivastava, HN, ***Palaeobotany***, Pradeep Publications Jalandhar

Srivastava, HN, Bryophyta, Pradeep Publications Jalandhar

Singh, Pandey and Jain, ***A Text Book of Botany***, Rastogi Publication, Meerut

Sristava, HN, ***Fundamentals of Pteridophytes,*** Pradeep Publications, Jalandhar

B.Sc. I (BOTANY)

PRACTICAL

Study of external (Morphorgical) and internal (microscopic/anatomical) features of representative gerera given in the theory.

1. Algae: Gloeocapsa, Scytonema, Gloeotrichia, Volvox, Oedogonium, Vaucheria, Chara, Ectocarpus, Sargassum, Batrachosperrmum
2. Gram staining
3. Fungi: Albugo, Aspergillus, Peziza, Agaricus, Puccinia, Alternaria and Cercospora
4. Bryophyta: Riccia, Marchantia, Pellia, Anthoceros, Sphagnum, Funaria
5. Pteridophyta: Lycopodium, Selaginella, Equsetum, Marsilea.
6. Gymnosperm: Cycas, Pinus, Epherda.

PRACTICAL SCHEME

TIME: 4 Hrs. **M.M. : 50**

1.	Algae/Fungi/Gram Staining	10
2.	Bryophyta/Pteridophyta	10
3.	Gymnosperm	10
4.	Spotting	10
5.	Viva-Voce	05
6.	Sessional	05



(Dr. J.N. Verma) (Dr. Rekha Pimpalgaonkar) (Dr.Ranjana Shristava)

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Raipur, (C.G.) Raipur, (C.G.) Raipur, (C.G.)

(Mrs. Sanchal Moghe) (Mr. Shivakant Mishra) (Mr Sudheer Tiwari)

Govt. Bilasa Girls College, Bilaspur

Zoology
B.Sc. Part I 2018-19
Paper I
(Cell Biology and Non-chordata)

Unit:I

1. The cell (Prokaryotic and Eukaryotic)
2. Organization of Cell: Extra-nuclear and nuclear
   Plasma membrane, Mitochondria, Endoplasmic reticulum, Golgi body, Ribosome and Lysosome).
3. Nucleus, Chromosomes, DNA and RNA

Unit:II

1. Cell division (Mitosis and Meiosis).
2. An elementary idea of Cancer cells And Cell transformation.
3. An elementary idea of Immunity: Innate & Acquired Immunity, Lymphoid organs, Cells of Immune System, Antigen, antibody and their interactions

Unit:III

- General characters and classification of Phylum Protozoa, Porifera, and Coelenterata up to order.

2. Protozoa: Type study - Paramecium,
2. Porifera: Type study - Sycon.
3. Coelenterata: Type study - Obelia

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Unit: IV

- General characters and classification of Phylum Platyhelminthes, Nemathelminthes, Annelida and Arthropoda up to order.

2. Platyhelminthes and Nemathelminthes: Type Study – Fasciola, Ascaris
3. Annelida: Type Study - Pheretima.
4. Arthropoda: Type Study - Palaemone.

Unit:V

- General characters and classification of Phylum Mollusca and Echinodermata up to order.

2. Mollusca: Type Study - Pila.
3. Echinodermata- Type Study- Asterias (Starfish).

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Zoology
B.Sc. Part I 2018-19
Paper II
(Chordata and Embryology)

Unit:I

1. Classification of Hemichordata
2. Hemichordata- Type study-Balanoglossus
3. Classification of Chordates upto orders..
4. Protochordata-Type study - Amphioxus.
5. A comparative account of Petromyzon and Myxine.

Unit-II

1. Fishes-Skin & Scales, migration in fishes, Parental care in fish.
2. Amphibia-Parental care and Neoteny.
3. Reptilia- Poisonous & Non-poisonous Snakes, Poison apparatus, snake venom and Extinct Reptiles

Unit-:III

1. Birds- Flight Adaptation, Migration, and Perching mechanism, Discuss-Birds are glorified reptiles.
2. Mammals-Comparative account of Prototheria, Metatheria, Eutheria and Affinities.
3. Aquatic Mammals and their adaptations.

Unit:IV

1. **Fertilization**
2. Gametogenesis, Structure of gamete and Typesof eggs
3. Cleavage
4. Development of Frog up to formation of three germ layers.
5. Parthenogenesis

Unit:V

1. Embryonic induction, Differentiation and Regeneration.
2. Development of Chick (a) up to formation of three germ layers, (2) Extra-embryonic membranes.
3. Placenta in mammals.

Zoology
B.Sc. Part I 2018-19
Practical

The practical work will, in general be based on the syllabus prescribed in theory and the candidates will be required to show knowledge of the following:-

- Dissection of Earthworm, Cockroach, Palaemon and Pila
- Minor dissection—appendages of Prawn & hastate plate, mouth parts of insects, radulla of Pila.

(Alternative methods: By Clay/Thermacol/drawing/Model etc.)

- Adaptive characters of Aquatic, terrestrial, aerial and desert animals.
- Museum specimen invertebrate
- Slides- Invertebrates, frog embryology, Chick embryology and cytology,

Scheme of Practical Exam	**Time: 3hrs**
1. Major Dissection	10 Marks
2. Minor Dissection	05 Marks
3. Comments on Excersice based on Adaptation	04 Marks
4. Cytological Preparation	05 Marks
5. Spots-8 (Slides-4, Specimens-4)	16 Marks
6. Sessional	10 Marks

B.Sc.-I

BIOTECHNOLOGY

PAPER – I

BIOCHEMISTRY, BIOSTASTICS AND COMPUTERS

UNIT-I

1. Introduction to Biochemistry: History, Scope and Development.
2. Carbohydrates: Classification, Structure and Function of Mono, Oligo and Polysaccharides.
3. Lipids: Structure, Classification and Function.

UNIT –II

1. Amino acids and Proteins: Classification, Structure and Properties of amino acids, Types of Proteins and their Classification and Function.
2. Enzymes: Nomenclature and Classification of enzyme, Mechanism of enzyme action, Enzyme Kinetics and Factors affecting the enzymes action. Immobilization of enzyme and their application.

UNIT –III

1. Hormones: Plant Hormone-Auxin and Gibberellins and Animal Hormone-Pancreas and Thyroid.
2. Carbohydrates, Proteins and Lipid Metabolism - Glycolysis, Glycogenesis, Glyconeogenesis, Glycogenolysis and Krebs cycle. Electron Transport Chain and β-oxidation of Fatty acids.

UNIT-IV

1. Scope of Biostatistics, Samples and Population concept, Collection of data-sampling techniques, Processing and Presentation of data.
2. Measures of Central Tendency: Mean, Median and Mode and Standard Deviation.
3. Probability Calculation: Definition of probability, Theorem on total and compound probability.

UNIT-V

1. Computers - General introduction, Organization of computer, Digital and Analogue Computers and Computer Algorithm.
2. Concept of Hardware and Software, Input and Output Devices.
3. Application of computer in co-ordination of solute concentration, pH and Temperature etc., of a Fermenter in operation and Internet application.

List of Books

1. Nelson and Cox (2005) Principles of Biochemistry, Fourth Edition
2. Todd and Howards Mason (2004) Text book of Biochemistry, Fourth Edition
3. Lubert Stryer and Berg ((2004) Biochemistry, Fifth Edition
4. Diana Rain, Marni Ayers Barby - (2006) Textbook on Q level Programming. 4th Edition.
5. Karl Schwartz: (2006) Guide of Micro Soft. Marina Raod, 4th Edition.
6. E Balaguruswamy by Programming in BASIC (1991).
7. RC Campbell by Statistics for Biologists. .
8. P Cassel et al by Inside Microsoft Office,
9. Statistical Methods, GW Snedecor and WG Cochran.
10. AC Wardlaw by Practical Statistics for Experimental Biologists,
11. JHZar by Bio-statistical analysis
12. RR Sokal FJ Rohlf by Introduction to Biostatistics
13. L Y Kun (2003) Microbial Biotechnology: Principles and applications
14. Khan and Khanum (1994) Fundamental of Biostastics

B.Sc.-I

BIOTECHNOLOGY

PAPER–II

CELL BIOLOGY, GENETICS AND MICROBIOLOGY

UNIT-I

1. Concept of life, Cell as a basic unit of living system and Cell theory.
2. Diversity of Cell shape and size.
3. Prokaryotic cell structure: Function and ultra structure of cell (Gram positive and Gram negative Bacteria), Plasma membrane, Flagella, Pilli, Endospore and Capsule.
4. Eukaryotic cell: Plant cell wall and Plasma membrane.

UNIT-II

1. Cytoplasm: Structure and Functions of Endoplasmic reticulum, Ribosome, Golgi complex, Lysosomes, Nucleus, Mitochondria and Chloroplast.
2. Cytoskeleton: Microtubules, Microfilaments and Intermediate filaments.
3. Cell division: Mitosis and Meiosis.
4. Programmed Cell Death.

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UNIT-III

1. Mendel's Laws of Inheritance.
2. Linkage and Crossing over.
3. Chromosome variation in number and structure: Deletion, Duplication, Translocation, Inversion and Aneuploidy, Euploidy (Monoploidy and Polyploidy and its importance).

UNIT-IV

1. History, Scope and Development of Microbiology.
2. Basic techniques of Microbial Culture
3. Microbial Growth & Nutrition of Bacteria: Isolation, media sterilization- physical and chemical agents, pure culture-pour plate method, streak plate method and spread plate method.
4. General features and Economic importance of Fungi, Algae and Protozoa etc.

UNIT-V

1. Bacterial Reproduction: Conjugation, Transduction and Transformation.
2. Mycoplasma – History, Classification, Structure reproduction & Diseases.
3. Viruses – Basic features, Structure, Classification, Multiplication, Bacteriophages (Morphology, life cycle, infection and medicinal importance)

List of Books

1. C.B. Power- Cell biology, First Edition (2005), Himalaya Publishing House.
2. Gereld Karp - Dell and molecular biology, 4th Edition (2005)
3. P.K. Gupta - Cell and molecular biology, Second Edition (2003), Restogi publications.
4. C.B., Oowar - Cell biology, Third Edition (2005) Himalaya Publishing Hosue.
5. S.S. Purohit - Microbiology : Fundamentals and Applications, 6th Edition (2004)
6. R.C. Dubey and D.K. Maheshwari: Practical Microbiology. S.Chand Publication.
7. R.C. Dubey and D.K. Maheshwari,Microbiology (2006). S.Chand Publication.
8. Tortora, Funke and Case - Microbiology, An introduction, sixth Edition (1995), Benjamin/Cummings Publishing Company.
9. Prescott, Harlyey and Klein - Microbiology, Third Edition, Wm. C. Brown Publishers (1996).
10. P. Chakraoborthy - Textbook of microbiology, Second Edition (2007).
11. Prescott, Harley and Klein - Microbiology. Third Edition. Wm. C. Brown.
12. Microbial Genetics, David Freifelder, John F Cronan, Stanley R Maloy, Jones and Bartlett Publishers.
13. Elements of Human Genetics. I.I. cavalla-Sfoeza, WA Benjamin Advanced Book Program.
14. S.K Jadhav and P.K. Mahish (2018) Prayogtmak Jaivprodyogiki awam Sukshmjivigyan- Chhattisgarh Hindi Granth Academy, Raipur.

List of Practical's

MICROBIOLOGY AND BIOCHEMICAL TECHNIQUES

(1) Laboratory rules, Tools, Equipment and Other requirements in Microbiological laboratory.

(2) Micrometry – Use of ocular & stage Micrometrer.

(3) Counting of bacteria by counting chamber, by plate count.

(4)Preparation of media and cultivation techniques:
- (a) Basic liquid media (broth)
- (b) Basic Solid media, (agar slants and deep tubes)
- (c) Demonstration of selective and differential media
- (d) Isolation and enumeration of micro organisms
- (e) Isolation from air and Soil

(5)Smears and staining methods:
- (a) Preparation of bacterial smear
- (b) Gram Negative & Positive staining

(6)Methods of obtaining pure cultures
- (a) Streak plate method
- (b) Pure plate method
- (c) Spread plate method
- (d) Broth cultures

(7)Growth & Biochemical techniques
- (a) Determination of bacterial growth curve
- (b) Amylase production test
- (c) Cellulose production test
- (d) Estimation of Sugar in given solution
- (e) Extraction and separation of lipids
- (f) Estimation of proteins
- (h) Mitosis and Meiosis

(8)Biostatistics:
- (a) By Manual and by computer.
- (b) Problems on mean, mode and median.

SCHEME OF PRACTICAL EXAMINATION

Time – 4 hrs. **M. M.: 50**

1. Experiment based on culture of micro-organisms	15 Marks
2. Bacterial growth/Staining techniques	10 Marks
3. Biochemical techniques	05 Marks
4. Bio statistics	05 Marks
5. Spotting	05 Marks
6. *Viva – Voce*	05 Marks
7. Record/Sessional	05 Marks

NEW CURRICULUM OF B.Sc. PART I

CHEMISTRY

The new currlculam will comprise of Three theory papers of 33, 33 and 34 marks each and practical work of 50 marks. The curricuram is to be completed in 180 working days as per the UGC norms & conforming to the directives of the Govt. of Chhattisgarh.The theory papers are of 60 hrs each duration and the practical work of 180 hrs duration.

PAPER I

INORGANIC CHEMISTRY

M.M.33

UNIT-I

A. ATOMIC STRUCTURE

Bohr's theory, its limitation and atomic spectrum of hydrogen atom. General idea of de-Broglie matter-waves, Heisenberg uncertainty principle, Schrödinger wave equation, significance of Ψ and Ψ^2, radial & angular wave functions and probability distribution curves, quantum numbers, Atomic orbital and shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's Multiplicity rule, electronic configuration of the elements.

B. PERIODIC PROPERTIES

Detailed discussion of the following periodic properties of the elements, with reference to s and p-block. Trends in periodic table and applications in predicting and explaining the chemical behavior.

a) Atomic and ionic radii,
b) Ionization enthalpy,
c) Electron gain enthalpy,
d) Electronegativity, Pauling's, Mulliken's, Allred Rochow's scales.
e) Effective nuclear charge, shielding or screening effect, Slater rules, variation of effective nuclear charge in periodic table.

UNIT-II

CHEMICAL BONDING I

Ionic bond: Ionic Solids - Ionic structures, radius ratio & co-ordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy Born- Haber cycle, Solvation

energy and solubility of ionic solids, polarising power & polarisabilitry of ions, Fajans rule, Ionic character in covalent compounds: Bond moment and dipole moment, Percentage ionic character from dipole moment and electronegatiity difference, Metallic bond-free electron, Valence bond & band theories.

UNIT-III

CHEMICALBONDING II

Covalent bond: Lewis structure, Valence bond theory and its limitations, Concept of hybridization, Energetics of hybridization, equivalent and non-equivalent hybrid orbitals. Valence shell electron pair repulsion theory (VSEPR), shapes of the following simple molecules and ions containing lone pairs and bond pairs of electrons: H_2O, NH_3, PCl_3, PCl_5, SF_6. H_3O^+, SF_4, ClF_3, and ICl_2^- Molecular orbital theory. Bond order and bond strength, Molecular orbital diagrams of diatomic and simple polyatomic molecules N_2, O_2, F_2, CO, NO.

UNIT-IV

A. s-BLOCK ELEMENTS

General concepts on group relationships and gradation properties, Comparative study, salient features of hydrides, solvation & complexation tendencies including their function in biosystems and introduction to alkyl & aryls, Derivatives of alkali and alkaline earth metals

B. p-BLOCK ELEMENTS

General concepts on group relationships and gradation properties. Halides, hydrides, oxides and oxyacids of Boron, Aluminum, Nitrogen and Phosphorus. Boranes, borazines, fullerenes, graphene and silicates, interhalogens and pseudohalogens.

UNIT-V

A CHEMISTRY OF NOBLE GASES

Chemical properties of the noble gases, chemistry of xenon, structure, bonding in xenon compounds

B. THEORETICAL PRINCIPLES IN QUALITATIVE ANALYSIS (H_2S SCHEME)

Basic principles involved in the analysis of cations and anions and solubility products, common ion effect. Principles involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

REFERENCE BOOKS:

1. Lee, J. D. Concise Inorganic Chemistry ELBS, 1991.
2. Douglas, B.E. and McDaniel, D.H. Concepts & Models of Inorganic Chemistry Oxford, 1970
3. Atkins, P.W. & Paula, J. Physical Chemistry, 10th Ed., Oxford University Press, 2014.
4. Day, M.C. and Selbin, J. Theoretical Inorganic Chemistry, ACS Publications, 1962.
5. Rodger, G.E. Inorganic and Solid State Chemistry, Cengage Learning India Edition, 2002.
6. Puri, B. R., Sharma, L. R. and Kalia, K. C., Principles of Inorganic Chemistry, Milestone Publishers/ Vishal Publishing Co.; 33rd Edition 2016
7. Madan, R. D. Modern Inorganic Chemistry, S Chand Publishing, 1987.

PAPER: II

ORGANIC CHEMISTRY

UNIT-I BASICS OF ORGANIC CHEMISTRY

Hybridization, Shapes of molecules, Influence of hybridization on bond properties. Electronic Displacements: Inductive, electromeric, resonance and mesomeric effects, hyperconjugation and their applications; Dipole moment. Electrophiles and Nucleophiles; Nucleophilicity and basicity; Homolytic and Heterolytic cleavage, Generation, shape and relative stability of Carbocations, Carbanions, Free radicals, Carbenes and Nitrenes. Introduction to types of organic reactions: Addition, Elimination and Substitution reactions.

UNIT-II INTRODUCTION TO STEREOCHEMISTRY

Optical Isomerism: Optical Activity, Specific Rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral-centres, Diastereoisomers, meso compounds, Relative and absolute configuration: Fischer, Newmann and Sawhorse Projection formulae and their interconversions; Erythrose and threose, D/L, d/l system of nomenclature, Cahn-Ingold-Prelog system of nomenclature (C.I.P rules), R/S nomenclature. Geometrical isomerism: cis–trans, syn-anti and E/Z notations.

UNIT-III CONFORMATIONAL ANALYSIS OF ALKANES

Conformational analysis of alkanes, ethane, butane, cyclohexane and sugars. Relative stability and Energy diagrams. Types of cycloalkanes and their relative stability, Baeyer strain theory: Theory of strainless rings, Chair, Boat and Twist boat conformation of cyclohexane with energy diagrams; Relative stability of mono-substituted cycloalkanes and disubstituted cyclohexane.

UNIT-IV CHEMISTRY OF ALIPHATIC HYDROCARBONS

A. Carbon-Carbon sigma (σ) bonds

Chemistry of alkanes: Formation of alkanes, Wurtz Reaction, Wurtz-Fittig Reaction, Free radical substitutions: Halogenation-relative reactivity and selectivity.

B. Carbon-Carbon Pi (л) bonds:

Formation of alkenes and alkynes by elimination reactions, Mechanism of E1, E2, E1cb reactions. Saytzeff and Hofmann eliminations.

Reactions of alkenes: Electrophilic additions and mechanisms (Markownikoff/ Anti - Markownikoff addition), mechanism of oxymercuration-demercuration, hydroboration-oxidation, ozonolysis, reduction (catalytic and chemical), syn and anti-hydroxylation (oxidation). 1,2-and 1,4-addition reactions in conjugated dienes and, Diels-Alder reaction; Allylic and benzylic bromination and mechanism, e.g. propene, 1-butene, toluene, ethyl benzene.

Reactions of alkynes: Acidity, Electrophilic and Nucleophilic additions. Hydration to form carbonyl compounds, Alkylation of terminal alkynes.

UNIT-V AROMATIC HYDROCARBONS

Aromaticity: Hückel's rule, aromatic character of arenes, cyclic carbocations/ carbanions and heterocyclic compounds with suitable examples. Electrophilic aromatic substitution: halogenation, nitration, sulphonation and Friedel-Craft's alkylation/acylation with their mechanism. Directive effects of the groups.

REFERENCE BOOKS:

1. Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd.(Pearson Education).
2. Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
3. Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
4. Eliel, E. L. &Wilen, S. H. Stereochemistry of Organic Compounds, Wiley: London, 1994.

5. Kalsi, P. S. Stereochemistry Conformation and Mechanism, New Age International, 2005.
6. McMurry, J.E. Fundamentals of Organic Chemistry, 7th Ed. Cengage Learning India Edition, 2013.
7. Organic Chemistry, Paula Y. Bruice, 2nd Edition, Prentice-Hall, International Edition (1998).
8. A Guide Book of Reaction Mechanism by Peter Sykes.

PAPER - III

PHYSICAL CHEMISTRY M.M.34

UNIT-I

MATHEMATICAL CONCEPTS FOR CHEMIST

Basic Mathematical Concepts: Logarithmic relations, curve sketching, linear graphs, Properties of straight line, slope and intercept, Functions, Differentiation of functions, maxima and minima; integrals; ordinary differential equations; vectors and matrices; determinants; Permutation and combination and probability theory, Significant figures and their applications.

UNIT-II

GASEOUS STATE CHEMISTRY

Kinetic molecular model of a gas: postulates and derivation of the kinetic gas equation; collision frequency; collision diameter; mean free path; Maxwell distribution and its use in evaluating molecular velocities (average, root mean square and most probable) and average kinetic energy, law of equipartition of energy, degrees of freedom and molecular basis of heat capacities. Joule Thompson effect, Liquification of Gases.

Behaviour of real gases: Deviations from ideal gas behaviour, compressibility factor (Z), and its variation with pressure and temperature for different gases. Causes of deviation from ideal behaviour. van der Waals equation of state, its derivation and application in explaining real gas behaviour, calculation of Boyle temperature. Isotherms of real gases and their comparison with van der Waals isotherms, continuity of states, critical state, relation between critical constants and van der Waals constants, law of corresponding states.

UNIT-III

A. LIQUID STATE CHEMISTRY

Intermolecular forces, magnitude of intermolecular force, structure of liquids, Properties of liquids, viscosity and surface tension.

B. COLLOIDS and SURFACE CHEMISTRY

Classification, Optical, Kinetic and Electrical Properties of colloids, Coagulation, Hardy Schulze law, flocculation value, Protection, Gold number, Emulsion, micelles and types, Gel, Syneresis and thixotrophy, Application of colloids.

Physical adsorption, chemisorption, adsorption isotherms (Langmuir and Freundlich). Nature of adsorbed state. Qualitative discussion of BET.

UNIT-IV

SOLID STATE CHEMISTRY

Nature of the solid state, law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry, symmetry elements and symmetry operations, qualitative idea of point and space groups, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, a simple account of rotating crystal method and powder pattern method. Crystal defects.

UNIT-V

A. CHEMICAL KINETICS

Rate of reaction, Factors influencing rate of reaction, rate law, rate constant, Order and molecularity of reactions, rate determining step, Zero, First and Second order reactions, Rate and Rate Law, methods of determining order of reaction, Chain reactions.

Temperature dependence of reaction rate, Arrhenius theory, Physical significance of Activation energy, collision theory, demerits of collision theory, non mathematical concept of transition state theory.

B. CATALYSIS

Homogeneous and Heterogeneous Catalysis, types of catalyst, characteristic of catalyst, Enzyme catatysed reactions, Micellar catatysed reactions, Industrial applications of Catalysis.

REFERENCE BOOKS:

1. Atkins, P. W. & Paula, J. de Atkin's Physical Chemistry 10th Ed., Oxford University Press (2014).

2. Ball, D. W. Physical Chemistry Thomson Press, India (2007).
3. Castellan, G. W. Physical Chemistry 4th Ed. Narosa (2004).
4. Mortimer, R. G. Physical Chemistry 3rd Ed. Elsevier: NOIDA, UP (2009).
5. Engel, T. & Reid, P. Physical Chemistry 3rd Ed. Pearson (2013).
6. Puri, B.R., Sharma, L. R. and Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co., 47th Ed. (2016).
7. Bahl, A., Bahl, B.S. and Tuli, G.D. Essentials of Physical Chemistry, S Chand Publishers (2010).
8. Rakshit P.C., Physical Chemistry, Sarat Book House Ed. (2014).
9. Singh B., Mathematics for Chemist, Pragati Publications.

PAPER - IV
LABOBATORY COURSE

INORGANIC CHEMISTRY

A. Semi-micro qualitative analysis (using H_2S or other methods) of mixtures - not more than four ionic species (two anions and two cations, excluding interfering, insoluble salts) out of the following:
Cations : NH_4^+, Pb^{2+}, Bi^{3+}, Cu^{2+}, Cd^{2+}, Fe^{3+}, Al^{3+}, Co^{2+}, Ni^{2+}, Mn^{2+}, Zn^{2+}, Ba^{2+}, Sr^{2+}, Ca^{2+}, Na^+
Anions : CO_3^{2-} , S^{2-}, SO_3^{2-}, $S_2O_3^{2-}$, NO_2^-, CH_3COO^-, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-}

(Spot tests may be carried out wherever feasible)

B. Acid-Base Titrations

- Standardization of sodium hydroxide by oxalic acid solution.
- Determination of strength of HCl solution using sodium hydroxide as intermediate.
- Estimation of carbonate and hydroxide present together in mixture.
- Estimation of carbonate and bicarbonate present together in a mixture.
- Estimation of free alkali present in different soaps/detergents

C. Redox Titrations

- Standardization of $KMnO_4$ by oxalic acid solution.
- Estimation of Fe(II) using standardized $KMnO_4$ solution.
- Estimation of oxalic acid and sodium oxalate in a given mixture.
- Estimation of Fe(II) with $K_2Cr_2O_7$ using internal (diphenylamine, anthranilic acid) and external indicator.

D. Iodo / Iodimetric Titrations

- Estimation of Cu(II) and $K_2Cr_2O_7$ using sodium thiosulphate solution iodimetrically.
- Estimation of (a) arsenite and (b) antimony iodimetrically.

- Estimation of available chlorine in bleaching powder iodometrically.
- Estimation of Copper and Iron in mixture by standard solution of $K_2Cr_2O_7$ using sodium thiosulphate solution as titrants.

ORGANIC CHEMISTRY

1. Demonstration of laboratory Glasswares and Equipments.
2. Calibration of the thermometer. 80°–82° (Naphthalene), 113.5°–114° (Acetanilide), 132.5°-133° (Urea), 100° (Distilled Water).)
3. Purification of organic compounds by crystallization using different solvents.
    - Phthalic acid from hot water (using fluted filter paper and stemless funnel).
    - Acetanilide from boiling water.
    - Naphthalene from ethanol.
    - Benzoic acid from water.
4. Determination of the melting points of organic compounds.

    Naphthalene 80°–82°, Benzoic acid 121.5°–122°, Urea 132.5°–133° Succinic acid 184.5°–185°, Cinnamic acid 132.5°–133°, Salicylic acid 157.5°–158°, Acetanilide 113.5°–114°, m-Dinitrobenzene 90°, p-Dichlorobenzene 52°, Aspirin 135°.
5. Effect of impurities on the melting point – mixed melting point of two unknown organic compounds.
    - Urea – Cinnamic acid mixture of various compositions (1:4, 1:1, 4:1).
6. Determination of boiling point of liquid compounds. (boiling point lower than and more than 100 °C by distillation and capillary method).
    - Ethanol 78°, Cyclohexane 81.4°, Toluene 110.6°, Benzene 80°.

i. Distillation (Demonstration)
    - Simple distillation of ethanol-water mixture using water condenser.
    - Distillation of nitrobenzene and aniline using air condenser.

ii. Sublimation
    - Camphor, Naphthalene, Phthalic acid and Succinic acid.

iii. Decolorisation and crystallization using charcoal.
    - Decolorisation of brown sugar with animal charcoal using gravity filtrations crystallization and decolorisation of impure naphthalene (100 g of naphthalene mixed with 0.3 g of Congo red using 1 g of decolorizing carbon) from ethanol.

7. Qualitative Analysis

Detection of elements (N, S and halogens) and functional groups (Phenolic, Carboxylic, CarbonyI, Esters, Carbohydrates, Amines, Amides, Nitro and Anilide) in simple organic compounds.

PHYSICAL CHEMISTRY

1. Surface tension measurements.
    - Determine the surface tension by (i) drop number (ii) drop weight method.
    - Surface tension composition curve for a binary liquid mixture.
2. Viscosity measurement using Ostwald's viscometer.
    - Determination of viscosity of aqueous solutions of (i) sugar (ii) ethanol at room temperature.
    - Study of the variation of viscosity of sucrose solution with the concentration of solute.
    - Viscosity Composition curve for a binary liquid mixture.
3. Chemical Kinetics
    - To determine the specific rate of hydrolysis of methyl/ethyl acetate catalysed by hydrogen ions at room temperature.
    - To study the effect of acid strength on the hydrolysis of an ester.
    - To compare the strengths of HCl & H_2SO_4 by studying the kinetics of hydrolysis of ethyl acetate.
4. Colloids
    - To prepare colloidal solution of silver nanoparticles (reduction method) and other metal nanoparticles using capping agents.

Note: Experiments may be added/ deleted subject to availability of time and facilities

PRACTICAL EXAMINATION

05 Hrs.
M.M. 50

Three experiments are to be performed

1. Inorganic Mixture Analysis, four radicals two basic & two acid (excluding insoluble, Interfering & combination of acid radicals) OR Two Titrations (Acid-Bases,Redox and Iodo/Iodimetry)

12 marks

2. Detection of functional group in the given organic compound and determine its MPt/BPt.

8 marks

O R
Crystallization of any one compound as given in the prospectus along with the determination of mixed MPt.
O R
Decolorisation of brown sugar along with sublimation of camphor/ Naphthlene.

3. Any one physical experiment that can be completed in two hours including calculations.

14 marks

4. Viva **10 marks**
5. Sessionals **06 marks**

In case of Ex-Students two marks will be added to each of the experiments

REFERENCE TEXT:

1. Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.
2. Ahluwalia, V. K., Dhingra, S. and Gulati, A. College practical Chemistry, University Press.
3. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
4. Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)
5. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011).
6. Garland, C. W.; Nibler, J. W. & Shoemaker, D. P. Experiments in Physical Chemistry 8th Ed.; McGraw-Hill: New York (2003).
7. Halpern, A. M. & McBane, G. C. Experimental Physical Chemistry 3rd Ed.; W.H. Freeman & Co.: New York (2003).

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Syllabus

B.Sc. Part I

ELECTRONICS

Paper-I

ELB-101: NETWORK ANALYSIS AND ANALOGELECTRONICS

Theory: **Maximum Marks 50**

Unit-1

Basic Circuit Concepts: Voltage and Current Sources, Review of Resistors, Inductors, Capacitors. Circuit Analysis: Kirchhoff's Current Law (KCL), Kirchhoff's Voltage Law (KVL),

AC Circuit Analysis: Sinusoidal Voltage and Current, Definition of Instantaneous, Peak,Peak to Peak, Root Mean Square and Average Values. AC applied to Series RC and RL circuits: Impedance of series RC & RL circuits.AC applied to Series and parallel RLC circuit, Series and Parallel Resonance, condition for Resonance, Resonant Frequency, Bandwidth, and significance of Quality Factor (Q).

Passive Filters: Low Pass, High Pass.

Network Theorems: Principal of Duality, Superposition Theorem, Thevenin's Theorem,Norton's Theorem, Reciprocity Theorem, Millman's Theorem, Maximum Power Transfer Theorem. AC circuit analysis using Network theorems.

Unit-2

Junction Diode and its applications: PN junction diode (Ideal and practical)-constructions, Formation of Depletion Layer, Diode Equation and I-V characteristics. Idea of static and dynamic resistance, dc load line analysis, Quiescent (Q) point. Zener diode, Reverse saturation current, Zener and avalanche breakdown. Rectifiers- Half wave rectifier, Full wave rectifiers (center tapped and bridge), circuit diagrams, working and waveforms, ripple factor and efficiency. Filter-Shunt capacitor filter, its role in power supply, output waveform, and working. Regulation- Line and load regulation, Zener diode as voltage regulator, and explanationfor load and line regulation.

Unit-3

Bipolar Junction Transistor: CE, CB Characteristics and regions of operation, Transistor biasing, DC load line, operating point, thermal runaway, idea about stability and stability factor. Voltage divider bias, circuit diagrams and their working.

Field Effect Transistors: JFET, Construction, Working and Characteristics. MOSFET, Construction, Working and Characteristics.

Power Devices: UJT, Construction, Working and Characteristics. SCR, Diac, Triac, Construction, Working and Characteristics and Applications.

Unit-4

Amplifiers: Transistor biasing and Stabilization circuits- Fixed Bias and VoltageDivider Bias. Thermal runaway, stability and stability factor S. Transistor as a two port network, h-parameter equivalent circuit. Small signal analysis of single stage CE amplifier. Input and Output impedance, Current and Voltage gains. Class A, B and CAmplifiers.

Cascaded Amplifiers: Two stage RC Coupled Amplifier and its Frequency Response.

Unit-5

Feedback in Amplifiers: Concept of feedback, negative and positive feedback, advantages of negative feedback (Qualitative only).

Sinusoidal Oscillators: Barkhausen criterion for sustained oscillations. Phase shift,Weins bridge, Crystal andColpitt's oscillator. Determination of Frequency and Condition of oscillation.

Reference Books:

[1] Electric Circuits, S. A. Nasar, Schaum's outline series, Tata McGraw Hill (2004)

[2] Electrical Circuits, M. Nahvi& J. Edminister, Schaum's Outline Series, Tata McGraw-Hill (2005)

[3] Electrical Circuits, K.A. Smith and R.E. Alley, 2014, Cambridge University Press

[4] Network, Lines and Fields, J.D.Ryder, Prentice Hall of India.

[5] Electronic Devices and Circuits, David A. Bell, 5th Edition 2015, Oxford University Press.

[6] Electronic Circuits: Discrete and Integrated, D.L. Schilling and C. Belove, Tata McGraw Hill

[7] Electrical Circuit Analysis, Mahadevan and Chitra, PHI Learning

[8] Microelectronic circuits, A.S. Sedra, K.C. Smith, A.N. Chandorkar, 2014, 6thEdn., Oxford University Press.

[9] J. Millman and C. C. Halkias, Integrated Electronics, Tata McGraw Hill (2001)

[10] J. J. Cathey, 2000 Solved Problems in Electronics, Schaum's outline Series, Tata McGraw Hill (1991)

Paper- II

ELB-102: LINEAR AND DIGITAL INTEGRATEDCIRCUITS

Theory: **Maximum Marks 50**

Unit-1

Operational Amplifiers (Black box approach): Characteristics of an Ideal andPractical Operational Amplifier (IC 741), Open and closed loop configuration, Frequency Response. CMRR. Slew Rate and concept of Virtual Ground.

Applications of Op-Amps: (1) Inverting and non-inverting amplifiers, (2) Summingand Difference Amplifier, (3) Differentiator, (4) Integrator, (5) Wein bridge oscillator, (6) Comparator and Zero-crossing detector, and (7) Active low pass and high pass, Butterworth filter (1^{st} order only).

Unit-2

Number System and Codes: Decimal, Binary, Octal and Hexadecimal number systems,base conversions. Representation of signed and unsigned numbers, BCD code. Binary, octal and hexadecimal arithmetic; addition, subtraction by 2's complement method, multiplication.

Logic Gates and Boolean algebra: Truth Tables of OR, AND, NOT, NOR, NAND,XOR, XNOR, Universal Gates, Basic postulates and fundamental theorems of Boolean algebra.

Unit-3

Combinational Logic Analysis and Design: Standard representation of logic functions (SOP and POS), Minimization Techniques (Karnaugh map minimization up to 4 variables for SOP).Arithmetic Circuits: Binary Addition. Half and Full Adder.Half and Full Subtractor, 4-bit binary Adder/Subtractor.

Data processing circuits: Multiplexers, De-multiplexers, Decoders, Encoders. Clock and Timer (IC 555): Introduction, Block diagram of IC 555, Astable and Monostablemultivibrator circuits.

Unit-4

Sequential Circuits: SR, D, and JK Flip-Flops. Clocked (Level and Edge Triggered)Flip-Flops. Preset and Clear operations. Race-around conditions in JK Flip-Flop.Master-slave JK Flip-Flop.

Shift registers: Serial-in-Serial-out, Serial-in-Parallel-out, Parallel-in-Serial-out and Parallel-in-Parallel-out Shift Registers (only up to 4 bits).

Counters (4 bits): Ring Counter. Asynchronous counters, Decade Counter Synchronous Counter.

Unit-5

D-A and A-D Conversion: 4 bit binary weighted and R-2R D-A converters, circuit and working, Accuracy and Resolution. A-D conversion characteristics, successive approximation ADC. (Mention of relevant ICs for all).

Reference Books:

[1] OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4th edition, 2000, Prentice Hall

[2] Operational Amplifiers and Linear ICs, David A. Bell, 3rd Edition, 2011, Oxford University Press.

[3] Digital Principles and Applications, A.P. Malvino, D.P.Leach and Saha, 7th Ed., 2011, Tata McGraw

[4] Fundamentals of Digital Circuits, Anand Kumar, 2nd Edn, 2009, PHI Learning Pvt. Ltd.

[5] Digital Circuits and systems, Venugopal, 2011, Tata McGraw Hill.

[6] Digital Systems: Principles & Applications, R.J.Tocci, N.S.Widmer, 2001, PHI Learning.

[7] Thomas L. Flyod, Digital Fundamentals, Pearson Education Asia (1994)

[8] R. L. Tokheim, Digital Principles, Schaum's Outline Series, Tata McGraw- Hill (1994)

ELECTRONICS LABORATORY

ELB 103P: NETWORK ANALYSIS AND ANALOG ELECTRONICS LAB

(Hardware and Circuit Simulation Software) **Max.Marks:25**

The scheme of practical examination will be as follows-

Experiment	**--**	**30**
Viva	**--**	**10**
Sessional	**--**	**10**
Total	**--**	**50**

AT LEAST 06 EXPERIMENTS FROM THE FOLLOWING BESIDES #1

1. To familiarize with basic electronic components (R, C, L, diodes, transistors), digital Multimeter, Function Generator and Oscilloscope.
2. Measurement of Amplitude, Frequency & Phase difference using Oscilloscope.
3. Verification of (a) Thevenin's theorem and (b) Norton's theorem.
4. Verification of (a) Superposition Theorem and (b) Reciprocity Theorem.
5. Verification of the Maximum Power Transfer Theorem.
6. Study of the I-V Characteristics of (a) p-n junction Diode, and (b) Zener diode.
7. Study of (a) Half wave rectifier and (b) Full wave rectifier (FWR).
8. Study the effect of (a) C- filter and (b) Zener regulator on the output of FWR.
9. Study of the I-V Characteristics of UJT and design relaxation oscillator..
10. Study of the output and transfer I-V characteristics of common source JFET.
11. Study of Fixed Bias and Voltage divider bias configuration for CE transistor.
12. Design of a Single Stage CE amplifier of given gain.
13. Study of the RC Phase Shift Oscillator.
14. Study the Colpitt`s oscillator.

Reference Books:

1. Electrical Circuits, M. Nahvi and J. Edminister, Schaum's Outline Series, Tata McGraw-Hill (2005)
2. Networks, Lines and Fields, J.D.Ryder, Prentice Hall of India.
3. J. Millman and C. C. Halkias, Integrated Electronics, Tata McGraw Hill (2001)
4. Allen Mottershead, Electronic Devices and Circuits, Goodyear Publishing Corporation.

ELECTRONICS LAB

ELB 104P: LINEAR AND DIGITAL INTEGRATED CIRCUITS LAB

Max.Marks:25

At least 04 experiments each from section A, B and C

Section-A: Op-Amp. Circuits (Hardware)

1. To design an inverting amplifier using Op-amp (741,351)for dc voltage of given gain
2. (a) To design inverting amplifier using Op-amp (741,351) & study its frequency response
   (b) To design non-inverting amplifier using Op-amp (741,351) & study frequency response
3. (a) To add two dc voltages using Op-amp in inverting and non-inverting mode
   (b) To study the zero-crossing detector and comparator.
4. To design a precision Differential amplifier of given I/O specification using Op-amp.
5. To investigate the use of an op-amp as an Integrator.
6. To investigate the use of an op-amp as a Differentiator.
7. To design a Wien bridge oscillator for given frequency using an op-amp.
8. To design a circuit to simulate the solution of simultaneous equation and $1^{st}/2^{nd}$order differential equation.
9. Design a Butterworth Low Pass active Filter (1^{st} order) & study Frequency Response
10. Design a Butterworth High Pass active Filter (1^{st} order) & study Frequency Response
11. Design a digital to analog converter (DAC) of given specifications.

Section-B: Digital circuits (Hardware)

1. (a) To design a combinational logic system for a specified Truth Table.
   (b) To convert Boolean expression into logic circuit & design it using logic gate ICs.
   (c) To minimize a given logic circuit.
2. Half Adder and Full Adder.
3. Half Subtractor and Full Subtractor.
4. 4 bit binary adder and adder-subtractor using Full adder IC.
5. To design a seven segment decoder.
6. To design an AstableMultivibrator of given specification using IC 555 Timer.
7. To design a MonostableMultivibrator of given specification using IC 555 Timer.
8. To build Flip-Flop (RS, Clocked RS, D-type and JK) circuits using NAND gates.
9. To build JK Master-slave flip-flop using Flip-Flop ICs
10. To build a Counter using D-type/JK Flip-Flop ICs and study timing diagram.
11. To make a Shift Register (serial-in and serial-out) using D-type/JK Flip-Flop ICs.

Section-C: SPICE/MULTISIM simulations for electronic circuits and devices

1. To verify the Thevenin and Norton Theorems.
2. Design and analyze the series and parallel LCR circuits
3. Design the inverting and non-inverting amplifier using an Op-Amp of given gain
4. Design and Verification of op-amp as integrator and differentiator
5. Design the 1storder active low pass and high pass filters of given cutoff frequency
6. Design a Wein`s Bridge oscillator of given frequency.
7. Design clocked SR and JK Flip-Flop`s using NAND Gates
8. Design 4-bit asynchronous counter using Flip-Flop ICs
9. Design the CE amplifier of a given gain and its frequency response.

Reference Books

1. Digital Principles and Applications, A.P. Malvino, D.P.Leach and Saha, 7th Ed., 2011, Tata McGraw
2. OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4thedn., 2000, Prentice Hall
3. R. L. Tokheim, Digital Principles, Schaum's Outline Series, Tata McGraw- Hill (1994)
4. Digital Electronics, S.K. Mandal, 2010, 1st edition, McGraw Hill

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कक्षा / Class- B.Sc-I

Paper –I

भूगतिकी एवं भूआकृति विज्ञान

(Geodynamics & Geomorphology)

इकाई– 01 (i) भूविज्ञान एवं परिप्रेक्ष्य; सौरमण्डल में सूर्य की स्थिति ; परिमाण, आकार, संहति, घनत्व।

(ii) पृथ्वी की उत्पत्ति

(iii) पृथ्वी की आंतरिक संरचना, भूपर्पटी, प्रवार एवं क्रोड

(iv) पृथ्वी की आयुः निर्धारण की विघटनाभिक विधियॉ

(v) वायुमण्डल, जलमण्डल एवं जैवमण्डल का निर्माण एवं संगठन

इकाई– 02 (i) प्लेटविवर्तनिकी का प्रारंभिक– अध्ययन

(ii) महाद्वीपीय विस्थापन की अवधारणायें एवं सिद्धान्त

(iii) समस्थैतिकी की अवधारणायें एवं सिद्धान्त

(iv) समुद्रतल विस्तारण की साक्ष्य

(v) समुद्र, महाद्वीप एवं पर्वतों की उत्पत्ति

इकाई– 03 (i) भूकम्पः भूकम्प की पट्टियॉ, भूकम्प की तीव्रता

(ii) ज्वालामुखीः प्रकार एवं विवरण

(iii) अंतःसमुद्रीपर्वतों, चापाकार द्वीपमालाओं एवं खाइयों का उद्भव, विवरण एवं महत्व

(iv) महाद्वीपीय तटीय क्षेत्रों की विवर्तनिकी : सक्रिय तट एवं सीमांतीय द्रोणियॉ

(v) नवविवर्तनिकी : सक्रियभ्रंश, अपवाह परिवर्तन

इकाई– 04 (i) भूआकृति विज्ञान की मूलभूत धारणायें

(ii) भूआकृतिक कारक एवं शैल अपक्षय की प्रक्रियायें,

(iii) नदी के भूवैज्ञानिक कार्य एवं नदीय भूआकृतियॉ

(iv) वायु के भूवैज्ञानिक कार्य एवं वायुजनित भूआकृतियॉ

(v) हिमनदों के भूवैज्ञानिक कार्य एवं हिमनदजनित भूआकृतियॉ

इकाई– 05 (i) समुद्र के भूवैज्ञानिक कार्य एवं तटीय भूआकृतियॉ

(ii) भूमिगत जल के भूवैज्ञानिक कार्य एवं कार्स्टस्थलाकृति

(iii) ज्वालामुखीय भूआकृतियॉ

(iv) पृथ्वी का उष्माबजट एवं वैश्विक जलवायु परिवर्तन

(V) भारत का भूआकृति विभाजन

प्रायोगिक कार्य–

(1) भूआकृतिक संरचनाओं को प्रदर्शित करने वाले प्रादर्शो का अध्ययन

(2) स्थलाकृतिक मानचित्रों का अध्ययन एवं विभिन्न पैमानों पर सूचक–निर्धारण की जानकारियॉ

(3) भूआकृतिक–मानचित्रों में विभिन्न भूआकृतियों एवं प्रवाह प्रणालियों का अध्ययन

(4) भारत के रेखित–मानचित्र में मुख्य पर्वतों, झीलों एवं नदियों को अंकित करना

(5) भारत के रेखित मानचित्र में भूकम्प प्रेक्षणालयों को अंकित करना

(6) भारतीय महाद्वीपों में आये भूकम्पों का अधिकेन्द्र एवं तीव्रता को मानचित्र में अंकित करना।

(7) आकारमितिक विश्लेषण

Class- B.Sc-I

Paper –I

(Geodynamics & Geomorphology)

Unit:1

(i) Geology & it perspectives. Earth in the solar system; size, shape, mass, & density.

(ii) Origin of Earth.

(iii) Internal structure of Earth, Crust, Mantle and Core.

(iv) Age of Earth: with special emphasis on Radioactive dating.

(v) Formation & composition of Hydrosphere, & Biosphere & Atmosphere.

Unit:2

(i) Elementary idea about Plate-Tectonics.

(ii) Concept & theories of continental-drift

(iii) Concept & theories of lsostasy.

(iv) Evidences of Sea-floor spreading.

(v) Origin of oceans, continents & mountains.

Unit:3

(i) Earthquakes, Earthquake Belts, measurement of Earthquakes.

(ii) Volcanoes: Types & distribution.

(iii) Mid –oceanic- ridges, trenches & island arc; origin, distribution & importance.

(iv) Tectonic of continental margins; Active margins & marginal basins.

(v) Neo-tectonics; active faults, drainage changes.

Unit:4

(i) Fundamental concepts of Geomorphology.

(ii) Geomorphic agents & processes of rock-weathering.

(iii) Geological work of rivers; fluvial land forms.

(iv) Geological work of wind; Aeolian land forms.

(v) Geological work of Glaciers; glacial land forms.

Unit:5

(i) Geological work of oceans; coastal land forms.

(ii) Geological work of Ground water. Karst topography.

(iii) Volcanic land forms.

(iv) Earth's heat budget & global climatic changes.

(v) Physiographic divisions of India.

PRACTICALS:

(1) Study of models showing various Geomorphic features.

(2) Numbering, Indexing of topographic maps on various scales.

(3) Interpretation of various Geomorphic landforms & drainage pattern on topographic maps.

(4) Plotting of major mountain Ranges, Lakes & rivers on outline map of India.

(5) Plotting of seismic observatories on outline map of India.

(6) Plotting of epicenters & magnitude of major earthquakes of Indian subcontinents.

(7) Morphometric analysis.

Suggested Readings:-

भौतिक–भूविज्ञान	–	डॉ.मुकुल घोष–
भौतिक–भूविज्ञान	–	जे.पी. तिवारी एव ंबी.के. सिंह–
भूआकृति–विज्ञान	–	डॉ.सविन्द्र सिंह
भूविज्ञान एक परिचय	–	डॉ.विद्यासागर दुबे
Physical Geology	-	Miller
Principles of physical geology	-	A. Holmes
An introduction to physical geology-		A.K. Dutta
Principles of Geomorphology	-	W.D. Thornbury
Principles of Geomorphology	-	A.F. Ahmed

कक्षा / Class- B.Sc-I

Paper –II

खनिज एवं क्रिस्टल विज्ञान

(Mineralogy & Crystallography)

इकाई– 01
(i) खनिज एवं क्रिस्टल की परिभाषा।
(ii) क्रिस्टल संरचना एवं एकांक कोष।
(iii) क्रिस्टल के तत्व, क्रिस्टल रूप।
(iv) क्रिस्टलीय अक्ष एवं अक्षीय कोण।
(v) क्रिस्टल नोटेशन, अन्तःखण्डीय अनुपात एवं सूचकांक

इकाई– 02
(i) क्रिस्टल विज्ञान के नियम।
(ii) क्रिस्टलीय सममिति।
(iii) क्रिस्टलों का वर्गीकरण। क्रिस्टल समुदायों के सामान्यवर्ग की सममिति।
(iv) सामान्य वर्ग के रूप।
(v) क्रिस्टलों में यमलन।

इकाई– 03
(i) प्रकाश की प्रकृति, प्रकाश का परावर्तन एवं अपवर्तन।
(ii) अपवर्तनांक, क्रांतिक कोण, पूर्ण आंतरिक परावर्तन एवं बेके प्रभाव।
(iii) द्वि–अपवर्तन, निकॉल प्रिज्म की रचना एवं कार्य प्रणाली।
(iv) ध्रुवण सूक्ष्मदर्शी : अवयव एवं कार्यप्रणाली।
(v) खनिजों के प्रकाशीय गुण।

इकाई– 04
(i) सिलिकेट संरचनाएं
(ii) खनिजों में बंध।
(iii) समाकृतिकता, बहुरूपता एवं कूटरूपता।
(iv) ठोस–विलयन
(v) खनिजों के भौतिक गुण।

इकाई– 05 निम्नलिखित खनिज समूहों के संगठन, भौतिक एवं प्रकाशकीय गुणों का अध्ययन–

(i) ऑलिवीन्, गार्नेट एवं अभ्रक समूह।

(ii) पायरॉक्सीन।

(iii) एम्फीबोल।

(iv) फेल्सपार।

(v) सिलिका।

प्रायोगिक कार्य–

(1) क्रिस्टल मॉडल में सममिति तत्वों का अध्ययन।

(2) क्रिस्टल समुदायों की मूल आकृतियों का अध्ययन।

(3) यूलर प्रमेय का सत्यापन।

(4) प्रमुख शैलकर खनिजों का स्थूलदर्शी अध्ययन।

(5) ध्रुवण–सूक्ष्मदर्शी की सहायता से प्रमुख शैलकर खजिनों के प्रकाशीय गुणों का अध्ययन।

(6) सात दिवसीय भूवैज्ञानिक क्षेत्रीय अध्ययन

Class- B.Sc-I

Paper –II

(Mineralogy & Crystallography)

Unit:1

(i) Definition of Mineral and Crystal.

(ii) Crystal structures, Unit cells

(iii) Elements of crystal. Crystal forms.

(iv) Crystallographic axes and axial angles.

(v) Parameters and indices of crystal notation

Unit:2

(i) Laws of Crystallography

(ii) Crystal symmetry

(iii) Classification and symmetry of normal classes of seven crystal systems

(iv) Forms of normal classes.

(v) Twinning in crystals

Unit:3

(i) Nature of light : reflection and refraction of light.

(ii) Refractive index. Critical angles. Total internal reflection and Becke effect.

(iii) Double refraction. Nicol prism it's construction and working.

(iv) Polarizing Microscope- its parts & functions.

(v) Optical properties of minerals.

Unit:4

(i) Silicate structures.

(ii) Bonding in Minerals.

(iii) Isomorphism. Polymorphism and Pseudomorphism.

(iv) Solid solution

(v) Physical properties of minerals

Unit:5 Study of Composition, physical and optical properties of the following Mineral groups:

(i) Olivine, Garnet and Mica groups.

(ii) Pyroxenes

(iii) Amphiboles

(iv) Feldspars

(v) Silica

PRACTICALS-

(1) Study of symmetry elements in crystal models.

(2) Study of Fundamental forms of normal classes of all seven crystal system.

(3) Verification of Euler's theorem.

(4) Study of Physical properties of rock forming minerals.

(5) Study of the optical properties of important rock forming minerals using polarizing Microscopes.

(6) Geological excursion for seven days.

Suggested Readings:

Rutley's elements of Mineralogy	:	Read, H.D.
Dana's text book of Mineralogy	:	Ford W.E.
खनिज तथा क्रिस्टल विज्ञान	–	डॉ.बी.सी. जैश
खनिज विज्ञान के सिद्धांत	–	डॉ. ए.सी. अग्रवाल
प्रायोगिक भू–विज्ञान (भाग–1)	–	डॉ. र. प्र. मांजरेकर
प्रकाशीय खनिज विज्ञान के मूल तत्व	–	विंचेल

[illegible] B.Sc. Information Technology

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Practical

MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

B.Sc. Part-I
MATHEMATICS
PAPER - I
ALGEBRA AND TRIGONOMETRY

UNIT-I Elementary operations on matrices, Inverse of a matrix. Linear independence of row and column matrices, Row rank, column rank and rank of a matrix. Equivalence of column and row ranks. Eigenvalues, eigenvectors and the characteristic equations of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix.

UNIT-II Application of matrices to a system of linear (both homogeneous and nonhomogeneous) equations. Theorems on consistency of a system of linear equations. Relation between the roots and coefficients of general polynomial equations in one variable. Transformation of equations. Descarte's rule of signs. Solutions of cubic equations (Cardons method), Biquadratic equation.

UNIT-III Mappings, Equivalence relations and partitions. Congruence modulo n. Definition of a group with examples and simple properties. Subgroups, generation of groups, cyclic groups, coset decomposition, Lagrange's theorem and its consequences. Fermat's and Euler's theorems. Normal subgroups. Quotient group, Permutation groups. Even and odd permutations. The alternating groups An. Cayley's theorem.

UNIT-IV Homomorphism and Isomorphism of groups. The fundamental theorems of homomorphism. Introduction, properties and examples of rings, Subrings, Integral domain and fields Characteristic of a ring and Field.

TRIGONOMETRY :

UNIT-V De-Moivre's theorem and its applications. Direct and inverse circular and hyperbolic functions. Logarithm of a complex quantity. Expansion of trigonometrical functions. Gregory's series. Summation of series.

TEXT BOOK :

1. I.N. Herstein, Topies in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd.New Delhi, 2000.
3. Chandrika Prasad, Text-Book on Algebra and Theory of equations, Pothishala Private Ltd., Allahabad.
4. S.L. Loney, Plane Trigonometry Part II, Macmillan and Company, London.

REFERENCES :

1. P.B. Bhattacharya, S.K. Jain and S.R. Nagpaul, First Course in linear Algebra, Wiley Eastern, New Delhi, 1983.
2. P.B. Bhattacharya, S.K.Jain and S.R. Nagpaul, Basic Abstract Algebra (2 edition), Cambridge University Press, Indian Edition, 1997.
3. S.K. Jain, A. Gunawardena and P.B. Bhattacharya, Basic linear Algebra with MATLAB, Key College Publishing (Springer-Verlag), 2001.
4. H.S. Hall and S.R. Knight, Higher Algebra, H.M. Publications, 1994.
5. R.S. Verma and K.S. Shukla, Text Book on Trigonometry, Pothishala Pvt. Ltd., Allahabad.

B.Sc. Part-I

MATHEMATICS

PAPER - II

CALCULUS

DIFFERENTIAL CALCULUS :

UNIT-I $\varepsilon - \delta$ definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuties. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.

UNIT-II Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in cartesian and polar coordinates.

INTEGRAL CALCULUS:

UNIT-III Integration of transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution.

ORDINARY DIFFERENTIAL EQUATIONS :

UNIT-IV Degree and order of a differential equation. Equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for x, y, p. Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations.

UNIT-V Linear differential equations of second order. Transformation of the equation by changing the dependent variable/the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

TEXT BOOK :

1. Gorakh Prasad, Differential Calculaus, Pothishala Private Ltd. Allahabad.
2. Gorakh Prasad, Integral Calculus, Pothishala Private Ltd. Allahabad.
3. D.A. Murray Introductory Course in Differential Equations, Orient Longman (India), 1976.

REFERENCES :

1. Gabriel Klambauer, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum's outline series, Schaum Publishing Co. New York.
3. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
4. P.K. Jain and S.K. Kaushik, An Introduction to Real Analysis, S. Chand & Co. New Delhi, 2000.
5. G.F. Simmons, Differential Equations, Tata Mc Graw Hill, 1972.
6. E.A. Codington, An Introduction to Ordinary Differential Equations, Prentics Hall of India, 1961.
7. H.T.H. Piaggio, Elementary Treatise on Differential Equations and their Applications, C.B.S. Publishe & Distributors, Dehli, 1985.
8. W.E. Boyce and P.O. Diprima, Elementary Differential Equations and Boundary Value Problems, John Wiley, 1986.

12. Erwin Kreysizig, Advanced Engineering Mathematics, John Wiley and Sons, 1999.

B.Sc. Part-I

MATHEMATICS

PAPER - III

VECTOR ANALYSIS AND GEOMETRY

VECTOR ANALYSIS :

UNIT-I Scalar and vector product of three vectors. Product of four vectors. Reciprocal Vectors. Vector differentiation. Gradient, divergence and curl.

UNIT-II Vector integration. Theorems of Gauss, Green, Stokes and problems based on these.

UNIT-III General equation of second degree. Tracing of conics. System of conics. Confocal conics. Polar equation of a conic.

UNIT-IV Sphere. Cone. Cylinder.

UNIT-V Central Conicoids. Paraboloids. Plane sections of conicoids. Generating lines. Confocal Conicoids. Reduction of second degree equations.

TEXT BOOKS :

1. N. Saran and S.N. Nigam, Introduction to vector Analysis, Pothishala Pvt. Ltd. Allahabad.
2. Gorakh Prasad and H.C. Gupta, Text Book on Coordinate Geometry, Pothishala Pvt. Ltd., Allahabad.
3. R.J.T. Bell, Elementary Treatise on Coordinate Geometry of three dimensions, Machmillan India Ltd. 1994.

REFERENCES :

1. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Company, New York.
2. Murray R. Spiegel, Vector Analysis, Schaum Publishing Company, New York.
3. Erwin Kreysizig, Advanced Engineering Mathematics, John Wiley & Sons, 1999.
4. Shanti Narayan, A Text Book of Vector Calculus, S. Chand & Co., New Delhi.
5. S.L. Loney, The Elements of Coordinate Geometry, Macmillan and Company, london.
6. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of two Dimensions, Wiley Eastern Ltd., 1994.
7. P.K. Jain and Khalil Ahmad, A Text Book of Analytical Geometry of three Dimensions, Wiley Eastern Ltd., 1999.
8. N. Saran and R.S. Gupta, Analytical Geometry of three Dimensions, Pothishala Pvt. Ltd. Allahabad.

MICROBIOLOGY

BSc-1st

Paper- I: General Microbiology & Basic Technique

UNIT-1: Fundamental, History & Developments

Introduction to major groups of microorganisms and fields of Microbiology; Historical development, Contributions of Pioneers (Louis Pasteur, Edward Jenner, Anton Von Leewenhoeck and Alexander Flemming). Beneficial and harmful microbes and its role in daily life.

UNIT-2: Basic Microbial Techniques

Methods of studying microorganism; Sterilization Techniques (Physical & Chemical Sterilization). Pure culture isolation Technique: Streaking,Waksman serial dilution and plating methods. cultivation, maintenance and preservation of pure cultures. Culture media & conditions for microbial growth. Staining technique: simple staining, Differential (gram staining), negative staining and acid fast staining.

UNIT-3: Virology & Bacteriology

Diversity of microbial world; Principle and classification of Viruses and Bacteria. Structure, Multiplication and Economic importance of viruses (TMV, Influenza virus & T_4-Phage). Structure & Functional organization of Bacteria, Cell wall of Gram Positive & **G**ram Negative bacteria; Economic importance of Bacteria.

UNIT-4: Mycology

General characteristics and classification of Fungi; Structure and Reproduction of fungi (*Rhizopus, Penicillium, Aspergillus, Yeast & Agaricus*). Common fungal disease of crops (Late & Early blight of potato, Smut of Rice, Tikka and Red rot of Sugarcane). Structure, reproduction and economic aspect of Lichens.

UNIT-5: Phycology & Protozoology

General characteristics and classification of Algae and Protozoa; General account & economic importance of Cyanobacteria (*Microcystis, Ocillitoria, Nostoc & Anabaena)* and Protozoa *(Amoeba, Paramoecium, Euglena and plasmodium).*

Text Books Recommended:

1. General microbiology; Vol I & II, Powar C. B. and Daginawala H. I., Himalaypub.house, Bombay.
2. A textbook of Microbiology; Dubey &Maheshwari.
3. Microbiology: An Introduction; G. Tor tora, B. Funke, C. Benjamin Cummings.
4. General Microbiology; Seventh edition by Hans G Schlegel, CambridgeUniversity Press.
5. Practical Microbiology; Dubey and Maheshwari.
6. Handbook of Microbiology; Bisen P.S., Varma K., CBS Publishers and Distributors, Delhi. General Microbiology by Brock.
7. General Microbiology by Pelzar et al.
8. Introduction on Microbial Techniques by Gunasekaran.

Paper- II: Biochemistry and Physiology

UNIT-1: CARBOHYDRATES AND PROTEINS

Structure, classification and properties of Carbohydrates – Monosaccharide, Oligosaccharides (Disaccharides) and Polysaccharides. Structure, classification and properties of Protein - Amino acids, peptides and Proteins (Primary, Secondary, Tertiary and Quaternary structure).

UNIT-2: LIPIDS AND NUCLEIC ACIDS

Structure, classification and properties of Lipids; Saturated and Unsaturated fatty acids. Structure and properties of Nucleotides. Structure and forms of DNA; Replication of DNA. Types, Structure and Function of RNA.

UNIT-3: ENZYMES

Structure, Nomenclature, Classification and Properties of Enzymes. Mechanism of enzyme action, Enzyme kinetic: Michaelis-Menten. Equation & derivation, Enzyme inhibition, Lineweaver-Burk Plot (LB plot). Co-enzymes and their role; Allosteric enzymes and Isoenzyme. Extracellular enzymes and their role.

UNIT-4: MICROBIAL METABOLISM

Bacterial photosynthesis and Chemosynthesis: Glycolysis, TCA cycle and Oxidative Phosphorylation. Anaerobic catabolism of glucose; Fat Biosynthesis,alpha and beta oxidation of fatty acids. Deamination, trasns-amination and Urea cycle.

UNIT-5: GROWTH PHYSIOLOGY & TRANSPORT SYSTEM

Bacterial cell division, Genome replication and Growth Phases, Conditions for growth. Plasma membrane & Transport system, types of transport (Passive and active). Diffusion (simple & facilitated), Concept of Uniport, Antiport and Symport;

Text Books Recommended:

1. General Biochemistry by A.C. Deb.
2. Biochemistry by Lehninger (Kalyani publication)
3. Biochemistry by U. Satyanarayan.
4. Microbiology by Anantanarayan and Panikar.
5. Fundamentals of Biochemistry; J L Jain, Sunjay Jain, Nitin Jain; S. Chand & Company Ltd
6. Practical Biochemistry: Principles and Techniques; *5th Edition*; Keith Wilson and John Walker
7. Biophysical Biochemistry: Principles and Techniques; AvinashUpadhyay, KakoliUpadhyay and Nirmalendu Nath; Himalaya Publishing House.

PRACTICAL

M. M. 50

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Basic information about autoclave, hot air oven, laminar air flow and other laboratory instruments
Preparation of solid/liquid culture media.
Isolation of single colonies on solid media.
Enumeration of bacterial numbers by serial dilution and plating.
Simple and differential staining.
Measurement of microorganism (micrometry) and camera Lucida drawing of isolated organism.
Determination of bacterial growth by optical density measurement.
General and specific qualitative test for carbohydrates
General and specific qualitative test for amino acids
General and specific qualitative test for lipids
Estimation of protein
Estimation of blood glucose
Assay of the activity of amylases
Assay of the activity of Phosphates

Scheme of Practical Examination

Time - 4 hours M.M. 50

1. Exercise on Microbiological methods	10
2. Exercise on Biochemical tests	10
3. Exercise on staining method	05
4. Spotting (1-5)	10
5. Viva-Voce	05
6. Sessional	10
Total	50

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B.Sc. Part-I

Paper-I

MECHANICS, OSCILLATIONS AND PROPERTIES OF MATTER

(Paper code 0793)

Unit- 1 Cartesian, Cylindrical and Spherical coordinate system, Inertial and non-inertial frames of reference, uniformly rotating frame, Coriolis force and its applications. Motion under a central force, Kepler's laws. Effect of Centrifugal and Coriolis forces due to earth's rotation, Center of mass (C.M.), Lab and C.M. frame of reference, motion of C.M. of system of particles subject to external forces, elastic, and inelastic collisions in one and two dimensions, Scattering angle in the laboratory frame of reference, Conservation of linear and angular momentum, Conservation of energy.

Unit-2 Rigid body motion, rotational motion, moments of inertia and their products, principal moments & axes, introductory idea of Euler's equations. Potential well and Periodic Oscillations, case of harmonic small oscillations, differential equation and its solution, kinetic and potential energy, examples of simple harmonic oscillations: spring and mass system, simple and compound pendulum, torsional pendulum.

Unit-3 Bifilar oscillations, Helmholtz resonator, LC circuit, vibrations of a magnet, oscillations of two masses connected by a spring. Superposition of two simple harmonic motions of the same frequency, Lissajous figures, damped harmonic oscillator, case of different frequencies. Power dissipation, quality factor, examples, driven (forced) harmonic oscillator, transient and steady states, power absorption, resonance.

Unit-4 E as an accelerating field, electron gun, case of discharge tube, linear accelerator, E as deflecting field- CRO sensitivity, Transverse B field, 180^{o} deflection, mass spectrograph, curvatures of tracks for energy determination, principle of a cyclotron. Mutually perpendicular E and B fields: velocity selector, its resolution. Parallel E and B fields, positive ray parabolas, discovery of isotopes, elements of mass spectrography, principle of magnetic focusing lens.

Unit-5 Elasticity: Strain and stress, elastic limit, Hooke's law, Modulus of rigidity, Poisson's ratio, Bulk modulus, relation connecting different elastic- constants, twisting couple of a cylinder (solid and hallow), Bending moment, Cantilever, Young modulus by bending of beam.

Viscosity: Poiseulle's equation of liquid flow through a narrow tube, equations of continuity. Euler's equation, Bernoulli's theorem, viscous fluids, streamline and turbulent flow. Poiseulle's law, Coefficient of viscosity, Stoke's law, Surface tension and molecular interpretation of surface tension, Surface energy, Angle of contact, wetting.

TEXT AND REFERENCE BOOKS:

1. E M Purcell, Ed Berkely physics course, vol. Mechanics (Mc. Gr. Hill) R P Feynman.
2. R B Lighton and M Sands, the Feynman lectures in physics, vol I (B) publications, Bombay, Delhi, Calcutta, Madras.
3. D P Khandelwal, Oscillations and waves (Himalaya Publishing House Bombay).
4. R. K. Ghosh, The Mathematics of waves and vibrations (Macmillan 1975).
5. J.C. Upadhyaya- Mechanics (Hindi and English Edition.)
6. D.S. Mathur- Mechanics and properties of matter.
7. Brijlal and Subramanium- Oscillations and waves. Resnick and Halliday- Volume I
8. Physics Part –1: Resnick and Halliday.

Paper-II

ELECTRICITY, MAGNETISM AND ELECTROMAGNETIC THEORY

Unit-1 Repeated integrals of a function of more than one variable, definition of a double and triple integral. Gradient of a scalar field and its geometrical interpretation, divergence and curl of a vector field, and their geometrical interpretation, line, surface and volume integrals, flux of a vector field. Gauss's divergence theorem, Green's theorem and Stoke's theorem and their physical significance. Kirchoff's law, Ideal Constant-voltage and Constant-current Sources. Thevenin theorem, Norton theorem, Superposition theorem, Reciprocity theorem and Maximum Power Transfer theorem.

Unit-2 Coulomb's law in vacuum expressed in Vector forms, calculations of E for simple distributions of charges at rest, dipole and quadrupole fields. Work done on a charge in a electrostatic field expressed as a line integral, conservative nature of the electrostatic field. Relation between Electric potential and Electric field, torque on a dipole in a uniform electric field and its energy, flux of the electric field.

Gauss's law and its application: E due to (1) an Infinite Line of Charge, (2) a Charged Cylindrical Conductor, (3) an Infinite Sheet of Charge and Two Parallel Charged Sheets, capacitors, electrostatic field energy, force per unit area of the surface of a conductor in an electric field, conducting sphere in a uniform electric field.

Unit-3 Dielectric constant, Polar and Non Polar dielectrics, Dielectrics and Gauss's Law, Dielectric Polarization, Electric Polarization vector P, Electric displacement vector D. Relation between three electric vectors, Dielectric susceptibility and permittivity, Polarizability and mechanism of Polarization, Lorentz local field, Clausius Mossotti equation, Debye equation,

Ferroelectric and Paraelectric dielectrics, Steady current, current density J, non-steady currents and continuity equation, rise and decay of current in LR, CR and LCR circuits, decay constants, AC circuits, complex numbers and their applications in solving AC circuit problems, complex impedance and reactance, series and parallel resonance, Q factor, power consumed by an a AC circuit, power factor.

Unit-4 Magnetization Current and magnetization vector M, three magnetic vectors and their relationship, Magnetic permeability and susceptibility, Diamagnetic, paramagnetic and ferromagnetic substances. B.H. Curve, cycle of magnetization and hysteresis, Hysteresis loss.

Biot-Savart's Law and its applications: B due to (1) a Straight Current Carrying Conductor and (2) Current Loop. Current Loop as a Magnetic Dipole and its Dipole Moment (Analogy with Electric Dipole). Ampere's Circuital law (Integral and Differential Forms).

Unit-5 Electromagnetic induction, Faraday's law, electromotive force, integral and differential forms of Faraday's law Mutual and self inductance, Transformers, energy in a static magnetic field. Maxwell's displacement current, Maxwell's equations, electromagnetic field energy density. The wave equation satisfied by E and B, plane electromagnetic waves in vacuum, Poynting's vector.

TEXT AND REFERENCE BOOKS:

1. Berkeley Physics Course, Electricity and Magnetism, Ed. E.M. Purcell (Mc Graw - Hill).
2. Halliday and Resnik, Physics, Vol. 2.
3. D J Grifith, Introduction to Electrodynamics (Prentice-Hall of India).
4. Raitz and Milford, Electricity and Magnetism (Addison-Wesley).
5. A S Mahajan and A A Rangwala, Electricity and Magnetism (Tata Mc Graw-hill).
6. A M Portis, Electromagnetic fields.
7. Pugh & Pugh, Principles of Electricity and Magnetism (Addison-Wesley).
8. Panofsky and Phillips, Classical Electricity and Magnetism, (India Book House).
9. S S Atwood, Electricity and Magnetism (Dover).

PRACTICALS

Minimum 16 (Eight from each group)

Experiments out of the following or similar experiments of equal standard

GROUP-A

1. Study of laws of parallel and perpendicular axes for moment of inertia.
2. Moment of inertia of Fly wheel.
3. Moment of inertia of irregular bodies by inertia table.
4. Study of conservation of momentum in two dimensional oscillations.
5. Study of a compound pendulum.
6. Study of damping of a bar pendulum under various mechanics.
7. Study of oscillations under a bifilar suspension.
8. Study of modulus of rigidity by Maxwell's needle.
9. Determination of Y, k, η by Searl's apparatus.
10. To study the oscillation of a rubber band and hence to draw a potential energy curve from it.
11. Study of oscillation of a mass under different combinations of springs.
12. Study of torsion of wire (static and dynamic method).
13. Poisson's ratio of rubber tube.
14. Study of bending of a cantilever or a beam.
15. Study of flow of liquids through capillaries.
16. Determination of surface tension of a liquid.
17. Study of viscosity of a fluid by different methods.

GROUP-B

1. Use of a vibration magnetometer to study a field.
2. Study of magnetic field B due to a current.
3. Measurement of low resistance by Carey-Foster bridge.
4. Measurement of inductance using impedance at different frequencies.
5. Study of decay of currents in LR and RC circuits.
6. Response curve for LCR circuit and response frequency and quality factor.
7. Study of waveforms using cathode-ray oscilloscope.
8. Characteristics of a choke and Measurement of inductance.
9. Study of Lorentz force.
10. Study of discrete and continuous LC transmission line.
11. Elementary FORTRAN programs, Flowcharts and their interpretation.
18. To find the product of two matrices.
19. Numerical solution of equation of motion.
20. To find the roots of quadratic equation.

TEXT AND REFERENCE BOOKs:

1. B saraf et al Mechanical Systems(Vikas publishing House,New Delhi).
2. D.P. khandelwal, A Laboratory Manual of Physics for Undergraduate classes (Vani Publication House,New Delhi).
3. C G Lambe Elements of statistics (Longmans Green and Co London New York, Tprpnto).
4. C Dixon, Numerical analysis.
5. S Lipsdutz and A Poe, schaum's outline of theory and problems of programming with Fortran (MC Graw-Hill Book Company, Singapore 1986).

B.A./B.Sc. –I
Subject-Statistics
Paper – I (Paper Code-0803)
PROBABILITY THEORY

Unit-I
Important concepts in probability: Random experiment: trial, sample point and sample space, event, Operations of events, concepts of mutually exclusive and exhaustive events. Definition of probability: classical and relative frequency approach. Richard Von Misses, Cramer and Kolmogrove approachesto probability, merits and demerits to these approaches, any general idea to be given. Discrete probability space, Properties of probability based on axiomatic approaches, Independence of events, Conditional probability, total and compound probability rules, Baye's theorem and its applications.

Unit-II
Random variables: Definition of discrete random variable (rv); probability mass function (pmf) and cumulative distribution function (cdf). Joint pmf of several discrete rvs. Marginal and conditional pmfs. Independence of rvs. Idea of continuous random variables, probability density function, illustration of random variables and its properties. Expectation of a random variable and its properties -moments, measures of location and dispersion, skewness and kurtosis, Moment generating function, raw and central moments, Probability generating function (pgf) and, their properties and uses.

Unit-III
Standard univariate discrete distributions: degenerate, discrete uniform, hypergeometric, Poisson, geometric and negative binomial distributions. Marginal and conditional distributions, Distributions of functions of discrete rvs, reproductive property of standard distributions.

Unit-IV
Univariate continuous distributions and their properties: Uniform, Beta, Gamma, Exponential, Normal, Cauchy, Lognormal. Moment generating function (mgf) : its properties and applications.
Tchebycheff's inequality and applications, statements and applications of weak law of large numbers and central limit theorems.

Unit-V
Four short notes, one from each unit will be asked. Students have to answer any two.

REFERENCES

1. Bhat B.R.,Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
2.Chung, K.L. (1979). Elementary Probability Theory with Stochastic Processes, Springer International Student Edition.
3. Edward P.J., Ford J.S. and Lin (1974): Probability for Statistical Decision-Marketing. Prentice Hall
4. Goon A.M., Gupta M.K. and Dasgupta B.(1999): Fundamentals of Statistics, Vol. I , World Press, Calcutta
5. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, Mc. Graw Hall.

ADDITIONAl REFERENCES:
6. Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7.David Stirzaker (1994). Elementary Probability, Cambridge University Press.
8.Feller, W. (1968). An Introduction to Probability Theory and its Applications, Wiley.
9. Hoel P.G. (1971): Introduction to Mathematical Statistics
10. Mayer P.L. (1970): Introductory Probability and Statistical Applications, Addition Wesley
11.Mukhopadhyay, P. (1996). Mathematical Statistics, New Central Book Agency, Calcutta.
12.Parzen, E. (1960). Modern Probability Theory and its Applications, Wiley Eastern.
13Pitman, Jim (1993). Probability, Narosa Publishing House.

Paper – II(Paper Code-0804)
DESCRIPTIVE STATISTICS

Unit - I
Origin and Development of statistical importance, uses and limitations of Statistics. Types of Data: Concepts of a statistics population and sample from a population; qualitative and quantitative data; nominal and ordinal data; cross sectional and time series data; discrete and continuous data; frequency and non-frequency data.
Collection and Scrutiny of Data; Primary data – designing a questionnaire and a schedule; checking their consistency. Secondary data – their major sources including some government publications. Complete enumeration, controlled experiments, observational studies and sample surveys. Scrutiny of data for internal consistency and detection of errors of recording. Ideas of cross-validation.

Presentation of Data: Construction of tables with one or more factors of classification. Diagrammatic and graphical representation of non-frequency data. Frequency distributions, cumulative frequency distributions and their graphical and diagrammatic representation – column diagram, histogram, frequency polygon and ogives. Stem and leaf chart. Box plot.

Unit -II
Analysis of Quantitative Data: Univariate data: Concepts of central tendency or location, and their measures; arithmetic, geometric and harmonic mean, median and mode.

Unit -III
Dispersion and relative measures of dispersion, skewness and kurtosis, and their measures including those based on quartiles and moments. Sheppard's corrections for moments for grouped data (without deviation).

Unit -IV
Bivariate data: Scatter diagram. Product moment correlation coefficient and its properties. Coefficient of determination. Correlation ratio. Concepts of regression. intra-class correlation coefficient with equal and unequal group sizes. Rank correlation – Spearman's and Kendall's measures. Correlation index. Principle of least squares. Fitting of linear and quadratic regression and related results. Fitting

of curves reducible to polynomials by log and inverse transformation. Multivariate data: Multiple regression, multiple correlation and partial correlation in 3 variables. Their measures and related results.

Unit V

Four short notes, one from each unit will be asked. Students have to answer any two.

REFERENCES

1. Bhat B.R.,Srivankataramana T. and Rao Madhav K.S. (1997): Statistics; A Beachners Vol. II, New Age International (P) Ltd.
2.Croxton FE, Cowden DJ and Klein S: Applied General Statistics (1973): Prentice Hall of India.
3.Goon A.M., Gupta M.K., Dasgupta B. Fundamentals of Statistics, Vol. 1(1991) & Vol. 2(2001). World Press, Calcutta.
5.Gupta V.K. and Kapor S.C. : Fundamentals of Mathematical Statistics S. Chand and Sons.

ADDITIONAl REFERENCES:

6.Cook, Cramer and Clark (): Basic Statistical Computing, Chapman and Hall.
7. Mood A.M., Grabill F.A. and Bose D.C.(1974): Introduction to the theory of Statistics, McGraw Hill.
8.Snedecor GW and Cochran WG: Statistical Methods (1967) : Lowa State University Press.
9.Spiegel, MR (1967): Theory & Problems of Statistics (1967): Schaum's Publishing Series.

Paper III:
Practical : Practicals Based on Paper I & II

1. Presentation of data by Frequency tables, diagrams and graphs.
2. Calculation of Measures of Central Tendency, dispersion , skewness and kurtosis
3. Product Moment Correlation and Correlation Ratio
4. Fitting of Curves by the least square method
5. Regression of two variables
6. Spearman’s Rank correlation Coefficient
7. Multiple regression of three variables
8. Multiple correlation and partial correlation
9. Evaluation of probabilities using addition and multiplication theorems, conditional probabilities and Bayes theorems
10. Exercises on mathematical expectations and finding measures of central tendency, dispersion, skewness and kurtosis of univariate probability distributions
11. Fitting of univariate and conditional distributions

FORESTRY
PAPER I

MM: 50

UNIT- I

The Forest & Forestry (An Introduction)

Definition of forest & forestry, component of forest, classification of forest, growth and changes in the seedling, sapling, pole and trees

UNIT- II

Principle of Silviculture

Introduction, definition, scope, and objective of silviculture, relation of silviculture with forestry and its branches, Influence of forest on environment, factors of locality

UNIT- III

Forest Vegetation & Its Distribution

Botanical area of India, distribution description of forest type in India, forest & climate

UNIT- IV

Plantation Forestry

Nursery and its establishment, method of sowing & plantation, industrial plantation & energy plantation, protection of plantation

UNIT- V

Geology & Forest Soil

Definition & introduction of Geology and Pedology, soil profile & soil group, soil formation, soil properties

FORESTRY
PAPER – II

MM: 50

UNIT- I

Regeneration Of Forest

Natural regeneration, artificial regeneration, tending operation

UNIT- II

Silviculture System

Introduction of the following system, high forest system, coppice system, improvement felling

UNIT- III

Silvics of Important Tree Species

Sal, Teak, Sissoo, Bamboo, Pine, Casuarinas, Khamer, Eucalyptus

UNIT- IV

Water Shed & A Forestation

Introduction to soil erosion & importance of soil and water conservation, concept & characteristics of watershed, choice of species to problematic areas such as Ravine lands, salive & alkaline areas, mined areas & wet lands.

UNIT- V

Handling Of Forestry Seeds

Fruit & seed collection & processing, storage of seeds, seed dormany & seed testing

REFERENCE BOOKS

1. Principles and practices of Silvicultures L.S. Khanna, A.P. Dwivedi.
2. Systematic Botany, M.P. Shilva, R.S. Mathur
3. Forest type of India-Champion & Seth
4. Forestry in India, V.P. Agrawal, K.P. Sagria
5. Hand book of Forestry, S.S. Negi
6. Forest plantation, R.K. Luna & Chakravorti
7. Forest nursery

FORESTRY
PRACTICAL

MM: 50

List of Practicals

1. Measurement of Diameter, girth, height etc.
2. Nursery management
3. Identification of Forest spp. And their economic importance
4. Visit to Forest areas
5. Regeneration surveys
6. Reforestation
7. Handling of nursery stock
8. Field planting methods

TASAR TECHNOLOGY
PAPER- I
MORPHOLOGY, ANATONY & PHYSIOLOGY OF TASAR SILKWORM & AGRONOMY

MM: 50

UNIT – I

1. History of Non-Mulberry Sericulture.
2. Outline classification of Non-Mulberry Silkworm, their distribution in India and other countries.
3. General organization and life-cycle of *Antherea mylitta*, & Morphology & Anatomy of Larva, pupa & moth.
4. Structure of EGG, fertilization, Embryogenesis, Incubation & Hatching.

UNIT – II

1. Reproduction – structure of re-productive system, oogenesis, spermatogenesis, development & growth.
2. Molting and volatise in tasar silkworm.
3. Endocrinology of tasar silkworm, Role of hormone in development & metamorphosis.
4. Silk glands, structure of silk glad, formation and biochemistry of silk.

UNIT-III

1. Rearing-rearing equipment, preparation for rearing, Environmental condition for rearing of tasar silkworm.
2. Rearing of large, young age and late age tasar silkworm.
3. Disinfection and disinfectants.
4. Mounting, spinning & harvesting of cocoon.

UNIT-IV

1. Diseases of tasar silkworm-protozoan, viral, Bacterial, Fungal, symptoms, causative agents, preventive & control Measures.
2. Morphology & Anatomy of primary food plants of Tasar silkworm (*Terminania arjuna, Terminania tomentosa, Shorea robusta* etc.) their culture methods.
3. Outline classification of primary & secondary food plants of tasar worm, their distribution in India (with the special references to Chhattisgarh and other states.)

UNIT-V

1. Farm Management: selection of soil & preparation of land for tasar plant cultivation.
2. Propagation of Tasar food plants-seedlings, saplings, crafting, layering.
3. Harvesting of Leaf.
4. Diseases of Non-mulberry food plants, Fungal, Bacterial, Viral, deficiency, Insect pest, control method.

List of Reference Books

1. Tasar Culture: By Dr. M.S. Jolly et. Al. CSB. 1974
2. Silkworm Rearing: And Diseases of Silkworms: By the Mysore Silk Asso. 1956.
3. Text Book of Tropical Sericulture: Japan Over Seas Corp. Volunteers, 1975.
4. Hand Book of Silkworm Rearing: Agricultural & Technical Manual - Fuzi Pub. Co. Ltd. Japan, 1972.
5. Improved Method Of Rearing Young Age Silkworm: By S. Krishna swami, Reprinted By CSB, Bangalore, 1986.
6. Silkworm Biology And Rearing - A.K. Dhole, NCERT, New Delhi, 1990
7. Diseases and Pests of Mulberry and Their Control (1990) Pub. by CSB & TI Mysore
8. Text Book of Soil Science, T.D. Biswas & S.K. Mukherjee (1990) TMH

TASAR TECHNOLOGY
PAPER-II
TASAR SILKWORM–GENETICS AND BREEDING

MM: 50

UNIT-I

1. Moth Emergence: pairing, ovi-position, moth examination.
2. Incubation of univaltine, bivoltine and multivoltine eggs.
3. Preparation of loose eggs-Advantages of loose eggs, handling of loose eggs.
4. Seed Technology: seed areas and importance of quality seed in tasar industry.

UNIT-II

1. Seed cocoon: Harvesting of cocoon, gradation and selection consignment for processing.
2. Storage & preservation of cocoon: Types of building, methods of storing-problems care in different season.
3. Grainage: Definition, model grainage house, location, orientation and grainage equipments, condition required in grainage work.
4. Hybridization – Inter-specific & Intra specific with special reference to tasar. Its impact & future prospects.

UNIT-III

1. Breeding-methods and its application, qualitative and quantitative improvement by breeding.
2. Breeding of Tasar silkworm: Aims, pre-requirements, variability selection for breeding.
3. Inbreeding: Advantage and dis-advantage, exploitation of inbreeding of non-mulberry silkworms, general and specific combining.
4. Selection: Methods of selection, criteria of selection, individual and batch selection.

UNIT-IV

1. Structure of typical animal cell, mitosis & meiosis, chromosome number of different Non-mulberry silkworm.
2. Hereditary traits, in tasar silkworm-Egg, Larvae and pupae.
3. Mutations: Type of mutation, spontaneous and induced, chemical mutagens, effect of radiation.

UNIT-V

1. Polyploidy: Nature and induction of polyploidy.
2. Genetics of larval and cocoon characters,
3. Silkworm races: Univoltine, bivoltine and multivoltine races of different tasar silkworm.
4. Maintenance of races and basic seed of different silkworm.

List of Reference Books

1. Silkworm Genetics: Illustrated By Tada Yakoyama.
2. The Genetics of The Silkworm : Byyataro Tazima, 1964
3. Fundamentals of Genetics: Kalyani Pub. New Delhi. By B.D. Singh (1990)
4. Silkworm Breeding Stock : By Dr. P.A. Kovalov, CSB.-1970

PRACTICAL

Morphology, Anatomy & Physiology of Tasar Silkworm & Agronomy.

Tasar Silkworm-Genetics and Breeding

1. Morphology: tasar silkworm egg. Larva, pupa & moth.
2. Embryology: identification of different stages in development,
3. Molting of embryo.
4. Whole mount of larva, mouth parts, spinneret, gonad and spiracle celli.
5. Model rearing house: preparation for teaser rearing plots.
6. Disinfection: disinfection of room plot and equipment. Spraying and fumigation, material required.
7. Harvesting of cocoon: assessment of cocoon.
8. Maintenance of rearing record.
9. Qualify test of cocoons for breeding.
10. Diseases: identification of diseases of teaser worms.
11. Microscopic examination: handling of dead and diseased worms and sample examination.
12. Preservation of diseased specimen of food plant of tasar.
13. Identification of different diseases of tasar food plant.
14. Morphological studies of food plants of tasar worms.
15. Anatomy: anatomy of root, stem, leaf of food plant of tasar worms.
16. Collection of herbarium of different food plants pf tasar silkworms.
17. Rearing appliances: estimation of rearing appliances. For 50 dfls.
18. Incubation of silkworm eggs: black boxing and hatching. Recording of temperature and humidity.
19. Molting: identification & care.
20. Montages & harvesting.
21. Mitotic & meiotic chromosome of non-mulberry silkworm.
22. Visits to the areas of districts of Chhattisgarh to study tasar industries.

Scheme of Practical Examination

S.No.	Practical	Marks
1	Morphology & Identification of Tasar Silkworm/ Anatomy of Tasar	10
2	Embryological Stages of Tasar Silkworm	8
3	Identification of Specific in Fee House	8
4	Morphology and Anatomy of Food Plants Of Tasar Silkworm	6
5	Assessment of Cocoon	5
6	Field Work	4
7	Viva	4
8	Sessional & Record	5
	Total	50

MATHEMATICS

There shall be three compulsory papers. Each paper of 50 marks is divided into five units and each unit carry equal marks.

B.Sc. Part-II
Paper-I
ADVANCED CALCULUS

UNIT-I Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion. Series of non-negative terms. Comparison tests, Cauchy's integral test, Ratio tests, Raabe's, Logarithmic, De Morgan and Bertrand's tests. Alternating series, Leibnitz's theorem. Absolute and conditional convergence.

UNIT-II Continuity, Sequential continuity, Properties of continuous functions, Uniform continuity, Chain rule of differentiability, Mean value theorems and their geometrical interpretations. Darboux's intermediate value theorem for derivatives, Taylor's theorem with various forms of remainders.

UNIT-III Limit and continuity of functions of two variables. Partial differentiation. Change of variables. Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables. Jacobians.

UNIT-IV Envelopes, evolutes. Maxima, minima and saddle points of functions of two variables. Lagrange's multiplier method.

UNIT-V Beta and Gamma functions, Double and triple integrals, Dirichlet's integrals, Change of order of integration in double integrals.

REFERENCES :

1. Gabriel Klaumber, Mathematical Analysis, Marcel Dekkar, Inc. New York, 1975.
2. T.M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
3. R.R. Goldberg, Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970.
4. D. Soma Sundaram and B. Choudhary, A First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.
6. Gorakh Prasad, Differential Calculus, Pothishala Pvt. Ltd., Allahabad.
7. Murray R. Spiegel, Theory and Problems of Advanced Calculus, Schaum Publishing Co., New York.
8. Gorakh Prasad, Integral Calculus, Pothishala Pvt. Ltd., Allahabad.
9. S.C. Malik, Mathematical Analysis, Wiley Eastern Ltd., New Delhi.
10. O.E. Stanaitis, An Introduction to Sequences, Series and Improper Integrals, Holden-Dey, Inc., San Francisco, California.
11. Earl D. Rainville, Infinite Series, The Macmillan Company, New York.
12. Chandrika Prasad, Text Book on Algebra and Theory of Equations, Pothishala Pvt. Ltd., Allahabad.
13. N. Piskunov, Differential and Integral Calculus, Peace Publishers, Moscow.
14. Shanti Narayan, A Course of Mathematical Analysis, S.Chand and Company, New Delhi.

B.Sc. Part-II
Paper-II
DIFFERENTIAL EQUATIONS

UNIT-I Series solutions of differential equations- Power series method, Bessel and Legendre functions and their properties-convergence, recurrence and generating relations, Orthogonality of functions, Sturm-Liouville problem, Orthogonality of eigen-functions, Reality of eigen values, Orthogonality of Bessel functions and Legendre polynomials.

UNIT-II Laplace Transformation- Linearity of the Laplace transformation, Existence theorem for Laplace transforms, Laplace transforms of derivatives and integrals, Shifting theorems. Differentiation and integration of transforms. Convolution theorem. Solution of integral equations and systems of differential equations using the Laplace transformation.

UNIT-III Partial differential equations of the first order. Lagrange's solution, Some special types of equations which can be solved easily by methods other than the general method, Charpit's general method of solution.

UNIT-IV Partial differential equations of second and higher orders, Classification of linear partial differential equations of second order, Homogeneous and non-homogeneous equations with constant coefficients, Partial differential equations reducible to equations with constant coefficients, Monge's methods.

UNIT-V Calculus of Variations- Variational problems with fixed boundaries- Euler's equation for functionals containing first order derivative and one independent variable, Extemals, Functionals dependent on higher order derivatives, Functionals dependent on more than one independent variable, Variational problems in parametric form, invariance of Euler's equation under coordinates transformation.

Variational Problems with Moving Boundaries- Functionals dependent on one and two functions, One sided variations.

Sufficient conditions for an Extremum- Jacobi and Legendre conditions, Second Variation. Variational principle of least action.

REFERENCES :

1. Erwin Kreysizig, Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999.
2. D.A. Murray, Introductory Course on Differential Equations, Orient Longman, (India), 1967.
3. A.R. Forsyth, A Treatise on Differential Equations, Macmillan and Co. Ltd., London.
4. Lan N. Sneddon, Elements of Partial Differential Equations, McGraw-Hill Book Company, 1988.
5. Francis B. Hilderbrand, Advanced Calculus for Applications, Prentice Hall of India Pvt. Ltd., New Delhi, 1977.
6. Jane Cronin, Differential equations, Marcel Dekkar, 1994.
7. Frank Ayres, Theory and Problems of Differential Equations, McGraw-Hill Book Company, 1972.
8. Richard Bronson, Theory and Problems of Differential Equations, McGraw-Hill, Inc., 1973.
9. A.S. Gupta, Calculus of variations with-Applications, Prentice-Hall of India, 1997.
10. R. Courant and D. Hilbert, Methods of Mathematical Physics, Vots. I & II, Wiley-Interscience, 1953.
11. I.M. Gelfand and S.V. Fomin, Calculus of Variations, Prentice-Hill, Englewood Cliffs (New Jersey), 1963.
12. A.M. Arthurs, Complementary Variational Principles, Clarendon Press, Oxford, 1970.
13. V. Kornkov, Variational Principles of Continuum Mechanics with Engineering Applications, Vol. I, Reidel Publ. : Dordrecht, Holland, 1985.
14. T. Oden and J.N. Reddy, Variational Methods in Theoretical Mechanics, Springer-Verlag, 1976.

B.Sc. Part-II
Paper-III
MECHANICS

STATICS

UNIT-I Analytical conditions of Equilibrium, Stable and unstable equilibrium. Virtual work, Catenary.

UNIT-II Forces in three dimensions, Poinsot's central axis, Null lines and planes.

DYNAMICS

UNIT-III Simple harmonic motion. Elastic strings. Velocities and accelerations along radial and transverse directions, Projectile, Central orbits.

UNIT-IV Kepler's laws of motion, velocities and acceleration in tangential and normal directions, motion on smooth and rough plane curves.

UNIT-V Motion in a resisting medium, motion of particles of varying mass, motion of a particle in three dimensions, acceleration in terms of different co-ordinate systems.

REFERENCES :

1. S.L. Loney, Statics, Macmillan and Company, London.
2. R.S. Verma, A Text Book on Statics, Pothishala Pvt. Ltd., Allahabad.
3. S.L. Loney, An Elementary Treatise on the Dynamics of a particle and of rigid bodies, Cambridge University Press, 1956.

B.Sc. Part-II

Paper-I

THERMODYNAMICS, KINETIC THEORY AND STATISTICAL PHYSICS

Unit-1 The laws of thermodynamics : The Zeroth law, first law of thermodynamics, internal energy as a state function, reversible and irreversible change, Carnot's cycle, carnot theorem, second law of thermodynamics. Claussius theorem inequality. Entropy, Change of entropy in simple cases (i) Isothermal expansion of an ideal gas (ii) Reversible isochoric process (iii) Free adiabatic expansion of an ideal gas. Concept of entropy, Entropy of the universe. Entropy change in reversible and irreversible processes, Entropy of Ideal gas, Entropy as a thermodynamic variable, S-T diagram, Principle of increase of entropy. The thermodynamic scale of temperature, Third law of thermodynamics, Concept of negative temperature.

Unit-2 Thermodynamic functions, Internal energy, Enthalpy, Helmholtz function and Gibb's free energy, Maxwell's thermodynamical equations and their applications, TdS equations, Energy and heat capacity equations Application of Maxwell's equation in Joule-Thomson cooling, adiabatic cooling of a system, Van der Waals gas, Clausius-Clapeyron heat equation. Blackbody spectrum, Stefan-Boltzmann law, Wien's displacement law, Rayleigh-Jean's law, Planck's quantum theory of radiation.

Unit-3 Maxwellian distribution of speeds in an ideal gas: Distribution of speeds and velocities, experimental verification, distinction between mean, rms and most probable speed values. Doppler broadening of spectral lines. Transport phenomena in gases: Molecular collisions mean free path and collision cross sections. Estimates of molecular diameter and mean free path. Transport of mass, momentum and energy and interrelationship, dependence on temperature and pressure.

Behaviour of Real Gases: Deviations from the Ideal Gas Equation. The Virial Equation. Andrew's Experiments on CO_2 Gas. Critical Constants.

Unit-4 The statistical basis of thermodynamics: Probability and thermodynamic probability, principle of equal a priori probabilities, statistical postulates. Concept of Gibb's ensemble, accessible and inaccessible states. Concept of phase space, γ phase space and μ phase space. Equilibrium before two systems in thermal contact, probability and entropy, Boltzmann entropy relation. Boltzmann canonical distribution law and its applications, law of equipartition of energy.

Transition to quantum statistics: 'h' as a natural constant and its implications, cases of particle in a one-dimensional box and one-dimensional harmonic oscillator.

Unit-5 Indistinguishability of particles and its consequences, Bose-Einstein & Fermi-Dirac conditions, Concept of partition function, Derivation of Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac Statistics, Limits of B-E and F-D statistics to M-B statistics. Application of B-E statistics to black body radiation, Application of F-D statistics to free electrons in a metal.

TEXT AND REFERENCE BOOKS:

1. B.B. Laud, "Introduction to Statistical Mechanics" (Mcmillan 1981)
2. F. Reif : "Statistical Physics" (Mcgraw-Hill, 1998).
3. K, Haung : "Statatistical Physics" (Wiley Eastern, 1988).
4. Thermal and statistical Physics: R.K. Singh, Y.M. Gupta and S. Sivraman.
5. Statistical Physics: Berkeley Physics Course, Vol. 5
6. Physics (Part-2): Editor, Prof. B.P. Chandra, M.P. Hindi Granth Academy.
7. Heat and Thermodynamics: K.W. Zeemansky.
8. Thermal Physics: B.K. Agarwal.
9. Heat and Thermodynamics: Brij Lal and N. Subramanyam.
10. Heat and Thermodynamics: Dayal, Verma and Pandey.
11. A Treatise on Heat: M.N. Saha and B.N. Srivastava.

Paper-II
WAVES, ACOUSTICS AND OPTICS

Unit-1 Waves in media: Speed of transverse waves on uniform string, speed of longitudinal waves in a fluid, energy density and energy transmission in waves. Waves over liquid surface: gravity waves and ripples. Group velocity and phase velocity and relationship between them. Production and detection of ultrasonic and infrasonic waves and applications.

Reflection, refraction and diffraction of sound : Acoustic impedance of a medium, percentage reflection & refraction at a boundary, impedance matching for transducers, diffraction of sound, principle of a sonar system, sound ranging.

Unit-2 Fermat's Principle of extremum path, the aplanatic points of a sphere and other applications. Cardinal points of an optical system, thick lens and lens combinations. Lagrange equation of magnification, telescopic combinations, telephoto lenses. Monochromatic aberrations and their reductions; aspherical mirrors and Schmidt corrector plates, aplanatic points, oil immersion objectives, meniscus lens.

Optical instruments: Entrance and exit pupils, need for a multiple lens eyepiece, common types of eyepieces. (Ramsdon and Hygen's eyepieces).

Unit-3 Interference of light: The principle of superpositions, two slit interference, coherence requirement for the sources, optical path retardations, Conditions for sustained interference, Theory of interference, Thin films. Newton’s rings and Michelson interferometer and their applications its application for precision determinations of wavelength, wavelength difference and the width of spectral lines. Multiple beam interference in parallel film and Fabry-Perot interferometer. Rayleigh refractometer, Twyman-Green interferometer and its uses.

Unit-4 Diffraction, Types of Diffraction, Fresnel’s diffraction, half-period zones, phasor diagram and integral calculus methods, the intensity distribution, Zone plates, diffraction due to straight edge, Fraunhofer diffraction due to a single slit and double slit, Diffraction at N-Parallel slit, Plane Diffraction grating, Rayleigh criterion, resolving power of grating , Prism, telescope.

Polarized light and its mathematical representation, Production of polarized light by reflection, refraction and scattering. Polarization by double refraction and Huygen's theory, Nicol prism, Retardation plates, Production and analysis of circularly and elliptically polarized light. Optical activity and Fresnel's theory, Biquartz polarimeter.

Unit-5 Laser system: Basic properties of Lasers, coherence length and coherence time, spatial coherence of a source, Einstein's A and B coefficients, Spontaneous and induced emissions, conditions for laser action, population inversion, Types of Laser : Ruby and, He-Ne laser and. Applications of laser : Application in communication, Holography and Basics of non linear optics and Generation of Harmonic.

TEXT AND REFERENCE BOOKS:

1. A.K. Ghatak, 'Physical Optics'
2. D.P. Khandelwal, Optical and Atomic Physics' (Himalaya Publishing House, Bombay, 1988)
3. K.D. Moltev; 'Optics' (Oxford University Press)
4. Sears: 'Optics'
5. Jenkins and White: 'Fundamental of Optics' (McGraw-Hill)
6. B.B. Laud: Lasers and Non-linear Optics (Wiley Eastern 1985)
7. Smith and Thomson: 'Optics' (John Wiley and Sons)
8. Berkely Physics Courses: Vol.-III, 'Waves and Oscillations'
9. I.G. Main, 'Vibrations and Waves' (Cambridge University Press)
10. H.J. Pain: 'The Physics of Vibrations and Waves' (MacMillan 1975)
11. Text Book of Optics: B.K. Mathur
12. B.Sc. (Part III) Physics: Editor: B.P. Chandra, M.P. Hindi Granth Academy.
13. F. Smith and J.H. Thomson, Manchester Physics series: optics (John wiley, 1971)
14. Born and Wolf : 'Optics'.
15. Physical Optics: B. K. Mathur and T. P. Pandya.
16. A textbook of Optics: N. Subrahmanyam, Brijlal and M. N. Avadhanulu.
17. Geometrical and Physical Optics: Longhurst.
18. Introduction to Modern Optics: G. R. Fowels.
19. Optics: P. K. Srivastav.

PRACTICALS

Minimum 16 (Eight from each group)

Experiments out of the following or similar experiments of equal standard

1. Study of Brownian motion.
2. Study of adiabatic expansion of a gas.
3. Study of conversion of mechanical energy into heat.
4. Heating efficiency of electrical kettle with varying voltage.
5. Study of temperature dependence of total radiation.
6. Study of temperature dependence of spectral density of radiation.
7. Resistance thermometry.
8. Thermo emf thermometry.
9. Conduction of heat through poor conductors of different geometries.
10. Experimental study of probability distribution for a two-option system using a coloured dice.
11. Study of statistical distribution on nuclear disintegration data (GM counter used as a black box).
12. Speed of waves on a stretched strings.
13. Studies on torsional waves in a lumped system.
14. Study of interference with two coherent source of sound.
15. Chlandi's figures with varying excitation and loading points.
16. Measurements of sound intensities with different situations.
17. Characteristics of a microphone-loudspeakers system
18. Designing an optical viewing system.
19. Study of monochromatic defects of images.
20. Determining the principle point of a combination of lenses.
21. Study of interference of light (biprism or wedge film).
22. Study of diffraction at a straight edge or a single slit.
23. Study of F-P etalon fringes.
24. Study of diffraction grating and its resolving power.
25. Resolving power of telescope system.
26. Polarization of light by reflection; also cos-squared law.
27. Study of optical rotation for any system.
28. Study of laser as a monochromatic coherent source.
29. Study of a divergence of laser beam.
30. Calculation of days between two dates of a year.
31. To check if triangle exists and the type of a triangles.
32. To find the sum of the sine and cosines series and print out the curve.

33. To solve simultaneous equation by elimination method.
34. To prepare a mark-list of polynomials.
35. Fitting a straight line or a simple curve
36. Convert a given integer into binary and octal systems and vice versa .
37. Inverse of a matrix.
38. Spiral array.

TEXT AND REFERENCE BOOKS

1. D.P. Khandelwal, Optics and Atomic physics (Himalaya Publishing house, Bombay 1988).
2. D.P. Khandelwal, A Laboratory Manual for Undergraduate Classes (Vani Publishing House, New Delhi).
3. S. Lipschutz and a Poe, Schaum's outline of theory and Problems of Programming with Fortran(McGraw-hill Book Company 1986).
4. C Dixon, Numerical Analysis .

NEW CURRICULUM OF B.Sc. PART II

CHEMISTRY

The new curriculum will comprise of three papers of 33, 33 and 34 marks each and practical work of 50 marks. The Curriculum is to be completed in 180 working days as per UGC norms and conforming to the directives of Govt. of Chhattisgarh. The theory papers are of 60 hrs. each duration and practical work of 180 hrs duration.

Paper – I
INORGANIC CHEMISTRY 60 Hrs., Max Marks 33

UNIT-I

CHEMISTRY OF TRANSITION SERIES ELEMENTS

Transition Elements: Position in periodic table, electronic configuration, General Characteristics, *viz*., atomic and ionic radii, variable oxidation states, ability to form complexes, formation of coloured ions, magnetic moment μ_{so} (spin only) and μ_{eff} and catalytic behaviour. General comparative treatment of 4d and 5d elements with their 3d analogues with respect to ionic radii, oxidation states and magnetic properties.

UNIT-II

A. Oxidation and Reduction: Redox potential, electrochemical series and its applications, Principles involved in extraction of the elements.

B. COORDINATION COMPOUNDS: Werner's theory and its experimental verification, IUPAC nomenclature of coordination compounds, isomerism in coordination compounds. Stereochemistry of complexes with 4 and 6 coordination numbers. Chelates, polynuclear complexes.

UNIT-III

COORDINATION CHEMISTRY

Valence bond theory (inner and outer orbital complexes), electroneutrality principle and back bonding. Crystal field theory, Crystal field splitting and stabilization energy, measurement of 10 Dq (Δ_o), CFSE in weak and strong fields, pairing energies, factors affecting the magnitude of 10 Dq (Δ_o, Δ_t). Octahedral vs. tetrahedral coordination.

UNIT-IV

A. CHEMISTRY OF LANTHANIDE ELEMENTS

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

B. CHEMISTRY OF ACTINIDES

General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from uranium, similarities between the later actinides and the later lanthanides

UNIT-V

A. ACIDS BASES : Arrhenius, Bronsted-Lowry, conjugate acids and bases, relative strengths of acids and bases, the Lux-flood, solvent system and Lewis concepts of acids and bases.

B. NON-AQUEOUS SOLVENTS

.Physical properties of a solvent, types of solvents and their general characteristics, reaction in non-aqueous solvents with reference to liquid ammonia and liquid sulphur dioxide, HF, H_2SO_4 , Ionic liquids.

REFERENCE BOOKS

1. Basic Inorganic Chemistry, F. A. Cotton, G. Wilkinson and P. L. Gaus, Wiley
2. Concise Inorganic Chemistry, J. D. Lee, ELBS
3. Concepts of Models of Inorganic Chemistry, B. Douglas, D. Mc Daniel and J. Alexander, John Wiley.
4. Inorganic Chemistry, D. E. Shriver, P. W. Atkins and C. H. Langford, Oxford.
5. Inorganic Chemistry, W. W. Porterfield, Addison – Wiley.
6. Inorganic Chemistry, A. G. Sharp, ELBS.
7. Inorganic Chemistry, G. L. Miessler and D. A. Tarr, Prentice Hall.
8. Advanced Inorganic Chemistry, Satya Prakash.
9. Advanced Inorganic Chemistry, Agarwal and Agarwal
10. Advanced Inorganic Chemistry, Puri, Sharma, S. Naginchand
11. Inorganic Chemistry, Madan, S. Chand
12. Aadhunik Akarbanic Rasayan, A. K. Shrivastav & P. C. Jain, Goel Pub
13. Uchchattar Akarbanic Rasayan, satya Prakash & G. D. Tuli, Shyamal Prakashan
14. Uchchattar Akarbanic Rasayan, Puri & Sharma
15. Selected topic in Inorganic Chemistry by Madan Malik & Tuli, S. Chand.

Paper – II

ORGANIC CHEMISTRY 60 Hrs., Max Marks 33

UNIT-I

CHEMISTRY OF ORGANIC HALIDES

Alkyl halides: Methods of preparation, nucleophilic substitution reactions – S_N1, S_N2 and S_N^i mechanisms with stereochemical aspects and effect of solvent etc.; nucleophilic substitution, elimination reactions.

Aryl halides: Preparation, including preparation from diazonium salts, Nucleophilic Aromatic Substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

UNIT-II

ALCOHOLS

A. Alcohols: Nomenclature, preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvaelt-Blanc Reduction for the preparation of alcohols, Dihydric alcohols – methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [$Pb(OAc)_4$ and HIO_4] and pinacol-pinacolone rearrangement.

B. Trihydric alcohols - Nomenclature, methods of formation, chemical reactions of glycerol.

PHENOLS

A. Structure and bonding in phenols, physical properties and acidic character, Comparative acidic strength of alcohols and phenols, acylation and carboxylation.

B. Mechanism of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Hauben-Hoesh reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction.

UNIT-III

ALDEHYDES AND KETONES

A. Nomenclature, structure and reactivity of carbonyl group. General methods of preparation of aldehydes and ketones.

Mechanism of nucleophilic addition to carbonyl groups: Benzoin, Aldol, Perkin and Knoevenagel condensation. Condensation with ammonia and its derivatives, Wittig reaction, Mannich reaction, Beckmann and Benzil- Benzilic rearrangement.

B. Use of acetate as protecting group, Oxidation of aldehydes, Baeyer-Villiger oxidation of ketones, Cannizzaro reaction, MPV, Clemmensen reduction, Wolf-Kishner reaction, $LiAlH_4$ and $NaBH_4$ reduction. Halogenation of enolizable ketones, An introduction to α,β-unsaturated aldehydes and

ketones.

UNIT-IV

A. CARBOXYLIC ACIDS

Preparation, Structure and bonding, Physical and chemical properties including, acidity of carboxylic acids, effects of substituents on acid strength, Hell-Volhard Zeilinsky reaction. Reduction of carboxylic groups, Mechanism of decarboxylation.

Di carboxylic acids: Methods of formation and effect of heat and dehydrating agents, Hydroxyacids.

B. CARBOXYLIC ACID DERIVATIVES

Structure of acid chlorides, esters, amides and acid anhydrides, Relative stability of acyl derivatives. Physical properties, inter-conversion of acid derivatives by nucleophilic acyl substitution.

Mechanism of acid and base catalyzed esterification and hydrolysis.

UNIT-V

ORGANIC COMPOUNDS OF NITROGEN

A. Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes. Mechanism of nucleophilic substitution in nitroarenes and their reduction in acidic, neutral and alkaline medium.

B. Reactivity, structure and nomenclature of amines, physical properties. Stereochemistry of amines. Separation of mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds and nitriles), reductive amination of aldehydic and ketonic compounds. Gabriel-Phthalimide reaction, Hofmann-Bromamide reaction, Reactions of amines, electrophilic aromatic substitution of aryl amines, Reaction of amines with nitrous acid. Synthetic transformations of aryl diazonium salts, Azo coupling.

REFERENCE BOOKS

1. Organic Chemistry, Morrison and Boyd, Prentice-Hall.
2. Organic Chemistry, L. G. Wade Jr. Prentice Hall.
3. Fundamentals of Organic Chemistry, Solomons, John Wiley.
4. Organic Chemistry, Vol I, II, III S. M. Mukherjee, S. P. Singh and R. P. Kapoor, Wiley Easters (New Age).
5. Organic Chemistry, F. A. Carey, McGraw Hill.
6. Introduction to Organic Chemistry, Struiweisser, Heathcock and Kosover, Macmillan.
7. Organic Chemistry, P. L. Soni.

8. Organic Chemistry, Bahl and Bahl.
9. Organic Chemistry, Joginder Singh.
10. Carbanic Rasayan, Bahl and Bahl.
11. Carbanic Rasayan, R. N. Singh, S. M. I. Gupta, M. M. Bakidia & S. K. Wadhwa.
12. Carbanic Rasayan, Joginder Singh.

Paper – III

PHYSICAL CHEMISTRY 60 Hrs., Max Marks 34

UNIT-I

A. THERMODYNAMICS-I

Intensive and extensive variables; state and path functions; isolated, closed and open systems; Zeroth law of thermodynamics. First law: Concept of heat, work, internal energy and statement of first law; enthalpy, Relation between heat capacities, calculations of q, w, U and H for reversible, irreversible and free expansion of gases under isothermal and adiabatic conditions. Joule-Thompson expansion, inversion temperature of gases, expansion of ideal gases under isothermal and adiabatic condition

B. THERMO CHEMISTRY

Thermochemistry, Laws of Thermochemistry, Heats of reactions, standard states; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data, effect of temperature (Kirchhoff's equations) and pressure on enthalpy of reactions, Adiabatic flame temperature, explosion temperature.

UNIT-II

A. THERMODYNAMICS-II

Second Law of Thermodynamics: Spontaneous process, Second law, Statement of Carnot cycle and efficiency of heat engine, Carnot's theorem, thermodynamic state of temperature.

Concept of entropy: Entropy change in a reversible and irreversible process, entropy change in isothermal reversible expansion of an ideal gas, entropy change in isothermal mixing of ideal gases, physical signification of entropy, Molecular and statistical interpretation of entropy.

B. Gibbs and Helmholtz free energy, variation of G and A with pressure, volume, temperature, Gibbs-Helmholtz equation, Maxwell relations, Elementary idea of Third law of Thermodynamics, concept of residual entropy, calculation of absolute entropy of molecule.

UNIT III

A CHEMICAL EQUILIBRIUM

Criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases. Concept of Fugacity, Thermodynamic derivation of relation between Gibbs free energy of reaction and reaction quotient. Coupling of exergonic and endergonic reactions. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration. Thermodynamic derivation of relations between the various equilibrium constants Kp, Kc and Kx. Le Chatelier principle (quantitative treatment). Equilibrium between ideal gas and a pure condensed phase.

B IONIC EQUILIBRIA

Ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of mono protic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Henderson equation and its applications. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

UNIT-IV

PHASE EQUILIBRIUM

A. Phase rule, Phase, component and degree of freedom, derivation of Gibbs phase rule, Clausius-Claperon equation and its applications to Solid-Liquid, Liquid-Vapor and solid-Vapor, limitation of phase rule, applications of phase rule to one component system: Water system and sulphur system.

Application of phase rule to two component system: Pb-Ag system, desilverization of lead, Zn-Mg system Ferric chloride-water system, congruent and incongruent, melting point and eutectic point.

Three component system: Solid solution liquid pairs.

B. Nernst distribution law, Henry's law, application, solvent extraction

UNIT V

PHOTOCHEMISTRY

Characteristics of electromagnetic radiation, Interaction of radiation with matter, difference between thermal and photochemical processes, Lambert-Beer's law and its limitations, physical significance of absorption coefficients. Laws of photochemistry: Grothus-Drapper law, Stark-Einstein law, quantum yield, actinometry, examples of low and high quantum yields, Photochemical equilibrium and the differential rate of photochemical reactions, Quenching, Role of photochemical reaction in biochemical process.

Jablonski diagram depicting various process occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem

crossing), photosensitized reactions, energy transfer processes {simple examples), photostationary states, Chemiluminescence.

REFERENCE BOOKS

1. Physical Chemistry, G. M. Barrow, International student edition, McGraw Hill.
2. University General Chemistry, C. N. R. Rao, Macmillan.
3. Physical Chemistry, R. A. Alberty, Wiley Eastern.
4. The elements of physical chemistry, Wiley Eastern.
5. Physical Chemistry through problems, S. K. Dogra & S. Dogra, Wiley Eastern.
6. Physical Chemistry, B. D. Khosla,.
7. Physical Chemistry, Puri & Sharma.
8. Bhautik Rasayan, Puri, Sharma and Pathania, Vishal Publishing Company.
9. Bhautik Rasayan, P. L. Soni.
10. Bhautik Rasayan, Bahl and Tuli.
11. Physical Chemistry, R. L. Kapoor, Vol I-IV **.**
12. Chemical kinetics, K. J. Laidler, Pearson Educations, New Delhi (2004).

Paper –IV

LABORATORY COURSE

INORGANIC CHEMISTRY

Qualitative semimicro analysis of mixtures containing 5 radicals. Emphasis should be given to the understanding of the chemistry of different reactions. The following radicals are suggested:

CO_3^{2-}, NO_2^- , S^{2-}, SO_3^{2-},$S_2O_3^{2-}$, CH_3COO^-, F^- ,Cl^- , Br^- , I^- , NO_3^- , BO_3^{3-}, $C_2O_4^{2-}$, PO_4^{3-}, NH_4^+ , K^+, Pb^{2+}, Cu^{2+}, Cd^{2+}, Bi^{3+}, Sn^{2+}, Sb^{3+}, Fe^{3+}, Al^{3+}, Cr^{3+}, Zn^{2+}, Mn^{2+}, Co^{2+}, Ni^{2+}, Ba^{2+}, Sr^{2+}, Ca^{2+}, Mg^{2+}.

Mixtures should preferably contain one interfering anion, or insoluble component ($BaSO_4$, $SrSO_4$, $PbSO_4$, CaF_2 or Al_2O_3) or combination of anions e.g. CO_3^{2-} and SO_3^{2-}, NO_2^- and NO_3^-, Cl^-, Br^-, and I^-.

Volumetric analysis

(a) Determination of acetic acid in commercial vinegar using NaOH.

(b) Determination of alkali content-antacid tablet using HCl.

(c) Estimation of calcium content in chalk as calcium oxalate by permanganometry.

(d) Estimation of hardness of water by EDTA.

(e) Estimation of ferrous & ferric by dichromate method.

(f) Estimation of copper using thiosulphate.

- Principles involved in chromatographic separations. Paper chromatographic separation of following metal ions: i. Ni (II) and Co (II) ii. Fe (III) and Al (III)

ORGANIC CHEMISTRY

- Detection of elements (X, N, S).
- Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols, nitro, amine, amide, and carbonyl compounds, carbohydrates)
- Preparation of Organic Compounds:
  (i) m-dinitrobenzene, (ii) Acetanilide, (iii) Bromo/Nitro-acetanilide, (iv) Oxidation of primary alcohols-Benzoic acid from benzylacohol, (v) azo dye.

PHYSICAL CHEMISTRY

Transition Temperature

- Determination of the transition temperature of the given substance by thermometric/ dialometric method (e.g. $MnCl_2.4H_2O/SrBr_2.2H_2O$).

Thermochemistry

- Determination of heat capacity of a calorimeter for different volumes using change of enthalpy data of a known system (method of back calculation of heat capacity of calorimeter from known enthalpy of solution or enthalpy of neutralization).
- Determination of heat capacity of the calorimeter and enthalpy of neutralization of hydrochloric acid with sodium hydroxide.
- To determine the solubility of benzoic acid at different temperature and to determine ΔH of the dissolution process.
- To determine the enthalpy of neutralization of a weak acid/ weak base versus strong base/ strong acid and determine the enthalpy of ionization of the weak acid/ weak base.
- To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

Phase Equilibrium

- To study the effect of a solute (e.g. NaCl, Succinic acid) on the critical solution temperature of two partially miscible liquids (e.g. phenol-water system) and to determine the concentration of that solute in the given phenol-water system.
- To construct the phase diagram of two component system (e.g. diphenylamine–benzophenone) by cooling curve method.
- Distribution of acetic/ benzoic acid between water and cyclohexane.
- Study the equilibrium of at least one of the following reactions by the distribution method:

  (i) $I_2(aq) + I^- \rightarrow I^-_3\,(aq)^{2+}$

  (ii) $Cu^{2+}(aq) + nNH_3 \rightarrow Cu(NH_3)n$

Molecular Weight Determination

Determination of molecular weight by Rast Camphor and Landsburger method.

Note: **Experiments may be added/ deleted subject to availability of time and facilities.**

Reference Books

1. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
2. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. & Tatchell, A.R. Practical Organic Chemistry, 5th Ed. Pearson (2012)
3. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000). 22
4. Ahluwalia, V.K. & Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000).
5. Khosla, B. D.; Garg, V. C. & Gulati, A. Senior Practical Physical Chemistry, R. Chand & Co.: New Delhi (2011). Garland, C. W.; Nibler, J. W. & Shoemaker, D. P. Experiments in Physical Chemistry 8th Ed.; McGraw-Hill: New York (2003).
6. Halpern, A. M. & McBane, G. C. Experimental Physical Chemistry 3rd Ed.; W.H. Freeman & Co.: New York

Hrs.5 PRACTICAL EXAMINATION M.M.50

Three Experiments are to be performed.

1. Inorganic – Qualitative semimicro analysis of mixtures. **12 marks**

OR

One experiment from synthesis and analysis by preparing the standard solution.

2. (a) Identification of the given organic compound & determine its M.Pt./B.Pt. **6 marks**

(b) Determination of Rf value and identification of organic compounds by paper chromatography. **6 marks**

3. Any one physical experiment that can be completed in two hours including calculations. **12 marks**

4. Viva **10 marks**

5. Sessional **04 marks**

In case of Ex-Students one marks will be added to each of the experiment.

MICROBIOLOGY

BSc-2nd

Paper- I: Molecular Biology and Genetic Engineering

UNIT-1: FUNDAMENTALS OF MOLECULAR BIOLOGY

History and scope of molecular biology, concept and mechanism of heredity. DNA as genetic material- experimental evidences. DNA replication- mechanism, process and enzymes/proteins involved in replication.

UNIT-2: CENTRAL DOGMA OF PROTEIN SYNTHESIS

Transcription- initiation, elongation, termination, RNA polymerases and sigma factor. Transcription inhibitors (antibiotics, drugs). Translation- initiation, elongation and termination. Factors involved in translation. Genetic code.

UNIT-3: MUTATION AND DNA REPAIR MECHANISM

Introduction and Types of Gene mutations- Base substitution, frame shift mutation (insertion, deletion, miss-sense, nonsense mutation.) mutagens – physical and chemical. Reverse mutation in bacteria. DNA repair mechanism (mismatch repair, photo-reactivation, excision and SOS repair). Beneficial and harmful effect of mutation.

UNIT-4: GENE REGULATION

Concept of gene- Cistron, Recon, Muton. Operon Concept- lac Operon, tryptophan Operon, His Operon. Activator, Co-activator and Repressor. Introduction to Bioinformatics- Elementary genome Database.

UNIT-5: GENETIC ENGINEERING

Basic concept of Genetic Engineering, DNA modifying enzymes Restriction endonuclease, DNA ligase, terminal transferase. Vectors- pBR322, pUC19, BAC and YAC. Phage based vectors, expression of vector. Transformation – physical and chemical method. Bacterial Host. Screening of recombinant vector Blue white Screening, Colony Hybridization.

Text Books Recommended:

1. Gene Cloning by T.A. Brown.
2. General Microbiology by Power and Daganiwala.
3. Zinssers Microbiology by KJ Wolfgang, McGraw- HJill Company.
4. Microbial Genetics by RM Stanley, F David and EC John.
5. Bacteriological Techniques by FJ Baker.
6. .Molecular Biology of the Cell; *3rd Edition;* Bruce Alberts ,et.al; Garland Publishing.
7. Cell biology; C.B. Powar; Himalaya Publishing House; Fifth edition
8. Cell & Molecular Biology; Gerald Karp; Fourth edition
9. A Textbook of Microbiology; Dubey&Maheshwari; S.chand& Sons.
10. Cell biology & Genetics; P. K. Gupta
11. Introduction to Bioinformatics; T K Atwood and D J Parry-Smith; Pearson Education Ltd

Paper- II: Bioinstrumentation and Biostatistics

UNIT-1: MICROSCOPY AND CENTRIFUGATION

Simple and compound light microscope, Bright field, Dark field, Phase contrast and Electron microscope. Centrifugation- principle and types of centrifuges (analytical and preparatory), types of centrifugation- differential and rate zonal centrifugation.

UNIT-2: pH metry and chromatography

Principle of pH meter, types of electrodes, factors affecting pH measurements, and application of pH meter. Chromatography- principle, types- paper, TLC and column chromatography, HPLC.

UNIT-3: SPECTROPHOTOMETRY

Electromagnetic spectrum, Beers-Lamberts law, Types (Principles, working and application)- colorimeter, UV - Vis Spectrophotometry and IR- Spectrophotometry, Turbidometry.

UNIT-4: Electrophoresis and X-Ray Diffraction

Principle of electrophoresis, instrumentation and Application, types of Paper, Gel electrophoresis and Immunoelectrophoresis. X-ray diffraction- principle and application.

UNIT-5: Biostatistics

Data- Types, characteristics, presentation and distribution. Data analysis- central tendency (Mean, Median and Mode), Deviation (variance SD and SE). Concept of probability.

Text Books Recommended:

1. Introduction to Istrumental analysis by Robert Braun.
2. Instrumental Techniques by Upadhyay and Upadhyay.
3. Instrumental Methods of Chemical Analysis by BK Sharma.
4. Bio statistics; Sunder Rao
5. Statistical Methods; S. P. Gupta; Sultan Chand & Sons

PRACTICAL

M. M. 50

Determination of antibiotic resistance by plating method.
Assaying of microbial enzymes; Catalase, Proteases, Peroxidases, Cellulase, Cellobioases, Amylase, Diastase.
Exercise on paper, thin layer, column chromatography.
Exercise on paper and gel electrophoresis.
determination of pH of various water and soil sample.
testing of lambert beer's law.
Determination of lamda max of dye by spectrophotometer
Isolation of resistant bacteria from soil and water sample

Scheme of Practical Examination

Time - 4 hours M.M. 50

1. Exercise on spectrophotometer/ pH meter	10
2. Exercise on chromatography	10
3. Exercise on genetics	05
4. Spotting (1-5)	10
5. Viva-Voce	05
6. Sessional	10
Total	50

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B. Sc. Part II

ELECTRONICS

Paper I

ELB 201 : COMMUNICATION ELECTRONICS

Theory: **Max. Marks :50**

Unit-1

Electronic communication: Introduction to communication – means and modes. Needfor modulation. Block diagram of an electronic communication system. Brief idea of frequency allocation for radio communication system in India (TRAI). Electromagnetic communication spectrum, band designations and usage. Channels and base-band signals. Concept of Noise, signal-to-noise (S/N) ratio.

Unit-2

Analog Modulation: Amplitude Modulation, modulation index and frequency spectrum.Generation of AM (Emitter Modulation), Amplitude Demodulation (diode detector), Concept of Single side band generation and detection. Frequency Modulation (FM) and Phase Modulation (PM), modulation index and frequency spectrum, equivalence between FM and PM, Generation of FM using VCO, FM detector (slope detector), Qualitative idea of Super heterodyne receiver

Analog Pulse Modulation: Channel capacity, Sampling theorem, Basic Principles-PAM, PWM, PPM, modulation and detection technique for PAM only, Multiplexing.

Unit-3

Digital Pulse Modulation: Need for digital transmission, Pulse Code Modulation,Digital Carrier Modulation Techniques, Sampling, Quantization and Encoding. Concept of Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK), Phase Shift Keying (PSK), and Binary Phase Shift Keying (BPSK).

Optical Communication: Introduction of Optical Fiber, Block Diagram of optical communication system.

Unit-4

Introduction to Communication and Navigation systems:

Satellite Communication– Introduction, need, Geosynchronous satellite orbits,geostationary satellite advantages of geostationary satellites. Satellite visibility,

transponders (C - Band), path loss, ground station, simplified block diagram of earth station. Uplink and downlink.

Unit-5

Mobile Telephony System – Basic concept of mobile communication, frequency bandsused in mobile communication, concept of cell sectoring and cell splitting, SIM number, IMEI number, need for data encryption, architecture (block diagram) of mobile communication network, idea of GSM, CDMA, TDMA and FDMA technologies, simplified block diagram of mobile phone handset, 2G, 3G and 4G concepts (qualitativeonly).GPS navigation system (qualitative idea only)

Reference Books:

1. Electronic Communications, D. Roddy and J. Coolen, Pearson Education India.
2. Advanced Electronics Communication Systems- Tomasi, 6th edition, Prentice Hall.
3. Modern Digital and Analog Communication Systems, B.P. Lathi, 4th Edition, 2011, Oxford University Press.
4. Electronic Communication systems, G. Kennedy, 3rdEdn., 1999, Tata McGraw Hill.
5. Principles of Electronic communication systems – Frenzel, 3rd edition, McGraw Hill
6. Communication Systems, S. Haykin, 2006, Wiley India
7. Electronic Communication system, Blake, Cengage, 5th edition.
8. Wireless communications, Andrea Goldsmith, 2015, Cambridge University Press

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Paper II
ELB 202 :MICROPROCESSOR ANDMICROCONTROLLER

Theory: **Max. Marks :50**

Unit-1

Microcomputer Organization: Input/Output Devices. Data storage (idea of RAM andROM). Computer memory. Memory organization & addressing. Memory Interfacing. Memory Map.
8085 Microprocessor Architecture: Main features of 8085. Block diagram. Pin-outdiagram of 8085. Data and address buses. Registers. ALU. Stack memory. Program counter.

Unit-2

8085 Programming : Instruction classification, Instructions set (Data transfer includingstacks. Arithmetic, logical, branch, and control instructions). Subroutines, delay loops. Timing & Control circuitry. Timing states. Instruction cycle, Timing diagram of MOV and MVI. Hardware and software interrupts.

Unit-3

8051 microcontroller: Introduction and block diagram of 8051 microcontroller,architecture of 8051, overview of 8051 family, 8051 assembly language programming, Program Counter and ROM memory map, Data types and directives, Flag bits and Program Status Word (PSW) register, Jump, loop and call instructions.

Unit 4

8051 I/O port programming: Introduction of I/O port programming, pin out diagram of8051 microcontroller, I/O port pins description & their functions, I/O port programming in 8051 (using assembly language), I/O programming: Bit manipulation.
8051 Programming: 8051 addressing modes and accessing memory locations usingvarious addressing modes, assembly language instructions using each addressing mode, arithmetic and logic instructions,

Unit 5

8051 programming in C: for time delay & I/O operations and manipulation, for arithmetic and logic operations, for ASCII and BCD conversions.
Introduction to embedded system: Embedded systems and general purpose computersystems. Architecture of embedded system. Classifications, applications and purpose of embedded systems.

Reference Books:

1. Microprocessor Architecture Programming & applications with 8085, 2002, R.S. Goankar, Prentice Hall.
2. Embedded Systems: Architecture, Programming & Design, Raj Kamal, 2008, Tata McGraw Hill
3. The 8051 Microcontroller and Embedded Systems Using Assembly and C, M.A. Mazidi, J.G. Mazidi, and R.D. McKinlay, 2nd Ed., 2007, Pearson Education India.
4. Microprocessor and Microcontrollers, N. Senthil Kumar, 2010, Oxford University Press
5. 8051 microcontrollers, Satish Shah, 2010, Oxford University Press.
6. Embedded Systems: Design & applications, S.F. Barrett, 2008, Pearson Education India
7. Introduction to embedded system, K.V. Shibu, 1st edition, 2009, McGraw Hill
8. Embedded Microcomputer systems: Real time interfacing, J.W. Valvano 2011, Cengage Learning

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ELECTRONICS LABORATORY

The scheme of practical examination will be as follows-

Experiment	**--**	**30**
Viva	**--**	**10**
Sessional	**--**	**10**
Total	**--**	**50**

ELB 203P: COMMUNICATIONELECTRONICS LAB

(Hardware and Circuit Simulation Software) 60 Lectures

Max.Marks:25

1. To design an Amplitude Modulator using Transistor
2. To study envelope detector for demodulation of AM signal
3. To study FM - Generator and Detector circuit
4. To study AM Transmitter and Receiver
5. To study FM Transmitter and Receiver
6. To study Time Division Multiplexing (TDM)
7. To study Pulse Amplitude Modulation (PAM)
8. To study Pulse Width Modulation (PWM)
9. To study Pulse Position Modulation (PPM)
10. To study ASK, PSK and FSK modulators

Reference Books:

1. Electronic Communication systems, G. Kennedy, 1999, Tata McGraw Hill.
2. Electronic Communication system, Blake, Cengage, 5th edition.

ELB 204P: MICROPROCESSOR ANDMICROCONTROLLER LAB(Hardware and Circuit Simulation Software)

Max.Marks:25

At least 06 experiments each from Section-A and Section-B

Section-A: Programs using 8085 Microprocessor

1. Addition and subtraction of numbers using direct addressing mode
2. Addition and subtraction of numbers using indirect addressing mode
3. Multiplication by repeated addition.
4. Division by repeated subtraction.
5. Handling of 16-bit Numbers.
6. Use of CALL and RETURN Instruction.
7. Block data handling.
8. Other programs (e.g. Parity Check, using interrupts, etc.).

Section-B: Experiments using 8051 microcontroller:

1. To find that the given numbers is prime or not.
2. To find the factorial of a number.
3. Write a program to make the two numbers equal by increasing the smallest number and decreasing the largest number.
4. Use one of the four ports of 8051 for O/P interfaced to eight LED's. Simulate binary counter (8 bit) on LED's .
5. Program to glow the first four LEDs then next four using TIMER application.
6. Program to rotate the contents of the accumulator first right and then left
7. Program to run a countdown from 9-0 in the seven segment LED display.
8. To interface seven segment LED display with 8051 microcontroller and display 'HELP' in the seven segment LED display.
9. To toggle '1234' as '1324' in the seven segment LED display.
10. Interface stepper motor with 8051 and write a program to move the motor through a given angle in clock wise or counter clockwise direction.
11. Application of embedded systems: Temperature measurement & display on LCD

Reference Books:

1. Microprocessor Architecture Programming & applications with 8085, 2002, R.S. Goankar, Prentice Hall.
2. Embedded Systems: Architecture, Programming & Design, Raj Kamal, 2008, Tata McGraw Hill
3. The 8051 Microcontroller and Embedded Systems Using Assembly and C, M.A. Mazidi, J.G. Mazidi, and R.D. McKinlay, 2nd Ed., 2007, Pearson Education India.
4. 8051 microcontrollers, Satish Shah, 2010, Oxford University Press.
5. Embedded Microcomputer systems: Real time interfacing, J.W. Valvano 2011, Cengage Learning

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B.Sc. II
BIOTECHNOLOGY

PAPER – I

MOLECULAR BIOLOGY & BIOPHYSICS

M.M. 50

UNIT-I

1. Nucleic Acid: Bases, Nucleosides and Nucleotides, DNA and RNA structure.
2. Plasmids.
3. Transposons: Repetitive elements, LINEs & SINEs, Structure of Gene.

UNIT-II

1. DNA Replication: Enzymes involved and mechanism of DNA Replication in Prokaryotes.
2. Mutation: Molecular level of Mutation, Types of Mutagens, Spontaneous and Induced Mutation.
3. DNA Repair: NER, BER and Mismatch Repair.

UNIT-III

1. Genetic Code: Features, Condon Assignment and Wobble hypothesis.
2. Transcription: Initiation, Elongation and Termination in Prokaryotes.
3. Translation: Initiation, Elongation and Termination Translation machinery in Prokaryotes. Operon-Concept of Operator, Regulator, Promoter gene, Inducer and Co-repressor.

UNIT –IV

1. Biophysics : Introduction, Scope and Application
2. Principle, Structure, Functions of the following:
   a. Microscopy b. Colorimeter and Spectroscopy c. Electrophoresis
   d. Centrifugation e. Chromatography.

UNIT –V

1. Radioisotopes techniques: Measurement of radioactivity, Ionization Chambers, Geiger Muller and Scintillation Counter.
2. Autoradiography and DNA Fingerprinting.
3. Biosensor.

List of Books

1. Gerald Karp - Cell and Molecular biology, 4th Edition (2005).
2. Lewis J.Klein Smith and Valerie M.Kish-Principles of cell and molecular biology-Third
3. Edition (2002)
4. P.K. Gupta- Cell and molecular biology, Second Edition (2003), Rastogi publications.
5. Richard M-Twyaman-Advanced Molecular Biology, First South Asian Edition (1998), VivaBooks Pvt. Ltd.
6. K. Wilson and J.Walker (2012) Principle and Techniques of Biotechnology and MolecularBiotechnology.
7. Upadhya and Upadhya : Biophysical Chemistry.
8. David, I. Nelson and Michael M.Cox :Lehniger : Principal of Biochemistry 4th Edition. W.H. Freeman and Company, New York.
9. Buchanan, Gruissemen& Jones (2015) Biochemistry & Molecular Biology of Plant, 2nd edition.

B.Sc. II
BIOTECHNOLOGY

PAPER II

RECOMBINANT DNA TECHNOLOGYAND GENOMICS

M.M. 50

UNIT-I

1. Recombinant DNA technology: General concept. Steps in gene cloning and application.
2. Host controlled Restriction Modification System, Ligases and Polymerases, Klenow fragment, Taq, Pfu polymerase and Nuclease (Endo, Exo and restriction endonuclease).
3. Modification Enzyme (Kinase, Phosphates and terminal deoxynucleotidyl transferase). Reverse Transcriptase.

UNIT –II

1. Vectors: Plasmid, Bacteriophages, Cosmid, SV40 and Expression vectors.
2. Gene Library: Genomic and cDNA library.
3. Selection and Screening of Recombinants: Genetic and Hybridization methods.

UNIT –III

1. PCR: Types of PCR, Steps (Denaturation, Annealing and Extension); Applications, Advantages and Limitation of PCR.
2. Molecular Marker-RFLP, RAPD and Micro array.
3. Human Genome Project.

UNIT-IV

1. Basic concept of Gene Transfer Methods: Microinjection, Electroporation, Lipofection and Microprojectile.
2. Gene Therapy: *In vivo* and *Ex vivo*, Germ line and Somatic gene therapy.
3. Basic idea of Stem cell technology: Types of stems cell cultures and their Significance.

UNIT-V

1. Introduction to Bioinformatics: History, Objective and Application.
2. Major Bioinformatics Resource – NCBI , Types of Databases (Primary and Secondary Databases) , BLAST and FASTA
3. Basic concept of Genomics and Proteomics

List of Books

1. B.D. Singh (2004) Biotechnology, Expanding Horizons. First Edition. Kalyani Publishers, Ludhiana.
2. P.K. Gupta (2005) Biotechnology and Genomics, Rastogi Publication, Meerut.
3. Stan bury and Whittaker - Principles of Sterilization techniques, First Indian reprint Edition (1997). Aditya Book (P) Ltd. New Delhi.
4. L.E. Casida (1994)Industrial Microbiology Edition .
5. A.H. Patel (2003) Industrial Microbiology 4th Edition.
6. K.S. Bilgrami and A.K. Pandey(1998) Introduction to Biotechnology Edition 2nd (1998)
7. U Satyanarayan (2005) Biotechnology, First Edition Books and Allied (P) Ltd. Kolkata.
8. Atul kumar and VandanaA.Kumar (2004) Plant Biotechnology and tissue culture, Principle and Perspectives, International Books Distributing Co. Lucknow.
10. S Choudhuri, and DB Carlson (2008) Genomics: Fundamentals and applications, 1st edition.
11. TK Attwood and DJ Parry (2009) Introduction of Bioinformatics.
12. Philip E Bourne Helge Whisking (2003) Structural Bioinformatics.
13. Des Higgins and Willie Taylor (2000) Bioinformatics Sequence, Structure and Databanks.

List of Practical's

MOLECULAR BIOLOGY, BIOPHYSICS, RECOMBINANT DNA TECHNOLOGY AND GENOMICS

1. Isolation of DNA from Plant cell.
2. Estimation of DNA by DPA method.
3. Isolation RNA from yeast cells

Experiment based on-

4. Centrifugation
5. Spectrophotometer/Colorimeter
6. Electrophoresis
7. Paper chromatography/TLC

Experiment based on Bioinformatics -

8. Retrieve DNA /Protein sequence from Biological Data Bases (NCBI).
9. Use of tools studied

SCHEME FOR PRACTICAL EXAMINATION

Time: 4 hrs. M.M.: 50

1. Experiment based on DNA/RNA	10 marks
2. Experiment based on Instruments	10 marks
3. Experiment based on Bioinformatics	10 marks
4. Spotting	10 marks
5. *Viva - Voce*	05 marks
6. Record / Sessional	05 marks

FORESTRY
PAPER - I

MM: 50

UNIT- I

Social Forestry

Scope, object and type, important social forestry schemes, economic benefits of social forestry

UNIT- II

Joint Forest Management

Definition, scope and objects, People's participation in JFM, constraints in obtaining people's participation

UNIT- III

Forest Management

Definition, scope and objects,
Brief idea of the following-

a. Growing stock
b. Rotation
c. Sustained yield
d. Normal forest

UNIT- IV

Forest Measurement

Definition, scope and object, measurement of height of trees, measurement of diameter of trees, measurement of girth of tree

UNIT- V

Forest Organisation

Geographical, climatic and functional classification,
Legal classification,
Territorial classification,
Administrative (organizational) classification,
Management (Silvicultural) classification- working circle, felling series, cutting section, coupes and periodic bricks

FORESTRY
PAPER – II

MM: 50

UNIT- I

Wood Anatomy

Introduction, anatomical structure of wood, physical properties of wood, mechanical properties of wood.

UNIT- II

Logging

Felling and conversion, transport, storage, grading of timber

UNIT- III

Minor Forest Products

Definition of minor forest product

General idea of following MFPs of India –

a. Fuel wood
b. Fibre and flosses
c. Grass, Bamboo
d. Essential oils
e. Oilseed
f. Tans and dyes
g. Medicinal plants

UNIT- IV

Forest Based or Wood Based Industries

Pulp and paper, Cutch and Katha, Lac and manufacture of shellac, Resin tapping and manufacture of turpentine and rosin, Charcoal burning

UNIT- V

Forest and Tribals

Life and livelihood: Tribal's, tribal's and forests, constitutional safeguards, tribal welfare and development

REFERENCE BOOKS

1. Forestry for people- S.A. Shah
2. Social forestry- S.S. Negi
3. Forest management- Ram Prakash
4. A hand book of forest utilization- Mehta
5. Theory & practices of Silvicultural systems- Ram Prakash and Khanna
6. Forest mensuration- Chaturvedi and Khanna
7. Forestry in India- V.P. Agrawal
8. Bharat ki janjatiyan- Dr. Shiv Kumar Tiwari
9. Tribal in India- Nadeem Hasnain

FORESTRY
PRACTICAL

MM: 50

List of Practicals

1. Measurement of Diameter, girth, height etc.
2. Nursery management
3. Handling of nursery stock
4. Field planting methods

TASAR TECHNOLOGY
PAPER- I
SEED TECHNOLOGY AND REELING

MM: 50

UNIT- I

1. Spinning behaviour of non-mulberry cocoons, Physical and commercial characters of cocoons.
2. Pierced cocoons: storage and disposal
3. Marketing of cocoons: price fixation according to silk content
4. Selection & transportation of cocoon for reeling

UNIT- II

1. Economics of seed organisation: Equipment for preparation of economically viable unit of grainage, cocoon DFLS-ratio, manpower requirement.
2. Organising a grainage, cost of preparation of DFLS.
3. Maintenance of records and registers in grainage.
4. Economics of seed production: salaries, wages, establishment, charges, cold storing of eggs, sale of eggs, cost of chemical equipments, egg sheets, furniture, contingencies & miscellaneous expenditure.

UNIT- III

1. Protective measures in seed production
2. SILK REELING: Introduction, evolution, importance & statistics of silk reeling
3. Position of reeling industry in India and other silk producing countries.
4. Raw materials for silk reeling-factor affecting the production of silk yarn, different varieties their characteristics.

UNIT- IV

1. Reeling: object, details study of yarn passage, raw silk yarn size (denier) and importance.
2. Physical, Chemical & Microscopic properties of tasar silk. Uses of tasar silk, different type of silk yarn & their characteristics and uses.
3. Difference between mulberry and non-mulberry silk, Main problem of reeling of tasar silk.
4. Silk testing & quality control: Testing of raw silk, advantage of testing, silk conditioning and testing house, wining test, Seri-plane and serigraph tests, cohesion and standardisation of raw silk.

UNIT- V

1. Reeling machine: Conventional charkha, improved charkha, cottage basin/filature basin, multi end silk reeling basin.
2. Automatic & semi-automatic reeling machine, recent advances in reeling.
3. Re-reeling & packing: object, importance of re-reeling yarn distribution and skein formation, skein finishing, Raw silk book making and building.
4. Stifling: Definition, various methods of stifling.

TASAR TECHNOLOGY
PAPER-II
SPINNING, DYEING & PRINTING OF TASAR SILK

MM: 50

UNIT-I

1. Spinning: Principles of spanning. Charkha spinning. Hand spinning, spun silk mills, spun silk Industry.
2. Silk throwing: Introduction. Objective of silk throwing preparation for twisting (Highlight) twist-high twist & low twist.)
3. Winding: object of winding, principle of winding, types and methods of winding.
4. Silk processing: Degumming of silk. Bleaching. Dyeing finishing.

UNIT-II

1. Types of water used in processing.
2. Process Involved in spun silk preparation: washing drying opening. Filling. Combing. Drawing, rowing. Spinning, doubling. Gassing, cleaning, recalling.
3. Introduction of textile fibre general properties classification of textile fibre Physical and chemical properties of different fibres (Tasar, well, action deflector.)

UNIT-III

1. Establishment of small reeling units, efficiency, machinery management, production & economics.
2. By products of silk, pupa different types of silk waste.
3. Traditional ghicha preparation of tasar silk blending of tasar silk with other fibre and its problems.
4. Noil and noil yarns

UNIT-IV

1. Bleaching: Introduction of bleaching, purpose of bleaching, bleaching of tasar silk, wool & cotton.
2. Dyeing: Introduction of dyeing of tasar silk, cotton and wool with different class of dyestuffs normally used after their treatment.
3. Printing: Introduction of printing, study of different methods and styles of printing.

UNIT-V

1. Printing of tasar silk & cotton by block method, with different group of colour normally used.
2. Brief Idea of transfer and foam Printing, thickening agents.
3. Finishing: Introduction of finishing, classification of finishing, study of different type of temporary and permanent finishing of tasar silk and cotton.

PRACTICALS
PAPER-I: SEED TECHNOLOGY AND REELING.
PAPER-II: SPINNING, DYEING & PRINTING OF TASAR SILK.

MM: 50

1. Sorting and grading of tasar cocoons.
2. Determination of physical/commercial characters of cocoons.
3. Stifling and cooking of tasar cocoon.
4. Reeling of tasar cocoons on natwa.
5. Study of reeling and spinning machines.
6. Identification of textile fibres, silk, wool & cotton.
7. Flaw of grainage buildings & equipment.
8. Cutting of seed cocoons: sex separation. By rupal methods.
9. Study of multi-end silk reeling machine, automatic & semi-automatic reeling mechine.
10. Study of silk testing: winding test, denier (size) test.
11. Degumming of raw silk yarn and silk waste by soap & soda method.
12. Study of silk fabric manufacturing unit: power loom & hand loom.
13. Study of silk dying and printing unit: visit to practical centers.
14. Charkha reeling.: economic model of silk reeling unit
15. Visit to seed cocoon markets.
16. Visit to multi-voltime & bi-voltime seed forms.
17. Visit to temperate & tropical states of India.
18. Provision to arrange guest/ lectures/film/slide shows.

LIST OF REFERENCE BOOKS:-

1. Silkworm Egg: by Y. Tazima (1962) Published by CSB Bombay.
2. Silk Dyeing, Printing and Finishing: Gulrabani.
3. Sericulture & Silk Industry: by Tripurali Sharma.
4. Silk Processing: by Kim.
5. Technology of Printing: by Shenai.
6. Finishing: by Marsh.
7. Dye & Dye Intermediates: by S.B.P.
8. Raw Silk Reeling: by B.H. Kim.
9. Silk of Industry Problem and Prospects: by A. Ajab, H. Lawpper.
10. Dying of Textile Fibres: by Shenai.
11. The Development of Indian Silk: by Sanjay Sinha (1990)

केन्द्रीय अध्ययन मंडल द्वारा अनुशंसित पाठ्यक्रम

बी.एससी.

विषय : भूविज्ञान

सत्र : 2018 – 2019

बैठक दिनांक : 11जून 2018

उपस्थित सदस्यों के नाम एवं हस्ताक्षर :

1. डॉ निनाद बोधनकर अध्यक्ष :
2. डॉ. एम.डब्लू.वाय.खान :
3. प्रो. एस.के. चन्द्राकर :
4. प्रो. प्रदीप सिंह गौर :
5. डॉ. एस.एस.भदौरिया :
6. डॉ. एस.डी.देशमुख :
7. डॉ. प्रशांत श्रीवास्तव :
8. प्रो. महफूज आरिफ :

Scheme of Examination

कक्षा	प्रश्नपत्र	विषय समूह	सैद्धा.अंक	प्रायो.अंक	योग

BSc. I year	I	भूगतिकी एवं भू–आकृति विज्ञान (Geodynamics & Geomorphology)	50	50	150
	II	खनिज एवं क्रिस्टल विज्ञान (Mineralogy & Crystallography)	50		
BSc. II year	I	शैलिकी (Petrology)	50	50	150
	II	संरचनात्मक भूविज्ञान (Structural Geology)	50		
BSc. III year	I	जीवाश्म विज्ञान एवं संस्तर विज्ञान (Palaeontology & Stratigraphy)	50	50	150
	II	भूसंसाधन एवं व्यावहारिक भूविज्ञान (Earth Resources & Applied Geology)	50		

-: Note :-

प्रत्येक वर्ष के विद्यार्थियों हेतु पाठ्यक्रम में उल्लेखित भूवैज्ञानिक क्षेत्रीय अध्ययन अनिवार्य होगा।

कक्षा / Class- B.Sc-I

Paper –I

भूगतिकी एवं भूआकृति विज्ञान

(Geodynamics & Geomorphology)

इकाई– 01 (i) भूविज्ञान एवं परिप्रेक्ष्य; सौरमण्डल में सूर्य की स्थिति ; परिमाण, आकार, संहति, घनत्व।

(ii) पृथ्वी की उत्पत्ति

(iii) पृथ्वी की आंतरिक संरचना, भूपर्पटी, प्रवार एवं क्रोड

(iv) पृथ्वी की आयुः निर्धारण की विघटनाभिक विधियॉ

(v) वायुमण्डल, जलमण्डल एवं जैवमण्डल का निर्माण एवं संगठन

इकाई– 02 (i) प्लेटविवर्तनिकी का प्रारंभिक– अध्ययन

(ii) महाद्वीपीय विस्थापन की अवधारणायें एवं सिद्धान्त

(iii) समस्थैतिकी की अवधारणायें एवं सिद्धान्त

(iv) समुद्रतल विस्तारण की साक्ष्य

(v) समुद्र, महाद्वीप एवं पर्वतों की उत्पत्ति

इकाई– 03 (i) भूकम्पः भूकम्प की पट्टियॉ, भूकम्प की तीव्रता

(ii) ज्वालामुखीः प्रकार एवं विवरण

(iii) अंतःसमुद्रीपर्वतों, चापाकार द्वीपमालाओं एवं खाइयों का उद्भव, विवरण एवं महत्व

(iv) महाद्वीपीय तटीय क्षेत्रों की विवर्तनिकी : सक्रिय तट एवं सीमांतीय द्रोणियॉ

(v) नवविवर्तनिकी : सक्रियभ्रंश, अपवाह परिवर्तन

इकाई– 04 (i) भूआकृति विज्ञान की मूलभूत धारणायें

(ii) भूआकृतिक कारक एवं शैल अपक्षय की प्रक्रियायें,

(iii) नदी के भूवैज्ञानिक कार्य एवं नदीय भूआकृतियॉ

(iv) वायु के भूवैज्ञानिक कार्य एवं वायुजनित भूआकृतियॉ

(v) हिमनदों के भूवैज्ञानिक कार्य एवं हिमनदजनित भूआकृतियॉ

इकाई– 05 (i) समुद्र के भूवैज्ञानिक कार्य एवं तटीय भूआकृतियॉ

(ii) भूमिगत जल के भूवैज्ञानिक कार्य एवं कार्स्टस्थलाकृति

(iii) ज्वालामुखीय भूआकृतियॉ

(iv) पृथ्वी का उष्माबजट एवं वैश्विक जलवायु परिवर्तन

(V) भारत का भूआकृति विभाजन

प्रायोगिक कार्य–

(1) भूआकृतिक संरचनाओं को प्रदर्शित करने वाले प्रादर्शो का अध्ययन

(2) स्थलाकृतिक मानचित्रों का अध्ययन एवं विभिन्न पैमानों पर सूचक–निर्धारण की जानकारियॉ

(3) भूआकृतिक–मानचित्रों में विभिन्न भूआकृतियों एवं प्रवाह प्रणालियों का अध्ययन

(4) भारत के रेखित–मानचित्र में मुख्य पर्वतों, झीलों एवं नदियों को अंकित करना

(5) भारत के रेखित मानचित्र में भूकम्प प्रेक्षणालयों को अंकित करना

(6) भारतीय महाद्वीपों में आये भूकम्पों का अधिकेन्द्र एवं तीव्रता को मानचित्र में अंकित करना।

(7) आकारमितिक विश्लेषण

Class- B.Sc-I

Paper –I

(Geodynamics & Geomorphology)

Unit:1

(i) Geology & it perspectives. Earth in the solar system; size, shape, mass, & density.

(ii) Origin of Earth.

(iii) Internal structure of Earth, Crust, Mantle and Core.

(iv) Age of Earth: with special emphasis on Radioactive dating.

(v) Formation & composition of Hydrosphere, & Biosphere & Atmosphere.

Unit:2

(i) Elementary idea about Plate-Tectonics.

(ii) Concept & theories of continental-drift

(iii) Concept & theories of lsostasy.

(iv) Evidences of Sea-floor spreading.

(v) Origin of oceans, continents & mountains.

Unit:3

(i) Earthquakes, Earthquake Belts, measurement of Earthquakes.

(ii) Volcanoes: Types & distribution.

(iii) Mid –oceanic- ridges, trenches & island arc; origin, distribution & importance.

(iv) Tectonic of continental margins; Active margins & marginal basins.

(v) Neo-tectonics; active faults, drainage changes.

Unit:4

(i) Fundamental concepts of Geomorphology.

(ii) Geomorphic agents & processes of rock-weathering.

(iii) Geological work of rivers; fluvial land forms.

(iv) Geological work of wind; Aeolian land forms.

(v) Geological work of Glaciers; glacial land forms.

Unit:5

(i) Geological work of oceans; coastal land forms.

(ii) Geological work of Ground water. Karst topography.

(iii) Volcanic land forms.

(iv) Earth's heat budget & global climatic changes.

(v) Physiographic divisions of India.

PRACTICALS:

(1) Study of models showing various Geomorphic features.

(2) Numbering, Indexing of topographic maps on various scales.

(3) Interpretation of various Geomorphic landforms & drainage pattern on topographic maps.

(4) Plotting of major mountain Ranges, Lakes & rivers on outline map of India.

(5) Plotting of seismic observatories on outline map of India.

(6) Plotting of epicenters & magnitude of major earthquakes of Indian subcontinents.

(7) Morphometric analysis.

Suggested Readings:-

भौतिक–भूविज्ञान	–	डॉ.मुकुल घोष–
भौतिक–भूविज्ञान	–	जे.पी. तिवारी एव ंबी.के. सिंह–
भूआकृति–विज्ञान	–	डॉ.सविन्द्र सिंह
भूविज्ञान एक परिचय	–	डॉ.विद्यासागर दुबे
Physical Geology	-	Miller
Principles of physical geology	-	A. Holmes
An introduction to physical geology-		A.K. Dutta
Principles of Geomorphology	-	W.D. Thornbury
Principles of Geomorphology	-	A.F. Ahmed

कक्षा / Class- B.Sc-I

Paper –II

खनिज एवं क्रिस्टल विज्ञान

(Mineralogy & Crystallography)

इकाई– 01
(i) खनिज एवं क्रिस्टल की परिभाषा।
(ii) क्रिस्टल संरचना एवं एकांक कोष।
(iii) क्रिस्टल के तत्व, क्रिस्टल रूप।
(iv) क्रिस्टलीय अक्ष एवं अक्षीय कोण।
(v) क्रिस्टल नोटेशन, अन्तःखण्डीय अनुपात एवं सूचकांक

इकाई– 02
(i) क्रिस्टल विज्ञान के नियम।
(ii) क्रिस्टलीय सममिति।
(iii) क्रिस्टलों का वर्गीकरण। क्रिस्टल समुदायों के सामान्यवर्ग की सममिति।
(iv) सामान्य वर्ग के रूप।
(v) क्रिस्टलों में यमलन।

इकाई– 03
(i) प्रकाश की प्रकृति, प्रकाश का परावर्तन एवं अपवर्तन।
(ii) अपवर्तनांक, क्रांतिक कोण, पूर्ण आंतरिक परावर्तन एवं बेके प्रभाव।
(iii) द्वि–अपवर्तन, निकॉल प्रिज्म की रचना एवं कार्य प्रणाली।
(iv) ध्रुवण सूक्ष्मदर्शी : अवयव एवं कार्यप्रणाली।
(v) खनिजों के प्रकाशीय गुण।

इकाई– 04
(i) सिलिकेट संरचनाएं
(ii) खनिजों में बंध।
(iii) समाकृतिकता, बहुरूपता एवं कूटरूपता।
(iv) ठोस–विलयन
(v) खनिजों के भौतिक गुण।

इकाई– 05 निम्नलिखित खनिज समूहों के संगठन, भौतिक एवं प्रकाशकीय गुणों का अध्ययन–

(i) ऑलिवीन्, गार्नेट एवं अभ्रक समूह।

(ii) पायरॉक्सीन।

(iii) एम्फीबोल।

(iv) फेल्सपार।

(v) सिलिका।

प्रायोगिक कार्य–

(1) क्रिस्टल मॉडल में सममिति तत्वों का अध्ययन।

(2) क्रिस्टल समुदायों की मूल आकृतियों का अध्ययन।

(3) यूलर प्रमेय का सत्यापन।

(4) प्रमुख शैलकर खनिजों का स्थूलदर्शी अध्ययन।

(5) ध्रुवण–सूक्ष्मदर्शी की सहायता से प्रमुख शैलकर खजिनों के प्रकाशीय गुणों का अध्ययन।

(6) सात दिवसीय भूवैज्ञानिक क्षेत्रीय अध्ययन

Class- B.Sc-I

Paper –II

(Mineralogy & Crystallography)

Unit:1

(i) Definition of Mineral and Crystal.

(ii) Crystal structures, Unit cells

(iii) Elements of crystal. Crystal forms.

(iv) Crystallographic axes and axial angles.

(v) Parameters and indices of crystal notation

Unit:2

(i) Laws of Crystallography

(ii) Crystal symmetry

(iii) Classification and symmetry of normal classes of seven crystal systems

(iv) Forms of normal classes.

(v) Twinning in crystals

Unit:3

(i) Nature of light : reflection and refraction of light.

(ii) Refractive index. Critical angles. Total internal reflection and Becke effect.

(iii) Double refraction. Nicol prism it's construction and working.

(iv) Polarizing Microscope- its parts & functions.

(v) Optical properties of minerals.

Unit:4

(i) Silicate structures.

(ii) Bonding in Minerals.

(iii) Isomorphism. Polymorphism and Pseudomorphism.

(iv) Solid solution

(v) Physical properties of minerals

Unit:5 Study of Composition, physical and optical properties of the following Mineral groups:

(i) Olivine, Garnet and Mica groups.

(ii) Pyroxenes

(iii) Amphiboles

(iv) Feldspars

(v) Silica

PRACTICALS-

(1) Study of symmetry elements in crystal models.

(2) Study of Fundamental forms of normal classes of all seven crystal system.

(3) Verification of Euler's theorem.

(4) Study of Physical properties of rock forming minerals.

(5) Study of the optical properties of important rock forming minerals using polarizing Microscopes.

(6) Geological excursion for seven days.

Suggested Readings:

Rutley's elements of Mineralogy	:	Read, H.D.
Dana's text book of Mineralogy	:	Ford W.E.
खनिज तथा क्रिस्टल विज्ञान	–	डॉ.बी.सी. जैश
खनिज विज्ञान के सिद्धांत	–	डॉ. ए.सी. अग्रवाल
प्रायोगिक भू–विज्ञान (भाग–1)	–	डॉ. र. प्र. मांजरेकर
प्रकाशीय खनिज विज्ञान के मूल तत्व	–	विंचेल

कक्षा / Class- B.Sc-II

Paper –I

शैलिकी

(PETROLOGY)

इकाई–01

(i) मैग्मा; परिभाषा, उत्पत्ति एवं संगठन

(ii) बोवेन की अभिक्रिया श्रेणी, मैग्मीय विभेदन एवं स्वांगीकरण

(iii) तंत्र, प्रावस्था एवं घटक, उष्मागतिकी के सिद्धांत, एकघटकीय (सिलिका) द्विघटकीय ऐल्बाईट–एनार्थाइट तथा डायोप्साइड–एनार्थाइट एवं त्रिघटकीय सिलिकेट सिस्टम डायोप्साइड–एल्बाइट–एनार्थाइट क्रिस्टलीकरण, प्रावस्था संतुलन

(iv) आग्नेय शैलों का गठन, संरचनायें एवं वर्गीकरण

(v) आग्नेय शैलों का रूप

इकाई–02

(i) दिक्काल में शैल–संलग्नता, शैल–ग्रंथियों की अवधारणा

(ii) अम्लीय आग्नेय शैलों का शिला विवरणात्मक अध्ययन

(iii) क्षारीय आग्नेय शैलों का शिला–विवरणात्मक अध्ययन

(iv) अल्पसिलिक आग्नेय शैलों का शिलाविवरणात्मक अध्ययन

(v) अत्यल्पसिलिक आग्नेय शैलों का शिलाविवरणात्मक अध्ययन

इकाई–03

(i) अवसाद की उत्पत्ति, परिवहन एवं निक्षेपण

(ii) अवसाद निक्षेपण की वायूढ़, जलोढ़, तटीय, एवं गंभीर समुद्री वातावरण की गतिकी

(iii) अवसादी संलक्षणाओं की अवधारणा

(iv) डायजिनेसिस की अवधारणा

(v) अवसादी शैलों का गठन एवं संरचनायें

इकाई–04

(i) अवसादी शैलों का वर्गीकरण

(ii) अवसादी शैलों की शैलिकी : रूडेशियस, एरेनिशियस, केल्केरियस अवसादी शैल

(iii) कायान्तरणः परिभाषा एवं कारक, संलक्षणा, कायान्तरण श्रेणी

(iv) कायान्तरित शैलों का गठन, संरचना एवं वर्गीकरण

(v) कायान्तरण प्रक्रियाओं की साम्य एवं असाम्य अभिक्रियायें

इकाई–05 (i) पैराजिनेटिक–ओरखः प्रक्षपीय विशेलषण, ए.सी.एफ. एवं ए.के.एफ. आरेख

(ii) मृण्मय अवसादों का प्रगामी कायान्तरण

(iii) अशुद्ध चूना पत्थरों का प्रगामी–उष्मागतिक कायान्तरण

(iv) अल्प सिलिक शैलों का प्रगामी उष्मागतिक कायान्तरण

(v) भारत का शैलिकीय–प्रादेशिक विभाजन

प्रायोगिक कार्य–

(1) आग्नेय, अवसादी एवं कायान्तरित शैलों के विभिन्न रूपों को रेखाचित्र की सहायता से प्रदर्शित करना।

(2) विभिन्न आग्नेय शैलों का स्थूलदर्शी अध्ययन/सूक्ष्मदर्शी अध्ययन

(3) विभिन्न अवसादी शैलों का स्थूलदर्शी/सूक्ष्मदर्शी अध्ययन

(4) विभिन्न कायान्तरित शैलों का स्थूलदर्शी/सूक्ष्मदर्शी अध्ययन

(5) भारत के शैलिकीय प्रदेशों का मानचित्र में प्रदर्शन

Suggested Readings:-

(1) शैलिकी के सिद्धान्त – डॉ.अंबिका प्रसाद अग्रवाल

(2) शैलिकी के सिद्धान्त – ए.जी. झिंगरन

(3) Principles of petrology - G.W. Gyrrel

(4) Petrology - H.William, F.J. Turner & E.M. Gilbert

(5) Petrology of igneous & metamorphic rocks of India- S.C. Chattarjee

(6) A text book of sedimentary petrology - Verma & Prasad

(7) Metamorphism & Metamorphic rocks of India- S.Ray

(8) Sedimentary rocks - F.J. Pettijhan

(9) Introduction of sedimentology - S.Sengupta

(10) Sedimentary environment - H.G. Readings

Class- B.Sc-II

Paper –I

(PETROLOGY)

Unit:1

(i) Magma, definition, origin & composition

(ii) Bowen's reaction series, magmatic differentiation & assimilation

(iii) System, phases & component, principles of thermodynamics,
Bi-component magma: Albite-Anorthite and Diposide-Anorthite
Tri-component magma: Diopside-Albite-Anorthite

(iv) Texture, structures & classification of igneous rocks

(v) Forms of igneous rocks

Unit:2

(i) Rock association in Time & Space, concepts of rock kindreds

(ii) Petrographic studies of Acid igneous rocks.

(iii) Petrographic studies of Alkaline igneous rocks

(iv) Petrographic studies of Basic igneous rock

(v) Petrographic studies of Ultrabasic igneous rocks.

Unit:3

(i) Origin, transportation & deposition of sediments

(ii) Dynamics of sedimentary depositional environment ; Aeolian, fluvial, coastal and abyssal environment.

(iii) Concepts of sedimentary facies

(iv) Concepts of diagenesis

(v) Textures & structures of sedimentary rocks.

Unit:4

(i) Classification of sedimentary rocks.

(ii) Petrography of sedimentary rock; rudaceous, aranaceous, calcareous sedimentary rocks

(iii) Metamorphism; definition, agents, facies & grade

(iv) Textures, structures & classification of metamorphic rocks.

(v) Equilibrium & non-equilibrium reactions in metamorphism.

Unit:5

(i) Paragenetic diagrams; projective analysis A.C.F & A.K.F. diagrams

(ii) Progressive metamorphism of Argillaceous rocks.

(iii) Progressive dynamo-thermal metamorphism of impure lime-stone.

(iv) Progressive dynamo-thermal metamorphism of basic igneous rocks.

(v) Petrographic provinces of India.

Practical:

(1) Diagrammatic representation of various form & structures of igneous, sedimentary & Metamorphic rocks

(2) Megascopic studies of various sedimentary, metamorphic & igneous rocks.

(3) Microscopic studies of various sedimentary, metamorphic & igneous rocks.

(4) Norm calculation

(5) Diagrammatic representation of petrography provinces of India in outline map of India.

Suggested Readings:-

(1) शैलिकी के सिद्धान्त – डॉ.अंबिका प्रसाद अग्रवाल

(2) शैलिकी के सिद्धान्त – ए.जी. झिंगरन

(3) Principles of petrology - G.W. Tyrell

(4) Petrology - H.William, F.J. Turner & E.M. Gilbert

(5) Petrology of igneous & metamorphic rocks of India- S.C. Chattarjee

(6) A text book of sedimentary petrology - Verma & Prasad

(7) Metamorphism & Metamorphic rocks of India- S.Ray

(8) Sedimentary rocks - F.J. Pettijohn

(9) Introduction of sedimentology - S.Sengupta

(10) Sedimentary environment - H.G. Readings

कक्षा / Class- B.Sc-II

Paper –II

संरचनात्मक भू–विज्ञान

(STRUCTURAL GEOLOGY)

इकाई–01 (1) संरचनात्मक भूविज्ञान की परिभाषा एवं अध्ययन क्षेत्र।

(2) शैल दृष्यांशों का अध्ययन। दृष्यांशों पर नति तथा ढाल के प्रभाव।

(3) संस्तरण की पहचान। नति एवं नतिलम्ब की माप।

(4) क्लाइनोमीटर एवं ब्रन्टन कम्पास।

(5) संस्तरों के शीर्ष तथा तल की पहचान।

(6) शैलविरूपण की अवधारणा। प्रतिबल तथा विकृति दीर्घवृत्तज की अवधारणा।

इकाई–02 (1) वलन की आकारिकी।

(2) वलन की ज्यामितिक एवं जननिक वर्गीकरण।

(3) स्थलीय तथा भूवैज्ञानिक मानचित्र में वलन की पहचान।

(4) दृश्यांशों पर वलन के प्रभाव।

(5) वलन क्रियाविधि की प्राथमिक अवधारणा।

इकाई–03 (1) भ्रंश आकारिकी। सर्पण और सेपरेशन।

(2) भ्रंश का ज्यामितिक एवं जननिक वर्गीकरण।

(3) स्थलक्षेत्र तथा भूवैज्ञानिक मानचित्र में भ्रंश की पहचान।

(4) दृश्यांशों पर भ्रंश के प्रभाव।

(5) भ्रंशन क्रियाविधि की प्राथमिक अवधारणा।

इकाई–04 (1) संधि; आकारिकी, संधि का ज्यामितिक एवं जननिक वर्गीकरण।

(2) पत्रण की परिभाषिक शब्दावली, प्रकार, उत्पत्ति एवं विशाल संरचनाओं से संबंध।

(3) रेखण की परिभाषिक शब्दावली, प्रकार, उत्पत्ति एवं विशाल संरचनाओं से संबंध।

(4) लवण गुम्बद,

(5) प्लूटान; विवर्तनिकी एवं अभिस्थापन

इकाई–05 (1) विषमविन्यास के प्रकार एवं पहचान।

(2) आउटलायर तथा इनलायर, अतिव्यापन तथा अपव्यापन।

(3) विवर्तनिकी की अवधारणा।

(4) प्रायद्वीपीय, सिंधु गंगा के मैदान तथा प्रायद्वीपेत्तर भारत का विवर्तनिकी विन्यास।

(5) त्रिविमीय प्रक्षेपण का भूविज्ञान में अनुप्रयोग।

प्रायोगिक कार्य–

(1) प्राकृतिक संरचनात्मक प्रादर्शो का अध्ययन।

(2) विभिन्न संरचनाओं का प्रादर्शो के माध्यम से अध्ययन।

(3) मानचित्र में दृश्यांश को पूरा करना।

(4) सरल से जटिल संरचनाओं को प्रदर्शित करने वाले मानचित्रों से भूवैज्ञानिक काट बनाना एवं भूवैज्ञानिक इतिहास की विवेचना करना।

(5) संरचनाओं के अध्ययन में स्टिरियोग्राफिक प्रोजेक्शन का अनुप्रयोग।

(6) सात दिवसीय भूवैज्ञानिक क्षेत्रीय अध्ययन

Class- B.Sc-II

Paper –II

(STRUCTURAL GEOLOGY)

Unit:1

(i) Definition and scope of Structural Geology. Study of outcrops. Effects of dip and slope on outcrops.

(ii) Identification of bedding. Dip and strike measurement.

(iii) Clinometer and Brunton compass.

(iv) Recognition of top and bottom of beds.

(v) Concept of rock deformation. Concept of stress and strain ellipsoids.

Unit:2

(i) Fold morphology.

(ii) Geometric and genetic classification of folds.

(iii) Recognition of folds in the field and on geological maps.

(iv) Effect of folds on outcrops.

(v) Elementary idea of mechanics of folding.

Unit:3

(i) Fault morphology. Slip and separation.

(ii) Geometric and genetic classification of faults.

(iii) Recognition of faults in the field and on geological maps.

(iv) Effect of faults on outcrops.

(vi) Elementary idea of mechanics of faulting.

Unit:4

(i) Joint morphology; geometric and genetic classification of joints.

(ii) Foliation; terminology, kinds, origin and relation to major structures.

(iii) Lineation: terminology, Kind, origin and relation to major structures.

(iv) Salt domes.

(vii) Plutons; tectonics & emplacement.

Unit:5

(i) Types and recognition of Unconformity.

(ii) Outlier and inlier. Overlap & offlap.

(iii) Concept of tectonics.

(iv) Tectonic framework of Peninsula, Indo-Gangetic Plains and Extra-Peninsular India.

(v) Stereographic projection & it use in Structural geology.

Practical-

(1) Study of Natural Structures on specimens.

(2) Study of structures with the help of models.

(3) Completion of outcrops.

(4) Preparation of geological section from simple to complex geological maps and its interpretation.

(5) Application of stereographic projection in structural geology.

(6) Geological excursion for seven days.

Books recommended:

(1) संरचनात्क भूविज्ञान – डॉ.डी.के. श्रीवास्तव

(2) भूवैज्ञानिक संरचनाएँ – डॉ. भरत सिंह राठौर

(3) प्रायोगिक भूविज्ञान (भाग–2) – आर.पी. मांजरेकर

(4) Structural Geology. M.P. Billings.

(5) Theory of Structural Geology; Gokhale, N.W. CBS

(6) Exercises on Geological maps and dip-Strike: Gokhale, N.W. CBS.

(7) Outlines of structural Geology. E.S. Hills.

(8) Structural Geology- Hobbs. Means and Williams.

(9) Geological maps- Chiplonkar and Pawar.

कक्षा / Class- B.Sc-III

Paper –I

जीवाश्म विज्ञान एवं संस्तर विज्ञान

(Palaeontology & Stratigraphy)

इकाई–01

(1) जीवाश्म विज्ञानः जीवाश्म, परिभाषा, जीवाश्मन की आवश्यक परिस्थितियॉ एवं विधियॉ

(2) जीवश्मों के उपयोग, सूचक–जीवाश्म एवं उनका महत्व

(3) संस्तर विज्ञान, पुरापारिस्थितिकी एवं पुराभूगोल के अध्ययन में जीवाश्म विज्ञान का महत्व।

(4) सूक्ष्मजीवाश्मविज्ञान एवं उसका महत्व।

(5) पादप जीवाश्मों का अध्ययन एवं उनका महत्व।

इकाई–02

(1) फोरामिनिफेरा एवं एंथोजोआ जीवाश्मों की आकारिकी एवं भूवैज्ञानिक वितरण।

(2) गेस्ट्रोपोडा एवं लेमिलिब्रेन्किया जीवाश्मों की आकारिकी एवं भूवैज्ञानिक वितरण।

(3) सिफेलोपोड़ा जीवाश्मों की आकारिकी एवं भूवैज्ञानिक वितरण।

(4) इकिनायडी एवं ब्रेकियोपोडा जीवाश्मों की आकारिकी एवं भूवैज्ञानिक वितरण।

(5) ट्राइलोबाइट एवं ग्रेप्टोलाइट जीवाश्मों की आकारिकी एवं भूवैज्ञानिक वितरण।

इकाई–03

(1) संस्तर विज्ञान के सिद्धान्त, भूवैज्ञानिक समय सारणी।

(2) अश्मसंस्तरिक, कालानुक्रम संस्तरिक एवं जैव संस्तरिक इकाईयों के विषय में मूलभूत धारणायें।

(3) भारतीय उपमहाद्वीप का संरचनात्मक एवं भौतिकीय उपविभाजन एवं उसकी विशिष्टतायें।

(4) भारत वर्ष के आद्यमहाकल्पीय (धारवार) शैलों का वितरण, वर्गीकरण, एवं आर्थिक महत्व।

(5) छत्तीसगढ़ के बस्तर, रावघाट, संघों का वितरण, संस्तर विज्ञान एवं आर्थिक महत्व।

इकाई–04 (1) विन्ध्य एवं छत्तीसगढ़ महासंघ के शैलों के वितरण, संसतर विज्ञान एवं आर्थिक महत्व।

(2) गोंडवाना महासंघ का संस्तर विज्ञान, पुराजलवायु, भौगोलिक वितरण एवं आर्थिक महत्व।

(3) डेक्कन ट्रेप का संस्तर विज्ञान, भौगोलिक वितरण एवं आयु।

(4) बाघ संस्तर एवं लेमेटा संस्तर का संस्तर विज्ञान, भौगोलिक वितरण एवं जीवाश्म।

(5) साल्ट रेंज क्षेत्रों के पुराजीव समूहों का भौगोलिक वितरण संस्तर विज्ञान एवं जीवाश्मिकी।

इकाई–05 (1) स्पिटी क्षेत्रों के पुराजीव समूहों का भौगोलिक वितरण, संस्तर विज्ञान एवं आर्थिक महत्व।

(2) त्रिचनापल्ली क्षेत्र के क्रिटेशियस शैलों का संस्तर विज्ञान, जीवाश्म एवं आर्थिकी।

(3) कच्छ क्षेत्र के जुरासिक शैलों का संस्तर विज्ञान, जीवाश्म एवं आर्थिकी।

(4) असम के तृतीयक महायुग समूह का भौगोलिक वितरण संस्तर विज्ञान एवं आर्थिकी।

(5) शिवालिक समूह का संस्तर विज्ञान, भौगोलिक वितरण एवं कशेरूकीय जीवाश्मीय तत्व।

प्रायोगिक कार्य:

(1) सैद्धातिक पाठ्यक्रम के अन्तर्गत उल्लेखित जीवाश्मों की आकारिकी का अध्ययन।

(2) प्रमुख पादप जीवाश्मों का अध्ययन।

(3) भारत के रेखा मानचित्र में विभिन्न संस्तर विज्ञानी इकाईयों को दर्शाना।

(4) भारत के प्रमुख भूआकृतिक एवं शैल विर्वतनिक इकाईयों को रेखा मानचित्र में प्रदर्शित करना।

Suggested Readings

(1) जीवाश्म विज्ञान के सिद्धांत– डॉ.अंबिका प्रसाद अग्रवाल

(2) जीवाश्म विज्ञान– डॉ. आर.पी. मिश्रा

(3) अकशेरूकी एवं कशेरूकीय जीवाश्म विज्ञान– डॉ. दीपक राज तिवारी

(4) भारत वर्ष का भूविज्ञान– डॉ.अंबिका प्रसाद अग्रवाल

(5) प्रायोगिक भू विज्ञान भाग–3– डॉ. गुप्ता, पुनवटकर, रघुवंशी

(6) Invertebrate Palaeontology- H.Woods.

(7) Introduction to Palaentology- A.N. Davis.

(8) An Introduction to Invertebrate Palaeontology- P.G. Jain & M.S. Anantha Raman

(9) Historical Geology of India- Ravidra Kumar

(10) Geology of India- R.Vidhyanathan & M.Ramkrishne (GSI Publication)

(11) Geology of India & Burma- M.S. Krishnan.

Class- B.Sc-III

Paper –I

(Palaeontology & Stratigraphy)

Unit-1

(1) Palaeontology: Fossils- definition, Essentials for fossilization mode of fossilization.

(2) Uses of fossils; Index fossils & their significance.

(3) Application of palaeontology in the study of stratigraphy. Palaeoecology And Palaeo-geography.

(4) Micro palaeontology & their significance.

(5) Study of plant fossils & their significance.

Unit-2

(1) Morphology & Geologic distribution of foraminifera & Anthozoa fossils.

(2) Morphology & Geological distribution of Gastropoda and lamellibranchia fossils.

(3) Morphology & Geological distribution or Cephalopoda.

(4) Morphology & Geological distribution or Echinoidae & Brachiopoda fossils.

(5) Morphology & Geological distribution of Triobite and Graptolite fossils.

Unit-3

(1) Principles of stratigraphy: Geological time scale.

(2) Basic concept of lithostratigraphic, chronostratigraphic & Biostratigraphic Units.

(3) Structural & Physical Subdivision of Indian subcontinents.

(4) Distribution, classification & Economic importance or Archaeozoic rocks of India (Dharwar)

(5) Distribution, Stratigraphy & Economic Importance of Bastar & Raoghat group of rocks (Chhattisgarh)

Unit-4

(1) Distribution, stratigraphy & Economic importance of Vindhya & Chhattisgarh group of rocks.

(2) Stratigraphy, Palaeoclimate, Geographical distribution & economic aspects of

Gondwana rocks.

(3) Stratigraphy, distribution & age of Deccan Traps.

(4) Stratigraphy, distribution & fossil contents of Bagh & Lameta Bed.

(5) Distribution, Stratigraphy & Palaeontology of salt Range group of rocks.

Unit-5

(1) Distribution, Stratigraphy & Economics of Palaeozoic rocks of Spiti Valley.

(2) Stratigraphy, Distribution, Fossil content of Cretaceous rocks of Trichinapalli.

(3) Stratigraphy, distribution, Fossil content & Economics of Jurassic rocks of Kutch-Region.

(4) Distribution, Stratigraphy, economic importance of Tertiary rocks of Assam-Region.

(5) Distribution, Stratigraphy & Palaeontological importance of Siwalik group of rocks.

Practicals:-

(1) Study of Morphology of Fossils belonging to various phyla.

(2) Study of Important plant fossils.

(3) Representation of Litho-units & Stratigraphic Units in out line map of India.

(4) Sketching of physiographic and tectonic divisions of India.

(5) Geological excursion for seven days.

कक्षा / Class- B.Sc-III

Paper –II

भूसंसाधन एवं व्यावहारिक भूविज्ञान

(Earth Resources & Applied Geology)

इकाई–01

(1) आर्थिक भूविज्ञान परिचय एवं परिप्रेक्ष्य : वैश्विक खनिज निचय एवं संसाधन, दिक्काल में खनिज निक्षेपों का वितरण।

(2) खनिज निक्षेपों का वर्गीकरण। भूवैज्ञानिक तापमापी।

(3) अयस्क निर्माण की मैग्मीय सांद्रण विधि। उष्णजलीय प्रक्रियायें।

(4) अपक्षय उत्पाद एवं अवशिष्ट निक्षेप। आक्सीकरण एवं सल्फाइड समृद्धि प्रक्रम।

(5) अयस्क निर्माण की अवसादी प्रक्रिया। बलकृत सांद्रण।

इकाई–02 भारत के संदर्भ में निम्नलिखित धात्विक/अधात्विक खनिज निक्षेपों की प्राप्ति अवस्था, खनिजकीय विशेषता, भूवैज्ञानिक एवं भौगोलिक वितरण एवं आर्थिक उपयोगों का वितरण।

(1) लौह, मैगनीज, क्रोमियम।

(2) ताम्र, सीसा, जस्ता।

(3) सोना, अल्युमिनियम।

(4) तापसह एवं उर्वरकखनिज।

(5) सीमेंट एवं केमिकल उद्योग में प्रयुक्त खनिज।

इकाई–03

(1) कोयला निक्षेपों की उत्पत्ति, परिभाषा एवं संस्तर विज्ञान।

(2) कोल शैलिकी के मूलभूततथ्य। पीट, लिग्नाईट, बिटूमिनस, एंथ्रासाइट कोल, भारतीय कोल निक्षेपः विशेष संदर्भ में छत्तीसगढ़।

(3) प्राकृतिक हाइड्रोकार्बन की उत्पत्ति, स्थानांतरण एवं संचयन। आयल ट्रेप के प्रकारः संरचनात्मक, संस्तर विज्ञानी एवं मिश्रित। भारत के तटीय एवं अपतटीय पेट्रोलियम निक्षेप।

(4) रेडियोधर्मी खनिजः खनिजविज्ञान, भूरसायन, पूर्वेक्षण तकनिकी, भारत में भौगोलिक एवं भूवैज्ञानिक वितरण।

(5) खनिज आर्थिकी के सिद्धान्त, राष्ट्रीय खनिजनीति।

इकाई–04 (1) भूअभियांत्रिकी विज्ञान एवं उसका महत्व। शैलों के अभियांत्रिकी गुण।

(2) वृहद् बांध एवं सुरंग निर्माण के लिये भूवैज्ञानिक परिस्थितियों का अध्ययन।

(3) हवाई छायाचित्रों एवं उपग्रह इमेजियरी का प्रारंभिक अध्ययन। शहरी विकास में सुदूर संवेदन तकनीकी का अनुप्रयोग।

(4) जलचक्र। भूमिगत जल की प्राप्ति अवस्था। भूजल की गुणवत्ता।

(5) शैलों के भूजलीय गुण। जलभृत संस्तरों का वर्गीकरण। भारत का भूजल प्रदेश।

इकाई–05 (1) खनिज अंवेषण का परिचय। खनिज अन्वेषण की सतही एवं अधोसतही विधियॉ।

(2) आर्थिक खनिजों के लिये पूर्वेक्षण विधियॉः ड्रीलिंग, प्रतिचयन एवं आमापन।

(3) भूभौतिकीय पूर्वेक्षणतकनीकः गुरूत्वीय, विद्युतीय एवं चुम्बकीय विधियॉ।

(4) हवाई पूर्वेक्षण विधि एवं भूकम्पीय विधियॉ।

(5) खनिज स्त्रोंतों के अत्याधिक दोहन के पर्यावरणीय प्रभाव।

प्रयोगिक कार्यः

(1) सैद्धान्तिक पाठ्यक्रम में दिये प्रमुख धात्विक/अधात्विक खनिजों का भौतिक/प्रकाशीय गुणों के आधार पर अध्ययन।

(2) भारत के रेखा मानचित्र में प्रमुख धात्विक/अधात्विक खनिजों का वितरण दर्शाना।

(3) कोयला एवं उसके विभिन्न प्रकारों के नमूनों का स्थूलदर्शी अध्ययन।

(4) खनिज निष्कर्षण से संबंधित प्रायोगिक अभ्यास कार्यः निक्षेप आकलन, टनेज फेक्टर आकलन, ड्रीलिंग आदि से अभ्यास।

(5) स्टिरियोस्कोप के द्वारा ऐरियल छायाचित्र का अध्ययन एवं विवेचना।

(6) उपग्रह इमेजियरी का अध्ययन एवं विवेचना।

(7) शैलों के भौमजलीय गुणों का अध्ययन, भौमजलीय मानचित्रों का बनाना एवं अध्ययन

(8) दस दिवसीय भूवैज्ञानिक क्षेत्रीय अध्ययन

Suggested Readings:

(1) आर्थिक भूविज्ञान– कृष्ण गोपाल व्यास

(2) आर्थिक एवं व्यावहारिक भूविज्ञान– आर.पी. मांजरेकर

(3) भौमजल विज्ञान– एल.के. रिछारिया

(4) प्रारंभिक खनिकी– बी.के. सिंह

(5) प्रायोगिक भूविज्ञान भाग–3– गुप्ता, पुनवटकर एवं रघुवंशी

(6) Economic mineral deposits of India- Umeshwar Prasad.

(7) Economic mineral deposits- A.Bateman

(8) Ore-deposit of India- Gokhale & Rao

(9) India's Mineral Resource- S. Krishnaswami

(10) Principle of Engineering Geology & Geotechniques- Krynine & Judd.

(11) Groundwater Hydrology- D.K. Todd

(12) Courses in mining Geology- R.N.P. Arogyaswami

(13) Principle & Application of photogeology- S.N. Pandey.

(14) Ground water- Assessment, Development & Management- K.R. Karanth

(15) Geophysical methods in Geology- P.V. Sharma.

(16) Environmental Geology- K.S. Valdiya (1987)

Class- B.Sc-III

Paper –II

(Earth Resources & Applied Geology)

Unit-1

(i) Economic Geology & its perspectives; Global mineral deposit & resource. Distribution of mineral deposits in time & space.

(ii) Classification of mineral deposits. Geological thermometers.

(iii) Magmatic & Hydrothermal processes of mineral formation.

(iv) Weathering : product & Residual deposit. Oxidation & sulphide supergene Enrichment processes.

(vi) Sedimentary processes of mineral formation. Placer deposits.

Unit-2

Geological, Geographical distribution, mode of occurrence, mineralogy & economic importance of following metallic & nonmetallic deposits of India.

(i) Iron, Manganes, Chromium

(ii) Copper, Lead, Zinc

(iii) Gold, Aluminium

(iv) Refractory and Fertilizer minerals

(v) Minerals used in cement & chemical industries.

Unit-3

(i) Coal deposit: Origin, Definition & stratigraphy

(ii) Fundamentals of coal petrography. Peat, Lignite, Bituminous & Anthracite Coal deposits of Chhattisgarh.

(iii) Origin of Natural-hydrocarbon, migration & accumulation. Types of oil traps; Structural, stratigraphic and composite. Offshore & onshore oil deposits of India.

(iv) Radioactive mineral : Mineralogy, Geochemistry, Prospecting techniques, Geological & Geographical distribution of atomic-mineral.

(vi) Principles of mineral economics. National mineral policy.

Unit-4

(i) Engineering geology & its importance, Engineering properties of rocks

(ii) Geological conditions for establishing of large Dam and Tunnels.

(iii) Elementary study of Aerial photographs & satellite Imageries. Application of remote sensing in town-planning.

(iv) Hydrologic cycle. Mode of occurrence of ground water, Quality of ground water.

(v) Hydrologic properties of rocks. Classification of Aquifers. Ground water provinces of India.

Unit-5

(i) Introduction to mineral exploration, Surface & subsurface methods of mineral Exploration.

(ii) Prospection methods; Drilling, Sampling & Assaying.

(iii) Geophysical prospecting techniques : Gravity, Electrical & Magnetic methods.

(iv) Aerial and seismic prospecting methods.

(v) Environmental impacts of over exploitation of mineral resources.

Practical-

(1) Study of important metallic/nonmetallic minerals on the basis of physical & optical properties.

(2) Distribution of main metallic/nonmetallic deposits within outline map of India.

(3) Magascopic studies of coal & its varieties.

(4) Exercises related with mineral exploration; Reserve calculation, Tonnage factor calculation, Exercises related with drilling.

(5) Study of Aerial photographs with the help of stereoscopes.

(6) Study of satellite imageries.

(7) Study of hydrologic properties of rocks, Preparation of hydrological maps.

(8) Geological excursion for ten days.

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BIOCHEMISTRY

PAPER - I

ENZYMOLOGY M.M. 50

UNIT-I INTRODUCTION

History, general characteristics, nomenclature, IUB enzyme classification (rationale, over view and specific examples), significance of numbering system. Definitions with examples of holoenzyme, apoenzyme, coenzymes. cofactors, activators, inhibitors, active site (identification of groups excluded), metallo-enzymes, units of enzyme activity, specific enzymes, Isoenzymes, monomeric enzymes, oligomeric enzymes and multienzyme complexes. Enzyme specificity.

Hostorical perspective, nature of non-enzymatic and enzymatic catalysis. Measurement and expression of enzyme activity-enzyme assays. Definition of IU, Katal, enzyme turn over number and specific acitivity. Role of non-protein organic molecules and inorganic ions coenzyme, prosthetic groups. Role of vitamins as coenzymes precursors (general treatment).

UNIT-I ENZYME CATALSIS

Role of cofactors in enzyme catalysis : NAD/NADP+, FMN/FAD, coenzyme A, biocytin, cobamide, lipoamide, TPP, pyridoxal phosphate, tetrahydrofolate and metal ions with special emphasis on coenzyme functions. Acid-base catalysis, covalent, proximity and orientaton effects, strain and distortion theory. Mechanism of action of chymotrypsin, carboxypeptidase, ribonuclease and lysozyme.

UNIT-III ENZYME PURIFICATION

Methods for isolation, purification and characterization of enzymes.

UNIT-IV ENZYME KINETICS

Factors affecting enzyme activity : enzyme concentration, substrate concentration, pH and temperature. Derivation of Michaelis-Menten equation for uni-substrate reactions. Km and its significance. Line weaver-Burk plot and its limitations. Importance of K_{cat}/K_m. Bi-substrate reactions-brief introduction to sequential and ping-pong mechanism with examples.

Kinetics of zero and first order reactions. Significance and evaluation of energy of activation and free energy.

Reversible and irreversible inhibition, competitive, non-competitive and uncompetitive inhibitions. determination of K_m & V_{max} in presence and absence of inhibitor. Allosteric enzymes.

UNIT-V INDUSTRIAL AND CLINICAL APLLICATION OF ENZYME.

Immobilization of enzyme and their industrial applications. Production of glucose from starch, cellulose and dextran; use of lactase in dairy industry; production of glucose-fructose syrup from sucrose; use proteases in food, detergent and leather industry; medical application of enzymes. use of glucose oxidase in enzyme electrodes.

PAPER - II

INTERMEDIARY METABOLISM M.M. 50

UNIT-I INTRODUCTION TO METABOLISM

General features of metabolism, experimental approaches to study metabolism; use of intact organism, becterial mutants, tissue slices, stable and radioactive isotopes.

CARBOHYDRATE METABOLISM

Reactions and energetics of glycolysis. Alcoholic and lactic acid fermentations. Entry of fructose, galactose, mannose etc. Reactions and energetics of TCA cycle. Gluconeogenesis, glycogenesis and glycogenolysis, Reactions and physiological signifacance of pentose phosphate pathway. Regulation of glycolysis and TCA cycle. Photosynthesis, a brief review.

UNIT-II ELECTRON TRANSPORT CHAIN AND OXIDATIVE PHOSPHORYLATION

Structure of mitochondria, sequence of electron carriers, sites of ATP production, inhibitors of electron transport chain. Hypothesis of mitochondrial oxidative phosphorylation (basic concepts). Inhibitors and uncouplers of oxidative phosphorylation. Transport of reducing potentials into mitochondria.

UNIT-III LIPID METABOLISM

Introduction, hydrolysis of triacylglycerols, transport of fatty acids into mitochondria. β – oxidation of saturated fatty acids, ATP yield from fatty acid oxidation. biosynthesis of saturated and unsaturated fatty acids. Metabolism of ketone bodies, oxidation of unsaturated and odd chain fatty acids. Biosynthesis of triglycerides and important phospholipids, glycolipids, sphingolipids and cholesterol. Regulation of cholesterol metabolism.

UNIT-IV AMINO ACID METABOLISM

General reactions of amino acid metabolism : transmination, oxodative deamination and decarboxylation. Urea cycle. Degradation and biosynthesis of amino acids. Glycogenic and ketogenic amino acids.

UNIT-V NUCLEOTIDE METABOLISM

Sources of the atoms in the purine and pyrimidine molecules. Biosynthesis and degradation of purines and pyrimidines. Regulation of purine and pyrimidine biosynthesis.

PORPHYRIN METABOLISM

Biosynthesis and degradation of porphyrins. Production of bile pigments.

PRECTICAL

1. Separation of Blood Plasm and Serum
   a. Estimation of proteins from serum by biuret and lowry methods.
   b. Determination of albumin and A/G ratio in serum.
2. Estimation of bilirubin (conjugated and unconjugated) in serum.
3. i Estimation of total lipids in serum by vanillin method.

ii. Estimation of cholesterol in serum.

4. Estimation of lipoproteins in plasma.

5. Estimation of lactic acid in blood before and after exercise.

6. Estimation of blood urea nitrogen from plasma.

7. Separation and identification of amino acids by (a) paper chromatography and (b) thin-layer chromatography.

8. Separation of polar and non-polar lipids by thin-layer chromatography.

9. Estimation of SGPT and SGOT in serum.

10. a. Assay of serum alkaline phosphatase activity.

    b. Inhibition of alkaline phosphatase activity by EDTA.

    c. Effect of substrate concentration on alkaline phosphatase activity and determination of its K_m value.

11. a. Effect of temperature on enzyme activity and determination of activation energy.

    b. Effect of pH on enzyme activity and determination of optimum pH.

    c. Effect of enzyme concentration on enzyme activity.

12. a. Preparation of starch from potato and its hydrolysis by salivary amylase.

    b. Determination of achromatic point in salivary amylase.

    c. Effect of sodium chloride onamylases.

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B.Sc.–II (BOTANY) PAPER-I

(PLANT TAXONOMY, ECONOMIC BOTANY, PLANT ANATOMY AND EMBRYOLOGY)

UNIT-I

Bentham and Hooker system of classification.Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy. Preservation of Plant material and Herbarium techniques.Important botanical gardens and herbaria of India, Kew Botanical garden, England.

UNIT-II

Systematic position, distinguishing characters and economic importance of the following families, Ranunculaceae, Magnoliaceae, Brassicaeae, Rosaceae, Papaveraceae, Caryophyllaceae, Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae and Liliaceae.

UNIT-III

Economic Botany: Botanical name, family, part used and uses of the following economically important plants, fiber yielding plants; Cotton, jute, sun, hemp, coir.Timber yielding plants: Sal, Teak, Shisham and Pine.Medicinal plants: Kalmegh, Ashwangandha, Ghritkumari, Giloy, Brahmi, sarpgandha, ---of medicinal plants of C.G. Food plants: Pearl millet, Buck of wheat, Sorghum, Soyabean, gram, Ground nut, Sugarcane and Potato.Fruit plants: Pear, Peach, Litchi. Spices: Cinnamon, Turmeric, Ginger, Asafoetida and Cumin. Beverages : Tea, Coffee Rubber Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropha, Pongamia Ethnobotany in context of Chhattisgarh.

UNIT-IV

Plant Anatomy: Root and shoot apical meristems theories of root and shoot apex organization, permanent tissues, anatomy of root, stem and leaf of dicot and monocot, secondary growth in root and stem, Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhaavia, Casuarina), Anamolous secondary growth in Dracaena, Bignonia, Laptadenia.

UNIT-V

Embryology: Flower as a reproductive organ, anther, microsporogenesis, types of ovules, megasporogenesis, development of male and female gametophyte, pollination, mechanisms, self incompatibility, fertilization, endosperm, embryo, polyembryonoy, apomixes and parthenocarpy.

Books Recommended:

Singh, Pandey,Jain. ***Diversity and Systematics of Seed Plants***, Rastogi Publications Merrut

Sharma OP, ***Plant Taxonomy,*** Tata Mc Graw Hill, New Delhi

Pandey BP, ***Taxonomy of Angiosperms,*** S. Chand Publishing, New Delhi

Pandey, BP, ***Plant Anatomy,*** S.Chand Publishing, New Delhi

Pandey, BP, ***Economic Botany,*** S.Chand Publishing, New Delhi

Bhojwani, SS and Bhatanagar SP, ***Embryology of Angiosperm***, Vikas Publication House, New Delhi

Singh, Pandey, Jain, ***Embryology of Angiosperms***, Rastogi Publication, Meerut

Sharma, V, Alum, A. ***Ethnobotany***, Rastogi Publications, Meerut

Tayal, MS ***Plant Anatomy***, Rastogi Publication, Meerut



(Dr. J.N. Verma) (Dr.Rekha Pimpalgaonkar) (Dr.Ranjana Shristava)

Proff. & Head Proff. & Head Proff. & Head

Govt. D.B. Girls PG College Govt. N PG Science College Govt. VYTPG Science College

Raipur, (C.G.) Raipur, (C.G.) Raipur, (C.G.)

(Mrs. Sanchal Moghe) (Mr. Shivakant Mishra) (Mr Sudheer Tiwari)

Govt. Bilasa Girls College, Bilaspur

B.Sc.-II (BOTANY) PAPER-II

(ECOLOGY AND PLANT PHYSIOLOGY)

UNIT-I

Introduction and scope of ecology, environmental and ecological factors, Soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adapataions in hydrophytes, xerophytes and epiphytes.

UNIT-II

Population and community characteristics, Raunkiaer's life forms, population interactions (e.g. Symbiosis, Amensalism etc.), succession, ecotone and edge effect, ecological niches, ecotypes, ecads, keystone species

Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain and food web, concept of ecological pyramids

Biogeochemical cycles:carbon cycle, nitrogen cycle and phosphorus cycle

UNIT-III

Plant water relations: Diffusion, permeability, osmosis, imbibitions, plasmolysis, osmotic potential and water potential, Types of soil water, water holding capacity, wilting, Absorption of water, theories of Ascent of sap, Mineral nutrition and absorption, Deficiency symptoms, Transpiration, stomatal movement, significance of transpiration, Factors affecting transpiration, guttation.

UNIT-IV

Photosynthesis: Photosynthetic apparatus and pigments, light reaction mechanism of ATP synthesis. C3, C4 CAM pathway of carbon reduction, photorespiration, factors affecting photosynthesis.

Respiration: Aerobic and anaerobic respiration, Glycolysis, Kreb's cycle, factors affecting respiration, R.Q.

UNIT-V

Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Physiology of flowering, Florigen concept, Photoperiodism and Vernalization. Seed dormancy and germination, plant movement.

Books Recommended:

Koromondy, EJ. ***Concepts of Ecology,*** Prentice Hall, USA

Singh, JS Singh SP and Gupta SR. ***Ecology and Environmental Science and Conservation***, S. Chand Publishing, New Delhi

Sharma, PD. ***Ecology and Environment,*** Rastogi Publications, Merrut

Hopkins, WG and Huner, PA. ***Introduction to Plant Physiology,*** John Wiley and Sons.

Pandey SN and Sinha BK, ***Plant Physiology,*** Vikas Publishing, New Delhi

Taiz, L and Zeiger. E. ***Plant Physiology,*** 5th edition, Sinauer Associates Inc. M.A, USA

Srivastava, HS ***Plant Physiology and Biotechnology***, Rastogi Publications, Meerut

B.Sc. II (BOTANY)

Practical

1. Taxonomy: Detailed description and identification of locally available plants of the families as prescribed in the theory paper.
2. Economic Botany: Identification and comment on the plants and plant products belonging to different economic use categories
3. Preparation of Herbarium of local wild plants.
4. Quantitative vegetation analysis of a grassland ecosystem.
5. Anatomical characteristics of hydrophytes and xerophytes.
6. Demonstration of root pressure.
7. Demonstration of transpiration.
8. Demonstration of evolution of O_2 in photosynthesis, factors affecting of photosynthesis.
9. Comparison of R.Q. of different respiratory substrates.
10. Demonstration of fermentation.
11. Determination of BOD of a water body.
12. Demonstration of mitosis.

PRACTICAL SCHEME

TIME: 4 Hrs. **M.M. : 50**

1.	Anatomy	08
2.	Economic Botany	04
3.	Physiology	08
4.	Ecology	10
5.	Spotting	10
6.	Viva-Voce	05
7.	Project Work/ Field Study	10



(Dr. J.N. Verma (Dr. Rekha Pimpalgaonkar) (Dr.Ranjana Shristava)

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Govt. Bilasa Girls College, Bilaspur

Zoology
B.Sc. Part – II 2018-19
Paper – I
(Anatomy and Physiology)

Comparative Anatomy of various organ systems of vertebrates:

Unit: I

- Integument and its derivatives: structure of scales, hair and feathers
- Alimentary canal and digestive glands in vertebrates
- Respiratory organs : Gills and lung , air-sac in birds

Unit: II

- Endoskeleton: (a) Axial Skeleton- Skull and Vertebrae, (b) Appendicular Skeleton Limbs and girdles
- Circulatory System: Evolution of heart and aortic arches
- Urinogenital System: Kidney and excretory ducts

Unit: III

- Nervous System: General plan of brain and spinal cord
- Ear and Eye: structure and function
- Gonads and genital ducts

Unit: IV

- Digestion and absorption of dietary components
- Physiology of heart, cardiac cycle and ECG
- Blood Coagulation
- Respiration: mechanism and control of breathing

Unit: V

- Excretion: Physiology of excretion, osmoregulation
- Physiology of muscle contraction
- Physiology of nerve impulse, Synaptic transmission

Zoology
B.Sc. Part – II 2018-19

Paper-II

VERTEBRATE ENDOCRINOLOGY, REPRODUCTIVE BIOLOGY BEHAVIOUR, EVOLUTION AND APPLIED ZOOLOGY

Unit: I

- Structure and function of Endocrine glands
- Hormone receptor
- Biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones
- Endocrine disorder of pituitary, thyroid, adrenal and pancreas

Unit:II

- Reproductive cycle in vertebrates
- Menstruation, lactation and pregnancy
- Mechanism of parturition
- Hormonal regulation of gametogenesis

Unit: III

- Evidences of organic evolution.
- Theories of organic evolution.
- Variation, Mutation, Isolation and Natural selection.
- Evolution of Horse

Unit:IV

- Introduction to Ethology: Branches and concept of ethology.
- Patterns of Behaviour, Taxes, Reflexes, Drives and Stereotyped behaviour.
- Reproductive behavioural patterns.
- Drugs and behavior, Hormones and behaviour

Unit:V

- Prawn Culture
- Sericulture
- Apiculture
- Pisciculture
- Poultry keeping
- Elements of Pest Control: Chemical & Biological Control

Zoology
B.Sc. Part II 2018-19
Practical

The practical work in general shall be based on the syllabus prescribed and the students will be required to show the knowledge of the following:

- Study of the representative examples of the different chordates (Classified characters).
- Dissection of various systems of scoliodon-Afferent and Efferent branchial cranial nerves, internal ear.

Alternative methods: By Clay/Thermacol/ Drawing/ Model etc.)

- Simple microscopic technique through unstained or stained permanent mount.
- Study of prepared slides histological, as per theory papers.
- Study of limb girdles and vertebrae of Frog, Varanus, Fowl and Rabbit.
- Identification of species and individual of honey bee.
- Life cycle of honey bee and silkworm.
- Exercise based on Evolution and Animal behavior.

Scheme of Practical Exam **Time: 3:30hrs**

• Major dissection (Cranial nerves/efferent branchial vessel)	10
• Exercise based on evolution	05
• Exercise based on applied zoology	05
• Exercise based on animal behavior	04
• Spotting-8 (slides-4,bones-2,specimen-2)	16
• Viva	05
• Sessional marks.	05

बिलासपुर विश्वविद्यालय, बिलासपुर (छ.ग.)

पाठ्यक्रम
SYLLABUS

सत्र: 2017-18

बी.एससी. भाग-3
B.Sc. PART-3

Website: - www.bilaspuruniversity.ac.in

PT. RAVISHANKAR SHUKLA UNIVERSITY RAIPUR (C.G.)

REVISED ORDINANCE NO. 21

BACHELOR OF SCIENCE

1. The three year course has been broken up into three Parts. Part-I known as B.Sc. Part-I examination at the end of the first year, Part-II known as B.Sc. Part-Ii examination at the end of the second year and Part-III known as B.Sc. Part-III examination at the end of the third year.

2. A candidate who after passing (10+2) Higher Secondary or Intermediate examination of C.G. Board of Secondary Education Bhopal or any other Examination recognised by the University or C.G. Board of Secondary Education as equivalent thereto, has attended a regular course of study in an affiliated College or in the Teaching Department of the University for one academic year shall be eligible for appearing at the B.Sc. Part-I examination.

3. A candidate who, after passing the B.Sc.-I examination of the University or any other examination recognised by the University as equivalent thereto, has attended a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-II examination.

4. A candidate who, after passing the B.Sc. Part-Ii examination of the University, has completed a regular course of study for one academic year in an affiliated college or in the Teaching Department of the University shall be eligible for appearing at the B.Sc. Part-III examination.

5. Besides regular students, subject to their compliance with this Ordinance ex-student and non-collegiate candidates shall be permitted to offer only such subjects/papers as are taught to the regular student at any of the University Teaching Department or College.

6. Every candidate appearing in B.Sc. Part-I, Part-II and Part-III examination shall be examined in -

   (i) Foundation Course :

   (ii) Any one of the following combinations of three subjects :-

      1. Physics, Chemistry & Mathematics.
      2. Chemistry, Botany & Zoology.
      3. Chemistry, Physics & Geology.
      4. Chemistry, Botany & Geology.
      5. Chemistry, Zoology & Geology.
      6. Geology, Physics & Mathematics.
      7. Chemistry, Mathematics & Geology.
      8. Chemistry, Botany & Defence Studies.
      9. Chemistry, Zoology & Defence Studies
      10. Physics, Mathematics & Defence Studies.
      11. Chemistry, Geology & Defence Studies
      12. Physics, Mathematics & Statistics
      13. Physics, Chemistry & Statistics
      14. Chemistry, Mathematics & Statistics.
      15. Chemistry, Zoology & Anthropology.
      16. Chemistry, Botany & Anthropology.
      17. Chemistry, Geology & Anthropology.
      18. Chemistry, Mathematics & Statistics.

19. Chemistry, Anthropology & Defence Studies.
20. Geology, Mathematics & Statistics.
21. Mathematics, Defence Studies & Statistics
22. Anthropology, Mathematics & Statistics
23. Chemistry, Anthropology & Applied Statistics
24. Zoology, Botany & Anthropology
25. Physics, Mathematics & Electronics.
26. Physics, Mathematics & Computer Application
27. Chemistry, Mathematics & Computer Application
28. Chemistry, Bio-Chemistry & Pharmacy
29. Chemistry, Zoology & Fisheries.
30. Chemistry, Zoology & Agriculture
31. Chemistry, Zoology & Sericulture
32. Chemistry, Botany & Environmental Biology
33. Chemistry, Botany & Microbiology
34. Chemistry, Zoology & Microbiology
35. Chemistry, Industrial Chemistry & Mathematics
36. Chemistry, Industrial Chemistry & Zoology
37. Chemistry, Biochemistry, Botany
38. Chemistry, Biochemistry, Zoology
39. Chemistry, Biochemistry, Microbiology
40. Chemistry, Biotechnology, Botany
41. Chemistry, Biotechnology, Zoology
42. Geology, Chemistry & Geography
43. Geology, Mathematics & Geography
44. Mathematics, Physics & Geography
45. Chemistry, Botany & Geography

(iii) Practical in case prescribed for core subjects.

7. Any candidate who has passed the B.Sc. examination of the University shall be allowed to present himself for examination in any of the additional subjects prescribed for the B.Sc. examination and not taken by him at the degree examination. Such candidate will have to first appear and pass the B.Sc. Part-I examination in the subjects which he proposes to offer and then the B.Sc. Part-II and Part-III examination in the same subject. Successful candidates will be given a certificate to that effect.

8. In order to pass at any part of the three year degree course examination an examinee must obtain not less than 33% of the total marks in each subject/ group of subjects. In subject/ group of subjects where both theory and practical examination are provided an examinee must pass in both theory and practical parts of the examination separately.

9. Candidate will have to pass separately at the Part-I, Part-II and Part-III examinations. No division shall be assigned on the result of the Part-I and Part-II examination. In determining the division of the final examination, total marks obtained by the examinees in their Part-I, Part-II and Part-III examination in the aggregate shall be taken in to account. Provided in case of candidate who has passed the examination through supplementary examination having failed in one subject/ group only, the total aggregate marks being carried over for determining the division shall include actual marks obtained in the subject/ group in which he appeared at the supplementary examination.

10. Successful examinee at the Part-III examination obtaining 60% or more marks shall be places in the First Division, those obtaining less than 60% but not less than 45% marks in the Second Division and other successful examinees in the Third Division.

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In clause 6(ii) after serial No. 41, 42-45 inserted. Approved in 23rd Co-Ordination committee Dated 15-01-2014.

B. Sc. Part - III

विषय–सूची

SCHEME OF EXAMINATION

Subject		Paper	Max. Marks	Total Marks	Min. Marks
(A)	Compulsory Subject Foundation Course				
	1) Hindi Language	I	75	-	26
	2) English Language	I	75	-	26
(B)	Three Elective Subject :				
2.	Chemistry	I	33		
		I	33	100	33
		III	34		
		Practical		50	17
1.	Physics	I	50		
		I	50	100	33
		Practical		50	17
3.	Mathematics	I	50		
		I	50	150	50
		III	50		
4.	Botany	I	50		
		I	50	100	33
		Practical		50	17
5.	Zoology	I	50		
		I	50	100	33
		Practical		50	17
6.	Geology	I	50		
		I	50	100	33
		Practical		50	17
7.	Statistics	I	50		
		I	50	100	33
		Practical		50	17
8.	Anthropology	I	50		
		I	50	100	33
			Practical	50	17
9.	Inde. chemistry	I	34		
		I	33	100	33
		III	33		
		Practical		50	17

Subject	Paper		Max. Marks	Min. Marks
10. Defence Studies	I	50	100	33
	I	50		
	Practical		50	17
11. Micro Biology	I	50	100	33
	I	50		
	Practical		50	17
12. Electronics	I	50	100	33
	I	50		
	Practical		50	17
13. I.T.	I	50	100	33
	I	50		
	Practical		50	17
14. Computer Science	I	50	100	33
	I	50		
	Practical		50	17
15. Biochemistry	I	50	100	33
	I	50		
	Practical		50	17

USE OF CALCULATORS

The Students of Degree/P.G. Classes will be permitted to use of Calculators in the examination hall from annual 1986 exammination on the following conditions as per decision of the standing committee of the Academic Council at its meeting held on 31-1-1986.

1. Student will bring their own Calculators.
2. Calculators will not be provided either by the University or examination centres.
3. Calculators with, memoty and following variables be permitted +, -, x, , square, reciprocal, expotentials log, square root, trignometric functions, wize, sine, cosine, tangent etc. factiorial summation, xy, yx and in the light of objective approval of merits and demerits of the viva only will be allowed.

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आधार पाठ्यक्रम

हिन्दी भाषा

(पेपर कोड-0891)

प्रथम प्रश्न पत्र **पूर्णांक - 75**

(बी.ए., बी.एस.सी., बी.एच.एस-सी., बी.काम., तृतीय वर्ष के पुनरीक्षित एकीकृत आधार पाठ्यक्रम एवं पाठ्य सामग्री का संयोजन 2000-2001 से लागू है)

।। सम्प्रेषण कौशल, हिन्दी भाषा और सामान्य ज्ञान ।।

आधार पाठ्यक्रम की संरचना और अनिवार्य पाठ्य पुस्तक- हिन्दी भाषा एवं समसामयिकी- का संयोजन इस तरह किया गया है कि सामान्य ज्ञान की विषय वस्तु- विकासशील देशों की समस्याओं- के माध्यम और साथ-साथ हिन्दी भाषा का ज्ञान और उसमें सम्प्रेषण कौशल अर्जित किया जा सके । इसी प्रयोजन से व्याकरण की अन्तर्वस्तु को विविध विधाओं की संकलित रचनाओं और सामान्य ज्ञान की पाठ्य सामग्री के साथ अन्तर्गुम्फित किया गया है । अध्ययन-अध्यापन के लिए पूरी पुस्तक की पाठ्य सामग्री है और अभ्यास के लिये विस्तृत प्रश्नावली है । यह प्रश्नपत्र भाषा का है अत: पाठ्य सामग्री का व्याख्यात्मक या आलोचनात्मक अध्ययन अपेक्षित नहीं है । पाठ्यक्रम और पाठ्य सामग्री का संयोजन निम्नलिखित पाँच इकाइयों में किया जाता है । प्रत्येक इकाई को दो भागों में विभक्त किया गया है ।

इकाई - 1 **(क) भारत माता :** सुमित्रानंदन पंत, परशुराम की प्रतीज्ञा : रामधारी सिंह दिनकर, बहुत बड़ा सवाल : मोहन राकेश, संस्कृति और राष्ट्रीय एकीकरण : योगेश अटल ।

(ख) कथन की शैलियाँ : रचनागत उदाहरण और प्रयोग ।

इकाई -2 (क) विकासशील देशों की समस्यायें, विकासात्मक पुनर्विचार, और प्रौद्योगिकी एवं नगरीकरण ।

(ख) विभिन्न संरचनाएँ ।

इकाई - 3 (क) आधुनिक तकनीकी सभ्यता, पर्यावरण प्रदूषण तथा धारणीय विकास ।

(ख) कार्यालयीन पत्र और आलेख ।

इकाई - 4 (क) जनसंख्या : भारत के संदर्भ में और गरीबी तथा बेरोजगारी ।

(ख) अनुवाद ।

इकाई - 5 (क) ऊर्जा और शक्तिमानता का अर्थशास्त्र ।

(ख) घटनाओं, समारोहों आदि का प्रतिवेदन और विभिन्न प्रकार के निमंत्रण-पत्र ।

मूल्यांक योजना : प्रत्येक इकाई से एक-एक प्रश्न पूछा जायेगा । प्रत्येक प्रश्न में आंतरिक विकल्प होगा । प्रत्येक प्रश्न के 15 अंक होंगे । प्रत्येक इकाई दो-दो खंड (क्रमश: 'क' और 'ख' में) विभक्त है, इसलिए प्रत्येक प्रश्न के भी दो भाग, (क्रमश: 'क' और 'ख') होंगे । 'क' अर्थात पाठ एवं सामान्य ज्ञान से संबद्ध प्रश्न के अंक 8 एवं 'ख' अर्थात भाषा एवं सम्प्रेषण कौशल से संबद्ध प्रश्न के अंक 7 होंगे । इस प्रकार पूरे प्रश्न पत्र के पूर्णांक 75 होंगे ।

PART - II

(Paper Code-0892)

ENGLISH LANGUAGE M.M. 75

The question paper for B.A./B.Sc./B.Com./B.H.Sc. III Foundation course, English Language and General Answers shall comprise the following items :

Five question to be attempted, each carrying 3 marks.

UNIT-I Essay type answer in about 200 words. 5 essay type question to be asked three to be attempted. 15

UNIT-II Essay writing 10

UNIT-III Precis writing 10

UNIT-IV (a) Reading comprehension of an unseen passage 05

(b) Vocabulary based on text 10

UNIT-V Grammar Advanced Exercises 25

Note : Question on unit I and IV (b) shall be asked from the prescribed text. Which will comprise of popular create writing and the following items. Minimum needs housing and transport Geo-economic profile of M.P. communication Educate and culture. Women and Worm in Empowerment Development, management of change, physical quality of life. War and human survival, the question of human social value survival, the question of human social value, new Economic Philosophy Recent Diberaliation Method) Demoration docontralisation (with reference to 73, 74 constitutional Amendment.

Books Prescribed :

Aspects of English Language And Development - Published by M.P. Hindi Granth Academy, Bhopal.

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CHEMISTRY

The new curriculum will comprise of Three papers of 33,33, & 34 marks each and Practical work of 50 marks. The curriculum is to be completed in 180 working days as per the UGC norms & conforming to the directives of the Govt. of Chhattisgarh. The theory papers are of 60 hrs. each duration & the practical work of 180 hrs. duration.

PAPER - I (Paper Code-0895)

INORGANIC CHEMISTRY M.M. 33

UNIT-I METAL-LIGAND BONDING IN TRANSITION METAL COMPLEXES

Limitations of valence bond theory, an elementary idea of crystal field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal field parameters.

Thermodynamic and kirietic aspects of metal complexes.

A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, subsititution reactions of square planar complexes.

UNIT-II MAGNETIC PROPERTIES OF TRANSITION METAL COMPLEXES

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin only formula, L-S coupling, correlation of μs and μ eff. values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes.

Electronic spectra of Transition Metal Complexes.

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states, spectro-chemical series. Orgel-energy level diagram for d^1 and d^2 states, discussion of the electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion.

UNIT-III ORGANOMETALLIC CHEMISTRY

Definition, nomenclature and classification of organo metallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li, Al, Hg, Sn, & Ti, A brief account of metal-ethylenic complexes and homogeneous hydrogenation, monouclear carbonyls and nature of bodning in metal carbonyls.

UNIT-IV BIOINORGANIC CHEMISTRY

Essential and trace elements in biological processes, metalloporphyrins with special reference to hemoglobin and myoglobin. Biological role of alkali and alkaline earth metals with special reference to Ca^{21}, nitrogen fixation.

UNIT-V HARD AND SOFT ACIDS AND BASES (HSAB) 07 HRS.

Classification of acids and bases as hard and soft. Perason's HSAB concept, acid-base strength and hardness and softness. Symbiosis

Silicones and Phosphazenes

Silicons and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.

REFERENCE BOOKS :

1. Basic Inorganic Chemistry, F.A. Cotton, G. Wilkinson and P.L. Gaus, Wiley
2. Concise Inorganic Chemistry, J.D. Lee, ELBS.
3. Concepts of models of Inorganic Chemistry, B. Douglas, D. McDaniel and J. Alexander, John Wiley
4. Inorganic Chemistry, D.E. Shriver, P.W. Atkkins and C.H. Langford, Oxford.

5. Inorganic Chemistry, W.W. Porterfield, Addison-Wesley.
6. Inorganic Chemistry, A.G. Sharp, ELBS.
7. Inorganic Chemistry, G.L. Miessler and D.A. Tarr, Prentice Hall.
8. Advanced Inorganic Chemistry, Satyas Prakash.
9. Advanced Inorganic Chemistry, Agarwal & Agarwal.
10. Advanced Inorganic Chemistry, Puri & Sharma, S. Naginchand
11. Inorganic Chemistry, Madan, S. Chand & Co.
12. Adhunik Akarbanic Rasayan, A.K. Shrivastav & P.C. Jain, Goel Pub.
13. Ucchattar Akarbanic Rasayan, Satya Prakash & G.D. Tuli, Shyamlal Prakashan
14. Ucchattar Akarbanic Rasayan, Puri & Sharma.

PAPER - II (Paper Code-0896)

ORGANIC CHEMISTRY M.M. 33

UNIT-I A. ORGANICMETALLIC COMPOUNDS

Organomegenesium compounds : Grignard reagents-formation, structure and chemical reactions. Organozinc compounds : formation and chemical reactions. Organolithium compounds : formation and chemical reactions.

B. Organosulphur Compounds

Nomenclature, structural features, methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine.

Organic Synthesis via Enolates

Active methylene groupalkylation of diethylmalonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate : the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate.

UNIT-II BIOMOLECULES

A. Carbohydrates :

Configration of monosaccharides, threo and erytho diastereomers. Formation of glycosides ethers and esters Determination of ring size of monosaccharides. Cyclic structure of D(+) glucose. Structure of ribose and deoxyribose. An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

B. Proteins and Nucleic acids

Classification and structure of protein levels of protein structure, protein denaturation / renaturation, Constituents of amino acids Ribonucleicsids and ribouncleotieds, double helical structure of DNA.

UNIT-III A. Synthetic Polymers

Addition or chain growth polymerization. Free radical vinyl polymerization, Ziegler-Natta polymerization, Condensation or Step growth polymerization, Polyesters, polyamides, phenols- formaldehyde resins, urea- formaldehyde resins, epoxy resins and polyurethanes, natural and synthetic rubbers.

B. Synthetic Dyes

Colour and constitution (Electronic Concept). Classification of Dyes. Chemistry of dyes. Chemistry and synthesis of Methyl Orange, Congo Red, Malachite Green, Crystal Violet, Phenolphthalein, fluorescein, Alizarine and Indigo.

UNIT-IV SPECTROSCOPY

A. Mass spectroscopy : mass spectrum fragmentation of functional groups.

B. InfraRed Spectroscopy : IR absorption Band their position and intensity, Identification of IR spectra.

C. UV-Visible Spectroscopy : Beer Lambert's law, effect of Conjugation max Visible spectrum and colour.

D. Anthocyanin as natural colouring matter (Introduction only)

E. Application of Mass, IR, UV-Visible Spectroscopy to organic molecules.

UNIT-V A. NMR Spectroscopy : Introduction to NMR. Shielding and Number of signal in PMR, Chemical shift and characteristic values, spiltting of Signals and Coupling constant. Application to organic molcules.

B. ^{13}**CMR Spectroscopy :** Principal & Application.

C. Magnetic Resonance Imaging (MRI)- Introductory idea.

REFERENCE BOOKS :

1. Organic Chemistry, Morrison and Boyd, Prentice-Hall
2. Organic Chemistry, L.G. Wade Jr., Prentice-Hall
3. Fundamentals of Organic Chemistry, Solomons, John Wiley
4. Organic Chemistry, Vol.I, II, III, S.M. Mukherjee, S.P. Singh and R.P. Kapoor, Wiley-Eastern (New-Age)
5. Organic Chemistry, F.A. Carey, McGraw Hill
6. Introduction to Organic Chemistry, Streiweisser, Heathcock and Kosover, Macmillan
7. Organic Chemistry, P.L. Soni
8. Organic Chemistry, Bahi & Bahl
9. Organic Chemistry, Joginder Singh
10. Carbanic Rasayan, Bashi & Bahi
11. Carbanic Rasayan, R.N. Singh, S.M.I. Gupta, M.M. Bakodia & S.K. Wadhwa
12. Carbanic Rasayan, Joginder Singh.
13. Carbanic Resayan, P.L., Soni.
14. Corbanic Rasayan, Bhagchandani, Sahitya Bhawan Publication.
15. Rasayan Vigyan, Bhatnagar, Arun Prakashan.

PAPER - III (Paper Code-0897)

PHYSICAL CHEMISTRY **M.M. 34**

UNIT-I QUANTUM MECHANICS

Black body radiation, Plank's radiation law, photoelectric effect, Compton effect. DeBroglie's idea of matter waves, experimental verification Heisenberg's uncertainty principle, Sinosoidal wave equation, Operators : Hamiltonian operator, angular momentum operator, laplacian operators postulate of quantum mechanics Eigen values, Eigen function. Schrodinger time independed wave equation physical significance of and . Applications of schrodinger wave equation : particle in one dimensional box Hydrogenation (separation into three equation's) radial wave function and angular wave function.

UNIT-II QUANTUM MECHANICS-II

Quantum mechanical approach of molecular orbit theory; basic idea criteria for forming M.O and A.O, LCAO approximation, formation of H^{2+} ion, calculation of energy levels from wave functions bonding and antibonding wave functions concept of and

orbitals and their characteristics, Hybrid orbital : SP, SP^2, SP^3, Calculation of coefficients Ad^s used in these hybrid orbitals.

Introduction to valence bond model of H^2, Comparison of M.O. and V.B. model, Huckle theory, application of huckel theory to ethane propene etc.

UNIT-III SPECTROSCOPY-I

A. Introduction, characterization of electromagenetic radiation, regions of the spectrum, representation of spectra width and intensity of spectral transition, rotational spectra of calculated diatomic molecules, energy level of rigid rotator, selection rule, determination of bond length qualitative description of non - rigid rotator isotopic effect.

B. Vibrational spectra - Fundamental vibrational and their symmetry, vibrating diatomic molecules, enegy levels of simple harmonic oscillator. Selection Rule, Pure vibrational Spectrum, determination of force constant, diatomic vibrating operator. Anhormonic Oscillator.

C. Raman Spectra : Concept of polarizability, quantum theory of Raman spectra stokes and anti stokes lines pure rotational and vibrational Raman spectra, Application of Raman spectra stokes and anti stokes lines, pure rotational and vibrational Raman apectra, Applications of Raman spectra.

UNIT-IV SPECTROSCOPY-II

A. Electronic Spectra : Electronic Spectra of diatonic molecule, Frank London principle, types of electronic transitions. Applications of electronic spectra.

B. Photo-chemistry : Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry. Grothus-Drapper law, Stark-Elinstein law, Jablonski diagram depicting various process occurring in the excited state, qualitative description of fluorescence, occurring in the excited state, qualitative descripiton of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield photosensitized reactions energy transfer processes (simple examples).

UNIT-V A. Thermodynamics

Energy refered to absolute zero, third law of therodynamics Test of III law of thermodynamics Nerst heat theorem application and limitation of Nerst heat theorem.

B. Physical properties and molecular structure : polarization of molecules, {Classius-Mosotti equation. orientation of dipoles in an electric field. Dipol moment, induced dipole moment, measurement of dipole moment. Temperature methods and refractivity methods. Dipole moment and molecular structure.

C. Magnetic Properties : Parmagenetism diamagnetism, ferromagnetism. Determination of magnetic susceptibility, elucidation of molecular structure.

REFERENCE BOOKS :

1. Physical Chemistry, G.M. Barrow, International student edition, McGaw Hill
2. Basic programming with application, V.K. Jain, Tata McGraw-Hill
3. Computers & Common sense, R. Hunt & Shelly, Prentice-Hall
4. University general chemistry, C.N.R. Rao, Macmillan.
5. Physical Chemistry, R.A. Alberty, Wiley Eastern
6. The elements of Physical Chemistry, P.W. Atkin, Oxford

7. Physical Chemistry through problems, S.K. Dogra & S. Dogra, Wiley Eastern
8. Physical Chemistry, B.D. Khosla
9. Physical Chemistry, Puri & Sharma
10. Bhoutic Rasayan, Puri & Sharma
11. Bhoutic Rasayan, P.L. Soni
12. Bhoutic Rasayan, Bahl & Tuli

PAPER-IV

LABORATORY COURSE **180 Hrs.**

Inorganic Chemistry

Synthesis Analysis

(a) Preparation of Sodium trioxalato ferrate (III), $Na_3[Fe(C_2O_4)_3]$ and determination of its composition by permanganometry.
(b) Preparation of Ni-DMG complex, $[Ni(DMG)_2]$
(c) Preparation of copper tetraammine complex, $[Cu(NH_3)_4]SO_4$.
(d) Preparation of cis-and trans-bioxalato diaqua chromate (III) ion.

Gravimetric Analysis

Analysis of Cu as CuSCN or CuO, Ni as $Ni(DMG)_2$, Ba as $BaSO_4$ and Fe as Fe_2O_3

Organic Chemistry

Laboratory Techniques

A Steam Distillation
Napthalene from its suspension in water
Clove oil from cloves
Separation of ortho and para-nitrophenols.

B Column Chromatography
Separation of fluorescein and methylene blue
Separation of leaf pigments from spinach leaves
Resolution of recemic mixture of (+,-) mandelic acid.

Qualitative Analysis

Analysis of an organic mixture containing two solid components using water, $NaHCO_3$, NaOH for separation and preparation of suitable derivatives.

Synthesis of Organic Compounds

(a) Acetylation of salicylic acid, aniline, glucose and hydroquinone. Benzoylation of aniline and phenol.
(b) Aliphatic electrophilic substitution- Preparation of iodoform form ethanol and acetone.
(c) Aromatic electrophilic substitution-
Nitration-Preparation of m-dinitrobenzene, p-nitroacetanilide
Halogenation- Preparation of p-bromoacetanilide, 2,4,6 tribromophenol
(d) Diazotization/Coupling- Preparation of methyl orange and methyl red
(e) Oxidation- Preparation of benzoic acid from toluene
(f) Reduction- Preparation of aniline from nitrobenzene, m-nitroaniline from m-dinitrobenzene.

Physical Chemistry

Electrochemistry

(a) To determine strength of given acid conductometrically using standard alkali solution.
(b) To determine solubility and solubility product of a sparingly soluble electrolyte conductometrically.

(c) To study saponification of ethyl acetate conductometrically.

(d) Determine the ionization constant of a weak acid conductometrically.

(e) To titrate potentionmetrically the given ferrous ammonium sulphate using $KMnO_4/K_2Cr_2O_7$ as titrant and calculate the redox potential of Fe^{2+}/Fe^{3+} system on the hydrogen scale.

Refractometry and Polarimetry

(a) To verify law of refraction of mixtures (e.g. of glycerol and water) using Abbe's refractometer.

(b) To determine the specific rotation of a given optically active compound.

Molecular Weight Determination

(a) Determination of molecular weight of a non-volatile solute by Rast method/Beckmann freezing point method.

(b) Determination of the apparent degree of dissociation of an electrolyte (e.g., NaCl) in aqueous solution at different concentrations by ebullioscopy.

Colorimetry

To verify Beer-Lambert law for $KMnO_4/K_2Cr_2O_7$ and determine the concentration of the given solution of the substance.

REFERENCE BOOKS :

1. Vogel's qualitative Analysis, revised, Svehla, Orient Longman
2. Standard methods of chemical analysis, W.W. Scott, The Technical Press
3. Experimental Organic Chemistry, Vol. I & II, P.R. Singh, D.S. Gupta and K.S. Bajpai, tata McGraw Hill.
4. Laboratory Manual in Organic Chemistry, R.K. Bansal, Wiley Eastern
5. Vogel's Text Book of Practical Organic Chemistry, B.S. Furnis, A.J. Hannaford, V. Rogers, P.W.G. Smith and A.R. Tatchel, ELBS
6. Experiments in general chemistry, C.N.R. Rao & U.C. Agrawal
7. Experiments in Physical Chemistry, R.C. Das & Behra, Tata McGraw Hill
8. Advanced Practical Physical Chemistry, J.B. Yadav, Goel Publishing House.

8 Hrs. PRACTICAL EXAMINATION M.M.50.

Five experiments are to be performed.

1. Inorganic - Two experiments to be performed.
   Gravimetric estimation compulsory carrying 08 marks. (Manipulation 3 marks).
   Anyone experiment from synthesis and analysis carrying 04 marks.
2. Organic-Two experiments to be performed.
   Qualitative analysis of organic mixture containing two solid components.
   compulsory carrying 08 marks (03 marks for each compound and two marks for separation).
   One experiment from synthesis of organic compound (Single step) carrying 04 marks.
3. Physical-One physical experiment carrying 12 marks.
4. Sessional 04 marks.
5. Viva Voce 10 marks.

In case of Ex-Students one mark each will be added to Gravimetric analysis and Qualitative analysis of organic mixture and two marks in Physical experiment.

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PHYSICS

Objectives :

Present course is aimed to provide ample knowledge of basics of Physics which are relevant to the understanding of modern trends in higher physics.

The first paper is aimed at preparing the back ground of modern physics which includes the relativistic and quantum ideas mainly councerned with atomic, molecular and nuclear physics. It consistutes an essential pre-requisite for better understanding of any branch of physics.

The second paper is mainly concerned with Solid State Physics, Solid State Devices and Electronics. This course is quite important from the applicational aspects of modern electronic devices. It also forms the basis of advance electronics including communication technology to be covered at higher level.

The experiments are based mostly on the contents of the theory papers so as to provide comprehensive insight of the subject.

Scheme of Examination :

1. There shall be two theory papers of 3 hours duration each and one practical paper of 4 hours duration. Such paper shall carry 50 marks.
2. Each theory paper will comprise of 5 units. Two questions will be in each unit and the student will have the choice to answer one out of the two.
3. Numerical problems of about 30 percent will compulsorily be asked in each theory paper.
4. In practical paper each student has to perform two experiments during examination.
5. Practical examination will be of 4 hours duration. The distribution of practical marks will be as follows.

   Experiments : 15 + 15 = 30, Viva-voce :10

   Internal Assessment - 10.

PAPER - I (Paper Code-0893)

RELATIVITY, QUANTUM MECHANICS, ATOMIC MOLECULAR AND NUCLEAR PHYSICS.

UNIT-I Reference systems, inertial frames, Galilean invariance and conservation laws, propogation of light, Michelson-Morley experiment, search for ether.

Postulates for the special theory of ralativity, Lorentz tranformations, length contraction,time dilation, velocity additon theorem, variation of mass with velocity, mass-energy equivalence, particle with zero rest mass, Compton effect.

UNIT-II Origin of the quantum theory : Failure of classical physics to explain the phenomena such as black-body spectrum, photoelectric effect.

Wave-particle duality and uncertainty principle : de Broglie's hypothesis for matter waves : the concept of wave and group velocities, evidence for diffraction & interference of particles, experimental demonstration of mater waves. Davisson and Germer's experiment.

Consequence of de Broglie's concepts, quantisation in hydrogen atom, energies of a particle in a box, wave packets.

Consequence of the uncertainty relation : gamma ray microscope, diffraction at a slit.

UNIT-III Quantum Mechanics : Schrodinger's equation. Postulatory basis of quantum mechanics, operators, expectation values, transition probabilities, applications to particle in a one- and three dimensional boxes, harmonic oscillator in one dimension, reflection at a step potential, transmission across a potential barrier.

Hydrogen atom : natural occurrence of n, and m quatum numbers, the related physical quantities.

UNIT-IV Spectra of hydrogen, deuteron and alkali atoms spectral terms, doublet fine structure, screening constants for alkali spectra for s,p, d and f states, selection rules.

Discrete set of elctronic energies of moleculers, quantisation of vibrational and rotational energies, determination of internuclear distance, pure rotatinal and rotation vibration spectra. Dissociation limit for the ground and other electronic states, transition rules for pure vibration and electronic vibration spectra.

Raman effect, Stokes and anti-Stokes lines, complimentary character of Raman and infrared spectra, experimental arrangements for Raman spectroscopy.

UNIT-V Interaction of charged particles and neutrons with mater, working of nuclear detectors, G-M counter, proportional counter and scintillation counter, cloud chambers, spark chamber, emulsions.

Structure of nuclei, basic properties (, μ Q and binding energy), deuteron binding energy, p-p and n-p scattering and general concepts of nuclear forces, Beta decay, range of alpha particle Geiger-Nuttal law. Gamow's explanation of beta decay, alpha decay and continuous and discrete spectra.

Nuclear reactions, channels, compound nucleus, direct reaction (concepts). Shell model & liquid drop model, fission and fusion (concepts), energy production in stars by p-p and carbon cycles (concepts).

TEXT AND REFERENCE BOOKS :

1. H.S. Mani and G.K. Metha : "Introduction to Modern Physics"'' (Affiliated East-West Press, 1989)
2. A Beiser, "Prospective of Modern Physics"
3. H.E. White, Introduction to Atomic Physic"
4. Barrow, "Introduction to Molecular Physics!"
5. R.P. Feynman, R.B. Leighton and M Sands, "The Feynman Lectures on Physics", Vol.III (B.I. Publications, Bombay, Delhi, Calcutta, Madras).
6. T.A. Littlefield and N Thorley, "Atomic and Nuclear Physics" (Engineering Language Book Society)
7. H.A. Enge, "Introduction to Nuclear Physics", (Addision-Wesly)
8. Eisenberg and Resnik, "Quantum Physics of Atoms, Molecules, Solids, Nuclei and Particles" (John Wiley)
9. D.P. Khandelwal, "Optics and Atomic Physics", (Himalaya Publishing House, Bombay, 1988).

PAPER-II (Paper Code-0894)

SOLID STATE PHYSICS, SOLID STATE DEVICES AND ELECTRONICS

UNIT-I Amorphous and crystalline solids, Elements of symmetry, seven crystal system, Cubic lattices, Crystal planes, Miller indices, Laue's equation for X-ray diffraction, Bragg's Law. Bonding in solids, classification. Cohesive energy of solid.

Madelung constant, evaluation of Parameters.

Specific heat of solids, classical theory (Dulong-Petit's law). Einstein and Debye theories. Vibrational modes of one dimensional monoatomic lattice, Dispersion relation, Brillouin Zone.

UNIT-II Free electron model of a metal, Solution of one dimensional Schrodiner equation in a constant potential. Density of states. Fermi Energy, Energy bands in a solid (Kronig-Penny model without mathematical details). Metals, Insulator and Semiconductors. Hall effect.

Dia, Para and Ferromagnetism. Langevin's theory of dia and para-magnetism. Curie-Weiss's Law. Qualitative description of Ferromagnetism (Magnetic domains), B-H. curve and Hysteresis loss.

UNIT-III Intrinsic semiconductors, carrier concentration in thermal equlibrium, Fermi level, Impurity semiconductor, doner and acceptor levels, Diode equation, junctions, junction breakdown, Depletion width and junction capacitance, abrupt junction, Tunnel diode, Zener diode. Light emmitting diode, solar cell, Bipolar transistors, pnp and npn transistors, characteristics of transistors, different configurations, current amplification factor, FET.

UNIT-IV Half and full wave rectifier, rectifier efficiency ripple factor, Bridge rectifier, Filters, Inductor filter, T and N filters, Zener diode, regulated power supply.

Applications of transistors.

Bipolar Transistor as amplifier.

Single stage and CE small signal amplifiers, Emitter followers, Transistoras power amplifier, Transistor as oscillator, Wein-Bridge Oscillator and Hartley oscillator.

UNIT-V Introduction to computer organisation, time sharing and multi programming systems, window based word processing packages, MS Word.

Introduction to C programming and application to simple problems of arranging numbers in ascending / descending orders : sorting a given data in an array, solution of simultaneous euation.

BOOKS RECOMMENDED :

1. Introduction to solid state physics : C.Kittel
2. Solid State Physics : A.J. Dekkar
3. Electronic Circuits : Mottershead
4. Electronic Circuits : Millman and Halkias
5. Semiconductor Devices : S.M. Sze
6. Computer fundamental : balaguara Swami

PRACTICALS

MINIMUM 16 (Sixteen) Out of the following or similar experiment of equal standard :

1. Determination of Planck's constant
2. Determination of e/m by using Thomson's tube
3. Determination of e by Millikan's method
4. Study of spectra of hydrogen and deuterium (Rydberg constant and ratio of masses of electron proton)
5. Absorption spectrum of iodine vapour
6. Study of alkali or alkaline earth spectra using a concave gra's
7. Study of Zeeman effect for determination of Lande g-factor.
8. Analysis of a given band spectrum.
9. Study of Raman spectrum using laser as an excitation source.
10. Study of absorption of alpha and beta rays.
11. Study of statistics in radioactive measurement.
12. Coniometric study of crystal faces.
13. Determination of dielectric constant
14. Hysteresis curve of transformer core
15. Hall-probe method for measuement of magnetic field
16. Specific resistance and energy gap of a semiconductor
17. Characteristics of transistor
18. Characteristics of a tunnel diode
19. Study of voltage regulation system
20. Study of a regulated power supply
21. Study of lissajous figures using a CRO
22. Study of VTVM
23. Study of RC and TC coupled amplifiers
24. Study of AF and RF oscillators
25. Find roots of f(x)=0 by using Newton-Raphson method
26. Find roots of F(x)=0 by using secant method
27. Integration by Simpson rule
28. To find the value of V at
31. String manipulations
32. Towers of Honoi (Nonrecursive)
33. Finding first four perfect numbers
34. Quadratic interpolation using Newton's forward-difference formula of degree two.

TEXT AND REFERENCE BOOKS :

1. B.G. Strechman ; "Solid State Electronic Devices". II Edition (Prentice-Hall of India, New Delhi, 1986)
2. W.D. Stanley ; "Electronic Devices, Circuits and Applications" (Prentice Hall, New Jersey, USA, 1988)
3. S. Lipschutsz and A Poe ; "Schaum's Outline of Theory and Problems of Programming with Fortran" (McGraw-Hill Book Co. Singapore, 1986)
4. C Dixon ; "Numerical Analysis"

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MATHEMATIS

There shall be three theory papers. Two compulsory and one optional Each paper carrying 50 marks is divided into five units and each unit carry equal marks.

PAPER - I (Paper Code-0898)

ANALYSIS

REAL ANALYSIS

UNIT-I Series of arbitrary terms. Convergence, divergence and Oscillation. Abel's and Dirichlet's test. Multiplication of series. Double series.

Partial derivation and differentiability of real-valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem.

Fourier series. Fourier expansion of piecewise monotonic functions.

UNIT-II Riemann integral. Intergrability of continuous and monotonic functions. The fundamental theorem of integral calculus. Mean value theorems of integral calculus.

Improper integrals and their convergence, Comparison tests. Abel's and Dirichlet's tests. Frullani's integral. Integral as a function of a parameter. Continuity, derivability and integrability of an integral of a function of a parameter.

COMPLEX ANALYSIS

UNIT-III Complex numbers as ordered pairs. Geometric representation of Complex numbers. Stereographic projection.

Continuity and differentiability of Complex functions. Analytic functions. Cauchy-Riemann equations. Harmonic functions.

Elementary functions. Mapping by elementary functions.

Mobius transformations. Fixedpoints, Cross ratio. Inverse points and critical mappings. Conformal mappings.

METRIC SPACES

UNIT-IV Definition and examples of metric spaces. Neighbourhoods, Limit points, Interior points, Open and closed sets, Closure and interior. Boundary points, Sub-space of a metric space. Cauchy sequences, Completeness, Cantor's intersection theorem. Contraction principle, Construction of real numbers as the completion of the incomplete metric space of rationals. Real numbers as a complete ordered field.

UNIT-V Dense subsets. Baire Category theorem. Separable, second countable and first countable spaces. Continuous functions. Extension theorem. Uniform continuity, Isometry and homeomorphism. Equivalent metrics. Compactness,Sequential compactness. Totally bounded spaces. Finite intersection property. Continuous functions and compact sets, Connectedness, Components, Continuous functions and connected sets.

REFERENCES :

1. T.M. Apostol, Mathematical Analysis, Narosa Publishing House, New Delhi, 1985.
2. R.R. Goldberg, Real Analysis, Oxford & IBH publishing Co., New Delhi, 1970.
3. S. Lang, Undergraduate Analysis, Springer-Verlag, New York, 1983.
4. D. Somasundaram and B. Choudhary, A First Coarse in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997.
5. Shanti Narayan, A Course of Mathematical Analysis, S. Chand & Co. New Delhi.

6. P.K. Jain and S.K. Kaushik, An introduction to Real Analysis, S. Chand & Co., New Delhi, 2000.
7. R.v. Churchill & J.W. Brown, Complex Variables and Applications, 5*" Edition, McGraw-Hill, NewYork, 1990.
8. MarkJ. Ablowitz & A.S.Fokas, Complex Variables : Introduction and Applications, Cambridge University Press, South Asian Edition, 1998.
9. Shanti Narayan, Theory of Functions of a Complex Variable, S. Chand & Co., New Delhi.
10. E.t. Copson, Metric Spaces, Cambridge University Press, 1968.
11. P.K. Jain and K. Ahmad, Metric Spaces, Narosa Publishing House, New Delhi, 1996.
12. G.F. Simmons, Inroductin to Topology and Modern Analysis, McGraw-Hill, 1963.

PART - II (Paper Code-0899)

ABSTRACT ALGEBRA

UNIT-I Group-Automorphisms, inner automorphism. Automorphism groups and their computations, Conjugacy relation, Normaliser, Counting principle and the class equation of a finite group. Center for Group of prime-order, Abelianizing of a group and its universal property. Sylow's theorems, Sylow subgroup, Structure theorem for finite Abelian groups.

UNIT-II Ring theory-Ring homomorphism. Ideals and Quotient Rings. Field of Quotients of an Integral Domain, Euclidean Rings, Polynomial Rings, Polynomials over the Rational Field. The Eisenstien Criterion, Polynomial Rings over Commutative Rings, Unique factorization domain. R unique factorisation domain implies so is R [x1, x2 ..... xn] Modules, Submodules, Quotient modules, Homomorphism and Isomorphism theorems.

UNIT-III Definition and examples of vector spaces. Subspaces. Sum and direct sum of subspaces, Linear span. Linear dependence, independence and their basic properties. Basis. Finite dimensional vector spaces. Existence theoremfor bases. Invariance of the number of elements of a basis set. Dimension. Existence of complementary subspace of a subspace of a finite dimensional vector space. Dimension of sums of subspaces. Quotient space and its dimension.

UNIT-IV Linear transformations and their representation as matrices. The Algebra of linear transformations. The rank nullity theorem. Change of basis. Dual space. Bidual space and natural isomorphism. Adjoint of a linear transformation. Eigenvalues and eigenvectors of a linear transformation. Diagonalisation. Annihilator of a subspace. Bilinear, Quadratic and Hermitian forms.

UNIT-V Inner Product Spaces-Cauchy-Schwarz inequality. Orthogonal vectors. Orthogonal Complements. Orthonormal sets and bases. Bessel's inequality for finite dimensional spaces. Gram-Schmidt Orthogonalization process.

REFERENCES :

1. I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975.
2. N. Jacobson, Basic Algebra, Vols. I & II. W.H. Freeman, 1980 (also published by Hindustan Publishing Company).
3. Shanti Narayan, A Text Book of Modern Abstract Algebra, S.Chand & Co. New Delhi.
4. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd., New Delhi, 2000.
5. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal, Basic Abstract Algebra (2"" Edition) Cambridge University Press, Indian Edition, 1997.

6. K. Hoffman and R. Kunze,Linear Algebra, 2"" Editon, Prentice Hall. Englewood Cliffs, New Jersey, 1971.
7. S.K. Jain, A. Gunawardena & P.B. Bhattacharya, Basic Linear Algebra with MATLAB. Key College Publishing (Springer-Verlag) 2001.
8. S. Kumaresan, Linear Algebra, A.Geometric Approach, Prentice-Hall of India, 2000.
9. Vivek Sahai and Vikas Bist, Algebra, Norosa Publishing House, 1997.
10. I.S. Luther and I.B.S.Passi, Algebra, Vol. I-Groups, Vol. II-Rings. Narosa Publishing House (Vol. I-1996, Vol. II-1999)
11. D.S. Malik, J.N. Mordeson, and M.K. Sen, Fundamentals of Abstract Algebra, McGraw-Hill International Edition, 1997.

PAPER - III - (OPTIONAL)

(I) PRINCIPLES OF COMPUTER SCIENCE (Paper Code-0900)

UNIT-I **Data Storage -** Storage of bits. Main Memory. Mass Storage. Coding Information of Storage. The Binary System. Storing integers, storing fractions, communication errors.

Data Manipulation - The Central Processing Unit. The Stored-Program Concept. Programme Execution. Other Architectures. Arithmetic/Logic Instructions. Computer-Peripheral Communication.

UNIT-II **Operating System and Networks -** The Evolutionof Operating System. Operating System Architecture. Coordinating the Machine's Activities. Handling Competition Among Process. Networks. Networks Protocol.

Software Engineering - The Software Engineering Discipline. The Software Life Cycle. Modularity. Development Tools and Techniques. Documentation. Software Ownership and Liability.

UNIT-III **Algorithms** - The Concept of an Algorithm, Algorithm Representation. Algorithm Discovery. Iterative Structures. Recursive Structures. Efficiency and Correctness. (Algorithms to be implemented in C^{++}).

Programming Languages - Historical Perspective. Traditional Programming Concepts, Program Units. Language Implementation. Parallel Computing. Declarative Computing.

UNIT-IV **Data Structures -** Arrays. Lists. Stacks. Queues. Trees. Customised Data Types. Object Oriented Programming.

File Structure - Sequential Files. Text Files. Indexed Files. Hashed Files. The Role of The Operating System.

Database Structure - General Issues. The Layered Approach to Database Implementation. The Relational Model. Object-Oriented Database. Maintaining Database Integrity. E-R models.

UNIT-V **Artifical Intelligence -** Some Philosophical Issues. Image Analysis. Reasoning, Control System Activities. Using Heuristics. Artificial Neural Networks. Application of Artificial Intelligence.

Theory of Computation - Turning Machines. Computable functions. A Non computable Function. Complexity and its Measures. Problem Classification.

REFERENCES :

1. J. Glen Brookshear, Computer Science : An Overview, Addition -Wesley.
2. Stanley B. Lippman, Josee Lojoie, C^{++} Primer (3rd Edition), Addison-Wesley.

PAPER - III - (OPTIONAL)

(II) DISCRETE MATHEMATICS (Paper Code-0901)

UNIT-I **Sets and Propositions -** Cardinality. Mathematical Induction, Principle of Inclusion and exclusion.

Computability and Formal Languages - Ordered Sets. Languages. Phrase Structure Grammars. Types of Grammars and Languages. Permutations. Combinations and Discrete Probability.

UNIT-II **Relations and Functions -** Binary Relations, Equivalence Relations and Partitions. Partial Order Relations and Lattices. Chains and Antichains. Pigeon Hole Principle.

Graphs and Planar Graphs - Basic Terminology. Multigraphs. Weighted Graphs. Paths and Circuits. Shortest Paths. Eulerian Paths and Circuits. Travelling Salesman Problem. Planner Graphs.

TREES.

UNIT-III **Finite State Machines -** Equivalent Machines. Finite State Machines as Language Recognizers. Analysis of Algorithms - Time Complexity. Complexity of Problems. Discrete Numeric Functions and Generating Functions.

UNIT-IV1 **Recurrence Relations and Recursive Algorithms -** Linear Recurrence Relations with Constant Coefficients. Homogeneous Solutions. Particular Solution. Total Solution. Solution by the Method of Generating Functions. Brief review of Groups and Rings.

UNIT-V **Boolean Algebras -** Lattices and Algebraic Structures. Duality, Distributive and Complemented Lattices. Boolean Lattices and Boolean Algebras. Boolean Functions and Expressions. Prepositional Calculus. Design and Implementation of Digital Networks. Switching Circuits.

REFERENCES :

C.L. Liu, Elements of Discrete Mathematics, (Second Edition), McGraw Hill, International Edition, Computer Science Series, 1986.

PAPER - III - (OPTIONAL)

(III) APPLICATION OF MATHEMATICS IN FINANCE AND INSURANCE (Paper Code-0902)

Application of Mathematics in Finance :

UNIT-I **Financial Management -** An overview. Nature and Scope of Financial Management. Goals of Financial Management and main decisions of financial management. Difference between risk, speculation and gambling.

Time value of Money-Interest rate and discount rate. Present value and future valuediscrete case as well as continuous compounding case. Annuities and its kinds.

UNIT-II Meaning of return. Return as Internal Rate of Return (IRR). Numerical Methods like Newton RaphsonMethod to calculate IRR. Measurement of returns under uncertainty situations. Meaning of risk. Difference between risk and uncertainty. Types of risks. Measurement of risk. Calculation of security and Portfolio Risk and Return-Markowitz Model. Sharpe's Single Index Model Systematic Risk and Unsystematic Risk.

UNIT-III Taylor series and Bond Valuation. Calculation of Duration and Convexity of bonds. Financial Derivaties - Futures. Forward. Swaps and Options. Call and Put Option. Call and Put Parity Theorem. Pricing of contingent claims through Arbitrage and Arbitrage Theorem.

Application of Mathematics in Insurance

UNIT-IV Insurance Fundamentals - Insurance defined. Meaning of loss. Chances of loss, peril, hazard, and proximate cause in insurance. Costs and benefits of insurance to the society and branches of insurance-life insurance and various types of general insurance. Insurable loss exposuresfeature of a loss that is ideal for insurance. Life Insurance Mathematics - Construction of Mortality Tables. Computation of Premium of Life Insurance for a fixed duration and for the whole life.

UNIT-V Determination of claims for General Insurance - Using Poisson Distribution and Negative Binomial Distribution-the Polya Case.

Determination of the amount of Claims in General Insurance - Compound Aggregate claim model and its properties, and claims of reinsurance. Calculation of a compound claim density function. F-recursive and approximate formulae for F.

REFERENCES :

1. Aswath Damodaran, Corporate Finance - Theory and Practice, John Wiley & Sons Inc.
2. John C. Hull, Options, Futures, and Other Derivatives, Prentice-Hall of Indian Private Limited.
3. Sheldon M. Ross, An Introduction to Mathematical Finance, Cambridge University Press.
4. Mark S. Dorfman, Introduction to Risk Management and Insurance, Prentice Hall, Englwood Cliffs, New Jersey.
5. C.D. Daykin, T. Pentikainen and M. Pesonen, Practical Risk Theoryfor Actuaries, Chapman & Hall.

PAPER - III - (OPTIONAL)

Theory component will have maximum marks 30.
Practical component will have maximum marks 20.

(IV) PROGRAMMING IN C AND NUMERICAL ANALYSIS (Thoury & Practical)

(Paper Code-0903)

UNIT-I Programmer's model of a computer. Algorithms. Flow Charts. Data Types. Arithmetic and input/output instructions. Decisions control structures. Decision statements. Logical and Conditional operators. Loop. Case control structures. Functions. Recursions. Preprocessors. Arrays. Puppetting of strings. Structures. Pointers. File formatting.

Numerical Analysis

UNIT-II Solution of Equations : Bisection, Secant, Regula Falsi, Newton's Method, Roots of Polynomials : Interpolation : Lagrange and Hermite Interpolation, Divided Differences, Difference Schemes, Interpolation Formulasusing Differences. Numerical Differentiation. Numerical Quadrature : Newton-Cote's Formulas. Gauss Quadrature Formulas, Chebychev's Formulas.

UNIT-III Linear Equations : Direct Methods for Solving. Systems of Linear Equations (Guass Elimination, LU Decomposition, Cholesky Decomposition), Iterative Methods (Jacobi, GaussSeidel, Relaxation Methods).

The Algebraic Eigenvalue problem : Jacobi's Method, Givens' Method, Householder's Method, Power Method, QR Method, Lanezos' Method.

UNIT-IV Ordinary Differential Equations : Euler Method, Single-step Methods, Runge-Kutta's Method, Multi-step Methods, Milne-Simpson Method, Methods Based on Numerical

Integration, Methods Based on Numerical Differentiation, Boundary Value Problems, Eigenvalue Problems.

Approximation : Different Types of Approximation, Least Square Polynomial Approximation, Polynomial Approximation using Orthogonal Polynomials, Approximation with Trigonometric Functions, Exponential Functions, Chebychev Polynomials, Rational Functions.

Unit-V Monte Carlo Methods Random number generation, congruential generators, statistical tests of pseudo-random numbers.

Random variate generation, inverse tranform method, composition method, acceptancerejection method, generation of exponential, normal variates, binomial and Poisson variates.

Monte Carlo integration, hit or miss Monte Carlo integration, Monte Carlo integration for improper integrals, error analysis for Monte Carlo intergration.

REFERENCES :

1. Henry Mullish& Herbert L. Cooper, Spirit of C : An Introductionto Modern Programming, Jaico Publishers, Bombay.
2. B.W. Kernighan and D.M. Ritchie. The C Programming Language 2"d Edition, (ANSI features) Prentice Hall, 1989.
3. Peter A Darnel and Philip E. Margolis, C : A Software Engineering Approach, Narosa Publishing House, 1993.
4. Robert C. Hutehisonand Steven B. Just, Programming using C Language, McGraw Hill, 1988.
5. Les Hancock and Morris Krieger, The C Primer, McGraw Hill, 1988.
6. V. Rajaraman, Programming in C, Prentice Hall of India, 1994.
7. Byron S. Gottfried, Theory and Problems of Programming with C, tata McGraw-Hill Publishing Co. Ltd., 1998.
8. C.E. Froberg,Introduction to Numerical Analysis, (Second Edition), Addison-Wesley, 1979.
9. James B. Scarborough, Numerical Mathematical Anasysis, Oxford and IBHPublishing Co. Pvt. Ltd. 1966.
10. Melvin J. Maron, Numerical Analysis A Practical Approach, Macmillan publishing Co., Inc. New York, 1982.
11. M.K. Jain, 'S.R.K. lyengar, R.K. Jain, Numerical Methods Problems and Solutions, New Age International (P) Ltd., 1996.
12. M.K. Jain, S.R.K. lyengar, R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International (P) Ltd., 1999.
13. R.Y. Rubistein, Simulation and the Monte Carlo Methods, John Wiley, 1981.
14. D.J. Yakowitz Computational Probability and Simulation, Addison-Wesley, 1977.

PAPER - III - (OPTIONAL)

(IV) PRACTICAL

PROGRAMMING IN C AND NUMERICAL ANALYSIS

LIST OF PRACTICAL TO BE CONDUCTED...

1. Write a program in C to find out the largest number of three integer numbers.
2. Write a program in C to accept monthly salary from the user, find and display income tax with the help of following rules :

Monthly Salary	Income Tax
9000 or more	40% of monthly salary
7500 or more	30% of monthly salary
7499 or less	20% of monthly salary

3. Write a program in C that reads a year and determine whether it is a leap year or not.
4. Write a program in C to calculate and print the first n terms of fibonacci series using looping statement.
5. Write a program in C that reads in a number and single digit. It determines whether the first number contains the digit or not.
6. Write a program in C to computes the roots of a quadratic equation using case statement.
7. Write a program in C to find out the largest number of four numbers using function.
8. Write a program in C to find the sum of all the digits of a given number using recursion.
9. Write a program in C to calculate the factorial of a given number using recursion.
10. Write a program in C to calculate and print the multiplication of given 2D matrices.
11. Write a program in C to check that whether given string palindrome or not.
12. Write a C function seriessum () to calculate the sum of series :
    $1+X+1/2!\ X^2+1/3!\ X^3+\ldots\ldots 1/n!\ X^n$
13. Write a program in C to determine the grade of all students in the class using Structure. Where structure having following members - name, age, roll, sub 1, sub2, sub3, sub4 and total.
14. Write a program in C to copy one string to another using pointers. (Without using standard library functions).
15. Write a program in C to store the data of five students permanently in a data file using file handling.

PAPER - III - (OPTIONAL)

(V) MATHEMATICAL MODELLING (Paper Code-0904)

The Process of Applied mathematics.

UNIT-I Setting up first-order differential equations - Qualitative solution sketching. Difference and differential equation growth models.

UNIT-II Single-species population models. Population growth-An age structure model. The spread of Technological innovation.

UNIT-III Higher-order linear models- A model for the detection of diabetes. Combat modes. Traffic models - Car-following models. Equilibrium speed distributions.

UNIT-IV Nonlinear population growth models. Prey-Predator models. Epidemic growth models. Models from political science - Proportional representation-cumulative voting, comparison voting.

UNIT-V Applications in Ecological and Environmental subject areas- Urban waste water management planning.

REFERENCES :

1. Differential equation models, Eds. Martin Braun, C.S. Coleman, D.A. Drew.
2. Political and Related Models, Steven. J. Brams, W.F. Lucas, P.D. Straftin (Eds.)
3. Discrete and System models, W.F. Lucas, F.S. Roberts, R.M. Thrall.
4. Life Science Models, H.M. Roberts & M. Thompson.

All volumes published as modules in applied Mathematics, Springer-Verlag, 1982.

5. Mathematical Modelling by J.N. Kapur, New Age International, New Delhi.

BOTANY

PAPER-I (Paper Code-0915)

PLANT PHYSIOLOGY, BIOCHEMISTRY AND BIOTECHNOLOGY

M.M. : 50

UNIT-I Plant-water relations : Importance of water to plant life ; physical properties of water; diffusion and osmosis; absorption, transport of water and transpiration ; physiology of stomata.

Mineral nutrition : Essential macro and micro-elements and their role ; mineral uptake; deficiency and toxicity symptoms.

UNIT-II Transport of organic substances : Mechanism of phloem transport ; source-sink relationship ; factors affecting translocation.

Basic of enzymology : Discovery and nomenclature ; characteristics of enzymes ; concept of holoenzyme apoenzyme, coenzyme and cofactors ; regulation of enzyme activity, mechanizm of action.

Photosynthesis : Significance ; historical aspects ; photosynthetic pigments ; action spectra and enhancement effects ; concept of two photosystems; Z-scheme ; photo-phosphorylation ; Calvin cycle ; C4 pathway ; CAM plants ; photorespiration.

UNIT-III Respiration : ATP - the biological energy currency ; aerobic and anaerobic respiration; Kreb's cycle, electron transport mechanism (chemi-osmotic theory) ; redox potential; oxidative phosphorylation ; pentose phosphate pathway.

Nitrogen and lipid metobolism : Biology of nitrogen fixation ;importance of nitrate reductase and its regulations ; ammonium assimilation ; structure and function of lipids; fatty acid biosynthesis ; Beta-oxidation ; saturated and unsaturated fatty acids; storage and mobilization of fatty acids.

UNIT-IV Growth and development : Definitions ; phases of growth and development ; kinetics of growth, seed dormancy, seed germination and factors of their regulation ; plant movements ; the concept of photoperiodism ; physiology of flowering ; florigen concept; biological clocks ; physiology of senescence, fruit ripening ; plant hormones auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery, biosynthesis and mechanism of action ; photomorphogenesis ; phytochromes and cryptochromes, their discovery, physiological role and mechanism of action.

UNIT-IV Genetic engineering : Tools and techniques of recombinant DNA technology ; cloning vectors ; genomic and cDNA library ; transposable elements ; techniques of gene mapping and chromosome walking.

Biotechnology : Functional definition ; basic aspects of plant tissue culture ; cellular totipotency, differentiation and morphogenesis ; biology of Agrobacterium ; vectors for gene delivery and marker genes ; salient achievements in crop biotechnology.

PAPER-II (Paper Code-0916)

ECOLOGY AND UTILIZATION OF PLANTS M.M. : 50

UNIT-I Plants and environment : Atmosphere (gaseous composition), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico-chemical properties), and biota.

Morphological, anatomical and physiological responses of plants to water (hydro-phytes and xerophytes), temperature (thermoperiodicity), light (photoperiodism, heliophytes and sciophytes) and salinity.

UNIT-II Community Ecology : Community characteristics, frequency, density, cover, life forms biological spectrum ; ecological succession.

Ecosystems : Structure, abiotic and biotic components ; food chain, food web, ecological pyramids, energy flow ; biogeochemical cycles of carbon, nitrogen and phosphorus.

UNIT-III Population ecology : Growth curves ; ecotypes ; ecads.

Biogeographical regions of India.

Vegetation types of India : Forests and grasslands.

UNIT-IV Utilization of Plants

Food plants : Rice, wheat, maize, potato, sugercane.

Fibres : Cotton and jute.

Vegetable oils : Groundnut, mustard and coconut

General account of sources of firewood, timber and bamboos.

UNIT-V Spices : General account.

Medicinal plants : General account

Beverages : Tea and coffee.

Rubber.

PRACTICAL SCHEME **M.M. 50**

01.	Physiology	08
02.	Ecology	08
03.	Utilization of Plants	05
04.	Biochemistry / Biotechnology	05
05.	Spotting (1-5 spots)	10
06.	Project work	04
07.	Viva V.	05
08.	Sessional	05
		50

Suggested Laboratory Exercises

1. To study the permeability of plasma membrance using different concentrations of organicsolvents.
2. To study the effect of temperature on permeability of plasma membrane.
3. To prepare the standard curve of protein and determine the protein content in unknown samples.
4. To study the enzyme activity of catalase and peroxidase as inflenced by pH and temperature.
5. Comparison of the rate of respiration of various plant parts.
6. Separation of chloroplast pigment by solvents method.
7. Determinig the osmotic potential of vacuolar sap by plsmolytic method.
8. Determining the water potental of any tuber.
9. Separation of amino acids in a mixtue by paper chromatography and their identification by comparison with standards.
10. Bioassay of auxin, cytokinin, GA. ABA and ethylene using appropriate plant material.
11. Demonstration of the technique of micropropagation by using different explants, e.g. axillary buds, shoot meristems.
12. Demonstration of the technique of anther culture.
13. Isolation of protoplasts from different tissues using commercially available enzymes.
14. Demonstration of root and shoot formation from the apical and basal portion of stem segments in liquid medium containing different hormones.

Suggested Laboratory Expercises (Ecology)

1. To determine minimum number of quadrats required for reliable estimate of biomass in grasslands.
2. To study the frequency of herbaceous species in grassland and to compare the frequency distribution with Raunkair's Standard Frequency Diagram.
3. To estimate importance Value Index for grassland species on the basis of relative frequency, relative density and relative biomass in protected and grazed grassland.
4. To measure the vegetation cover of grassland through point frame method.
5. To measure the aboveground plant biomass in a grassland.
6. To determine Kemp's constant for dicot and monocot leaves and to estimate the leaf area index of a grassland community.
7. To determine diversity indices (richness, Simpson, Shannon-Wiener) in grazed and protected grassland.
8. To estimate bulk density and porosity of grassland and woodland soils.
9. To determine moisture content and water holding capacity of grassland and woodland soil.
10. To study the vegetation structure through profile diagram.
11. To estimate transparency, pH and temperature of different water bodies.
12. To measure dissolved oxygen content in polluted and unpolluted water samples.
13. To estimate salinity of different water samples.
14. To determine the percent leaf area injury of different leaf samples collected around polluted sites.
15. To estimate dust holding capacity of the leaves of different plant species.

PRACTICAL

Suggested Laboratory Exercises (for Utilization of Plants)

1. Food Plants : Study of the morphology, structure and simple microchemical tests of the food storing tissues in rice, wheat, maize, potato and sugarcane, Microscopic exmaination of starch in these plants (excepting sugarcane)
2. Fibres : Study of cotton flowers, sectioning of the cotton ovules/developing seeds to trace the origin and development of cotton fibres. Microscopic study of cotton and test for cellulose, Sectioning and staining of jute stem to show the location and development of firbres. Microscopic structure. Test for lignocellulose.
3. Vegetable oils : Study of hand sections of groundnut, mustard and coconut and staining of oil droplets by Sudan III and Sudan Black.
4. Field visits : To study sources of firewood (10 plants), timber-yielding trees (10 trees) and bamboos. A list to be prepared mentioning special features.
5. Spices : Examine black pepper, cloves, cinnamon (hand sections) and opened fruits of cardamom and describe them briefly.
6. Preparation of an illustrated inventory of 10 medicinal plants used in indigenous systems of medicine or allopathy : Write their botanical and common names, parts used and disease/disorders for which they are prescribed.
7. Beverages : Cut Sections of boiled coffee beans and tea leaves to study the characterstic structural features.
8. Rubber : Collect illustrative materials of Hevea brasillensis ; morphology of the plant and tapping practices, history of rubber. List the many uses of rubber.

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ZOOLOGY

Paper-I (Paper Code-0917)

Ecology, Environmental-biology ; Toxicology ; Microbiology and Medical Zology.

2. Attempting one question from each unit will be compulsory. 100% chice be given.

UNIT-I (ECOLOGY)

1. Aims and scopes of Ecology.
2. Major ecosystems of the world-Brief intruduction
3. Population- Characteristics and regualtion of densities.
4. Communities and Ecosystems.
5. Biogeochemical cycles
6. Air and water pollution
7. Ecological succession

UNIT-II (ENVIRONMENTAL BIOLOGY)

1. Laws of limiting factors
2. Food chain in a freshwater ecosystem.
3. Energy flow in ecosystem-Trophic levels
4. Conservation of Natural resources
5. Environmental impact Assessment

UNIT-III (TOXICOLOGY)

1. Definition of Toxicity
2. Classification of toxicants
3. Principle of systematic toxicology
4. Toxic agents and their action- Metallic and inorganic agents
5. Animal poisons - Snake-venom, Scorpion and bee poisoning
6. Food pisoning

UNIT-IV (MICROBIOLOGY)

1. General and Applied microbiology.
2. Microbiology of Domestic water and sewage
3. Microbiology of milk and milk products
4. Industrial microbiology

UNIT-V (MEDICAL MICROBIOLOGY)

1. Brief introduction to pathogenic micro-organisurs, Rickettsia, Spirochaetes and Bacteria.
2. Brief account of life-history and pathogenicity of the following pathogens with reference to man ; Prophylaxis and treatment -
   (a) Pathogenic Protozoans - Entamoeba, Trypanosoma, and Giardia
   (b) Pathogenic helminths - Schistosoma
   (c) Nematode Pathogenic parasites of man
3. Vector insects

PAPER-II

(Paper Code-0918)

(GENETIC'S, CELL PHYSIOLOGY, BIOCHEMISTRY, BIOTECHNOLOGY AND BIOTECHNIQUES)

Note : Ateempting one question from each unit will be compulsory, 100% choice be given.

UNIT-I (GENETIC'S)

1. Linkage and Linkage maps
2. Varieties of gene expression - Multiple alleles ; lithogenesis ; Pleiotropic genes; gene interaction ; epistasis.
3. Sexchromosome systems, and sex-linkage.
4. Mutation and chromosomal alterations ; meiotic consequences.
5. Human genetics - chromosomal and single gene disorders (somatic cell genetics)

UNIT-II (CELL PHYSIOLOGY)

1. General idea about pH and Buffer.
2. Transport across membrane - cell membrane; Mitochondria andEndoplasmic reticulum.
3. Active transport and its mechanism; Active transport in Mitochondria and Endoplasmic reticulum.
4. Hydrolytic enzymes - Their chemical nature, Activation and specificity.

UNIT-III (BIOCHEMISTRY)

1. Amino acids and Peptides - Basic structure and biological function.
2. Carbohydrate and its metabolism - Glycogenesis; Gluconeogenesis; glycolysis, Glycogenolysis; Cosi-cycle.
3. Lipid metabolism - Oxidation of glycerol; oxidation of fatty acid.
4. Protein metabolism - Deamination,Transamination, Transmethylation; Biosynthesis of Protein;

UNIT-IV (BIOTECHNOLOGY)

1. Biotechnology - Scope and importance.
2. Recombinant DNA and Gene cloning.
3. Cloned genes and other tools of biotechnology.
4. Applications of biotechnology in (i) Pharmaceutical industry, and (ii) Food processing industry.

UNIT-V (BIOTECHNIQUE)

Principles and techniques about the following

1. pH meter
2. Colorimeter
3. Microscopy-Light microscopes, Phase contrast and Electron microscopes.
4. Centrifugation
5. Separation of biomolecules by chromatography, and Electrophoresis
6. Histrochemical methods for determination of Protein, Lipids, and carbohydrate

PRACTICAL WORK

The Practical work in general shall be based on syllabus prescribed in theory.

The candidates will be required to show knowledge of the following :

1. Estimation of population density, Percentage frequency, Relative density.
2. Analysis of Producers and consumers in grassland.
3. Detection of gram-negative and gram-positive bacteria.
4. Blood group detection (A,B, AB & O).
6. R.B.C., W.B.C. count.
6. Blood coagulation time.
7. Preparation of Hematin crystals from blood of rat.
8. Observation of Drosophila, wild and mutant.
9. Chromatography-Paper or gel.
10. Colorimetric estimation of hemoglobin.
11. Mitosis in onion root tip.
12. Biochemical detection of Carbohydrate, Protein and Lipid.
13. Study of Permanent slides of Parasites, based on theory paper.
14. Working Principles of pH meter, Colorimeter, centrifuge and microscopes.

SCHEDULE FOR PRACTICAL EXAMINATION

Duration : 4 Hrs. **Max Marks : 50**

1.	Haematological Experiment : (R.B.Cs./W.B.Cs. Counting/Blood group detection)	08 marks
2.	Ecological Experiment : (Estimation of Population Density/Frequency/relative Density)	06 marks
3.	Staining of Gram +ve and Gram -ve Bacteria/cytological experiment : Mitosis in onion root tip	05 marks
4.	Biochemical Experiment : (biochemical detection of carbohydrate/protein lipid)	06 marks
5.	Chromatography	05 marks
6.	Spotting :	10 marks
	Study of permanent slides of Parasites : 3 Comments on working Principles of pH meter / Calorimeter / centrifuge and Microscope :	
7.	Viva Voce	05 marks
8.	Sessional :	05 marks

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MICRO-BIOLOGY

SCHEME OF PRACTICAL

Duration : 4 Hrs. **Max Marks : 50**

1.	Characterization and Identification of micro-organism from any given source	15
2.	Biochemical identification of some biodegraded organic molecules	10
3.	Spots (1 to 5)	10
4.	Viva voce	05
5.	Sessional	10
		Total - 50

(PRACTICAL SYLLABUS)

MOLECULAR BIOLOGY AND GENETIC ENGINEERING

Characterization of genetic markers of known bacterial strains.
Phage growth curve.
Isolation of DNA from bacteria.
Isolation of plasmid DNA and restriction analysis.
Simple cloning using plasmid DNA as vector and transformation of competent E. coli cells.
Electrophoretic analysis of proteins.
Isolation of Bacteria from air and soil (crop fields)
Isolation of Fungi from air and soil
Study of rhizospheric & Phyllospheric microbes of some economically important plants
Biodegradation study of some organic molecules
microbial assessment of potable water
Analysis of sewage waste
Analysis of Garbages (soild wastes)

REFERENCE :

Philipp Gorhardt, manual of Methods for general Bacteriology. ASM. 536pp.

PAPER-I (Paper Code-0923)

MOLECULAR BIOLOGY AND GENETIC ENGINEERING M.M.50

UNIT-I History of molecular biology, model systems, concepts of molecular biology, Early history of genetic engineering, genetic engineering concepts, ethical issue.

UNIT-II Mutation; spontaneous and induced, base pair change, fram shift, deletion, inversion, random duplication, insertion, useful phenotypes (auxotrophs, conditional lethal, resistance). Revertion vs suppression, Ame's test.

UNIT-III Function of macromolecules; early observation on the mechanism of heredity, DNA as genetic material; basic mechanism of replication, enzymes involved in replication, Enzymes involved in transcription translation, genetic code, regulation of gene expression-transcription, translation and control of gene expression in microbes.

UNIT-IV DNA repair and restriction, types of repair systems, restriction modification systems, types of restriction enzymes, properties and uses, methylation.

Biology of plasmids. Bacteriophages, lytic vs lysosogenic phages, single standard DNA phages, M 13, restriction modification systems, restriction enzymes.

UNIT-V Plasmid and phage vectors, restriction and ligation of vector and passenger DNA, transformation of host cells, selection vs. screening of recombinant colonies, analysis of recombinant clones, DNA sequencing, protein separation and identification methods.

TEXT BOOKS :

1. Essentials of Molecular Biology by GM Malacinski.
2. Genes IX by Benjamin Lewin
3. Molecular Biology by TA Brown.

PAPER - II (Paper Code-0924)

ENVIRONMENTAL AND MEDICAL MICROBIOLOGY

M.M.50

UNIT-I Aerobiology; definition, droplet nuclei, aerosol assessment of air quality, some important air borne diseases caused by bacteria (Diptheria, Peneumonia, Meningitis), virus (Influenza, Chicken pox, Measels) and fungi (mycosis); their symptoms and preventive measures.

UNIT-II Soil microbiology : Physical and chemical characteristics and micro flora of various soil types, rhizosphere, phyllosphere. Brief account of microbial interactions: symbiosis, mutualism, commensalism, competition, amensalism, synergism, parasitism, and predation.

Biofertilizers - biological nitrogen fixation, nitroginase enzyme, nif genes, symbiotic nitrogen fixation, and non-symbiotic nitrogen fixation (Azotobacter, Azospirillum), VAM-ecto-endo-ectendomycorrhizae.

UNIT-III Aquaticd microbiology; ecosystem, fresh water (ponds, lakes, stream) and marine, Water zonation : upwelling, entrophication.

Potability of water - microbial assessment of water quality.

Brief account of water borne diseases (Typhoid, Dysentery, Cholera, Hepatitis) and preventive measures.

UNIT-IV Food spoilage and food borne infections.

A brief mention about biodegradation, xenobiotics, bioaccunmulation, biopestisides and deterioration.

General concept of industrial microbiology and their applications.

UNIT-V Waste Treatment : types of wastes, characterization of solid and liquid waste, waste treatment solid saccharification, gasification, composting.

Liquid waste treatment - aerobic, anaerobic primary, secondary and tertiary methods.

Useful byproducts, mushroom, fuel, fertilizer, Biodegradation of industrial waste.

REFERENCES :

1. Food Microbiology by WC Frazier and D Westhoff.
2. Agricultural Microbiology by Bhagyaraj and Rangaswamy.
3. Bioremediation by KH Baker and DS Herson.
4. Scott's Diagnostic Microbiology by EJ Baron.

PRACTICAL FOR B.SC. PART III

(MICROBIOLOGY)

Characterization of genetic markers of known bacterial strain

Isolation of DNA from bacteria

Isolation of plasmid DNA

Simple cloning using plasmid DNA as vector and transformation of competent E. coli

Electrophoresis of protein / DNA.

Isolation of microorginsms from air, soil and water.

Isolation of pathogenic microorganisms.

Study of rhizospheric and phyllowpheric microbes from economically important plants.

Biodegradation of some organic molecules.

Microbial assessment of potable water.

Analysis of sewage waste, solid waste (garbage).

Isolation of aquatic fungi (zoosporic) by baiting technique.

Isolation of keratinophilic fungi soil by baiting technique

Demonstration of beacterial antagonism.

Microscopic observation of root colonization by VAM fungi.

SCHEME FOR PRACTICAL EXAMINATION

Time : 4 hors **M.M. : 50**

1.	Characterization and identification of microorganism from given source/ Isolation of plasmid DNA/Genomic DNA	15
2.	Biochemical identification of some biodegraded organic molecules/ Microbial assessment of potable water/BOD/COD	10
3.	Spotting (1-5)	10
4.	Viva-Voce	05
5.	Sessional	10
	Total	**150**

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विषय-भू-विज्ञान

सैद्धांतिक प्रश्न पत्र- प्रथम

पूर्णांक-50

(पेपर कोड-0905)

इकाई-1
1. खनिज उपलब्धता के नियामक तथ्य । वैश्विक खनिज नियम एवं संसाधन ।
2. दिक्काल में खनिज निक्षेपों का वितरण, पारम्परिक एवं गैर पारम्परिक ऊर्जा संसाधन : सूर्य-आतप, जल, वायु, उष्ण झरने, समुद्र तरंगे ।
3. अयस्क निर्माणकारी खनिज : धात्विक एवं अधात्विक । अयस्क निर्माण की मैग्मीय सांद्रगण विधि ।
4. उष्ण जलीय-प्रक्रियायें, स्कार्न ।
5. उपक्षय उत्पाद एवं अवशिष्ट निक्षेप । आक्सीकरण एवं सल्फाइड समृद्धि प्रक्रम ।

इकाई-2
1. अयस्क निर्माण की अवसादी प्रक्रिया ।
2. प्रतिस्थापन एवं जीवाश्विक अवक्षेपण, कोलायडल निक्षेपण । लवणीजल का वाष्पोत्सर्जन ।
3. अयस्क निर्माण की कायान्तरणी प्रक्रिया ।
4. भू-वैज्ञानिक कालों में वैश्विक विर्तनिकी एवं धानुनिर्मिती ।
5. भू-वैज्ञानिक वितरण, खनिजकीय विशेषता तथा भारत में निम्न धातु निक्षेपों का वितरण लौह-मैगनींज-क्रोमियम

इकाई-3
1. भू-वैज्ञानिक वितरण-खनिजकीय विशेषता एवं भारत में निम्न धातु निक्षेपों का वितरण : ताम्र-सीसा-जस्ता।
2. भू-वैज्ञानिक वितरण- खनिजकीय विशेषता एवं भारत में निम्न धातु निक्षेपों का वितरण: सोना-अल्युमिनियम।
3. भू-वैज्ञानिक वितरण- खनिजकीय विशेषता एवं भारत में निम्न अधातु निक्षेपों का वितरण : तापसह एवं उर्वरक खनिज ।
4. भू-वैज्ञानिक वितरण- खनिजकीय विशेषता एवं भारत में निम्न अधातु निक्षेपों का वितरण : सीमेंट एवं केमिकल उद्योग में प्रयुक्त खनिज एवं वास्तुप्रास्तर ।
5. भू-वैज्ञानिक वितरण- खनिजकीय विशेषता एवं भारत में निम्न अधातु निक्षेपों का वितरण : रत्न ।

इकाई-4
1. धातु सांद्रण की प्रमुख विधियाँ : ताम्र एवं मैग्नींज ।
2. खनिज दोहन के पर्यावरणीय प्रभाव ।
3. कोयला निक्षेपों की उत्पत्ति, परिभाषा एवं संस्तर विज्ञान ।
4. कोल-शैलिकी के मूलभूत तथ्य ।पीट, लिग्नाइट, विटूमिनस, एंथ्रासाइट ।
5. भारतीय कोयला निक्षेप : विशेष संदर्भ में छत्तीसगढ़ ।

इकाई-5
1. प्राकृतिक हाइड्रोकार्बन की उत्पत्ति, स्थानांतरण एवं स्थानबद्धता, स्त्रोत एवं संचयकारी
2. आयलट्रेप के प्रकार-संरचनात्मक, स्तरविज्ञानी एवं मिश्रित ।
3. भारत के तटीय एवं अपतटीय पेट्रोलियम निक्षेप ।
4. रेडियोधर्मी खनिज : खनिजकीय, भू-रसायन, पूर्वेक्षण तकनीक ।
5. भारत वर्ष में रेडियोधर्मी खनिज का वितरण ।

विषय-भू-विज्ञान

सैद्धांतिक प्रश्न पत्र-द्वितीय

(पेपर कोड-0906)

(प्राकृतिक पर्यावरण, दूर-संवेदन, भू-जल एवं खनिज-अन्वेषण) **पूर्णांक-50**

इकाई-1
1. पर्यावरण भू-विज्ञान की अवधारणायें एवं परिभाषा ।

2. मृदानिर्माण–मृदा प्रकार ।
3. पृथ्वी की प्राकृतिक–पारिस्थितिकी तंत्र की अवधारणायें : उनकी अंतर्क्रियाएं एवं अर्न्तसम्बन्ध ।
4. प्राकृतिक पर्यावरण पर मानव का पर्यावरण ।
5. नदी मार्ग का अंतरण : मार्ग अंतरण का मृदा अपरदन पर प्रभाव : भूस्खलन एवं बाढ़ ।

इकाई–2
1. वृहत्त बांध, जलाशय, सुरंगें आदि के निर्माण में स्थल चयन एवं पर्यावरणीय प्रभावों का अध्ययन ।
2. हवाई–छायाचित्रों एवं उपग्रह इमेजियरी का प्रारंभिक अध्ययन ।
3. शहरी विकास एवं वृहद्अभियांत्रिकी संरचनाओं की आयोजना में दूर–संवेदन तकनीकों का अनुप्रयोग ।
4. फोटो जियोलॉजिकल मानचित्रों का निर्माण ।
5. जल चक्र ।

इकाई–3 भूजलसंचयी शैल
1. शैल एवं उनका वर्गीकरण
2. जलमृतशैलों का वर्गीकरण : डार्सि का नियम एवं उसकी उपयुक्ता ।
3. भारत का भूजल–प्रदेश ।
4. जलग्रहण प्रबंधन की अवधारणायें
5. सतही एवं अधो सतही निष्कर्षण विधियाँ ।

इकाई–4
1. आर्थिक खनिजों के लिये पूर्वेक्षण विधियाँ : ड्रीलिंग, प्रतिनयन एवं आमापन
2. खनिज पूर्वेक्षण की गुरूत्वी, विद्युतीय एवं चुम्बकीय विधियाँ ।
3. पूर्वेक्षण की हवाई एवं भूकम्पीय विधियाँ ।
4. पूर्वेक्षण की भू–पादपीय विधियाँ ।
5. पूर्वेक्षण की भू–रासायनिक विधियाँ ।

इकाई–5
1. बोरहोललागिंग एवं विचलन सांख्यिकी ।
2. खनिज खपत का परिवर्तनशील स्वरूप ।
3. राष्ट्रीय खनिज नीति ।
4. खनिज–कन्शेसन–नियम ।
5. समुद्री खनिज संसाधन एवं तत्संबंधित नियम ।

प्रायोगिक प्रश्न पत्र

अधिकतम अंक–50

प्रयोगशाला कार्य–35 अंक **क्षेत्रीय अध्ययन–15 अंक**

1. अयस्क निर्माणकारी खनिजों के भौतिक एवं प्रकाशीय गुणों का अध्ययन ।
2. भारत के मानचित्र में अयस्क निक्षेप एवं आर्थिक महत्व को खनिजों का वितरण ।
3. कोयला एवं उसके विभिन्न प्रकारों के नमूनों का स्थूलदर्शी अध्ययन ।
4. रेडियोधर्मी खनिज एवं उनके आतिथेय शैलों का स्थूलदर्शी अध्ययन ।
5. खनिज निष्कर्षण से संबंधित प्रयोगशाला अभ्यास कार्य, निक्षेप आंकलन, टनेज फेक्टर आंकलन, ड्रिलिंग आदि से संबंधित ।
6. स्टिरियोस्कोप के द्वारा ऐरियल छाया चित्रों का अध्ययन एवं विवेचना ।
7. उपग्रह इमेजियरी का अध्ययन एवं विवेचना ।

भू-वैज्ञानिक-क्षेत्रीय अध्ययन :

15 दिवसीय भू-वैज्ञानिक क्षेत्रीय अध्ययन कार्य, जिसमें संरचनात्मक दृष्टि से जटिल क्षेत्रों में भू-वैज्ञानिक मानचित्र एवं शैल नमूनों का संग्रहण तथा प्रयोगशाला कार्य एवं फील्ड रिपोर्ट का अनुलेखन ।

BOOK RECOMMENDED FOR PAPER-I

Evans, A.M. 1993. - Ore Geology and Indusrial Minerals

Sawkins, F.J. 1984 - Metal Deposits in relation in plate Tecto. Springer.

Stanton, R.L. 1972 - Ore Petrology. Mcgraw Hill

Mookherjee A. 2000 - Ore Geniois - a helistic Approach Allied Publisher

Chandra 2000 - Text book of coal (Indian context) Tara book Agency, Varanashi

Selley, R.C.1998 - Elements of Petroleum Geology. Academic Press

Torling D.H. 1981 - Economic Geology and Geofectericks Blackwell

Melustry, H.E. 1962 - Mining Geology 2nd Ed., Asia Pub. House

Arogya Swamy, RPN 1996 - Gourses in rining Geology IV Ed. Oxford IBH

Dahl Kamp F.J. 1993 - Uranium Ore Deposits Springer

BOOK RECOMMENDED FOR PAPER-II

Valdiya K.S. 1987 Environmental Geology-Tata MacgrawHill

Keller, E.A. 1978 - Environmental Geology-Bell & Hewell

Subramanium V. 2001 - Textbook in Environmental Science, Narosa International

Bell, F.G. 1999 - Geological Hazards, Routledge, London

Drury, S.A. 1987 - Image Interpretation in Geology

Siegal, B.S. and Gillespie A.R.1980- Remote Sensing in Geology, John Wiley

Pandey, S.N. - Principles and Application of Photology. Wiley Eastern, New Delhi

Todd. D.K. 1980 - Groundwater Hydrology, John Wiley

Raghunath, N.M. 1982 - Ground Water, Wiley Eastern

Karanth, K.R. 1987 - Groundwater Assessment Development and Management,

- Tata Macgraw Hill

Subramanium, V.2000 - Water, KingstonPubl. London

Sharma P.V. 1986 - Geophysical Methods in Geology Mcgraw Hill

Krynine, D.H. & Juddwr 1998 - Principles of Engineering G. CBS Edition

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STATISTICS

PAPER-I

(Paper Code-0907)

APPLIED STATISTICS

UNIT-I Indian Applied Statistical System : Present official statistical system in India, Methods of collection of official statistics, their reliability and limitations, and the principal publications containing such statistics on the topics- population agriculture, industry, trade, price, labour and employment, transport and communications, banking and finance. (15L)

UNIT-II Demographic Methods : Sources of demographic data - census, register, adhoc survey, hospital records, demographic profiles of Indian census. Measurement of mortality and life tables- crude, death rates, infant mortality rates, death date by cause, standardized death rate, complete life table - its main features, mortality rate and probability of dying, use of survival tables. Measurement of fertility - crude birth rate, general fertility rate, total fertility rate, gross reproduction rate, net reproduction rate. (25L)

UNIT-III Economic Statistics : Index number - its definition, applications of index numbers. price relatives and quantity or volume relatives, link and chain relatives, problems involved in computation of index numbers, use of averages, simple aggregative and weighted average methods, Laspeyre's, Paasche's and Fisher's index numbers, time and factor reversal tests of index numbers. Consumer Price Index. (20L)

UNIT-IV Static laws of demand and supply, price elasticity of demand, analysis of income and allied size distribution - Pareto distribution, graphical test, fitting of Pareto's law, log normal distribution and its properties, Lorenz curve and estimation of elasticity from time series data. Gini's coefficient.

UNIT-V Time Series Analysis : Economic time series, its different components, Illustrations, additive and multiplicative models, determination of trend, growth curves, analysis of seasonal fluctuations construction of seasonal indices. (15L)

REFERENCES :

1. Croxton F.E. and Cowden D.J. (1969) : Applied General Statistics, Prentice Hall of India.
2. Goon, A.M., Gupta, M.K., Das gupta, B (1986) : Fundamentals of statistics, vol.-II, World Press, Calcutta.
3. Guide to Current Indian Offical Statistics : Central Statistical Organization, Govt. of India, New Delhi.
4. Saluja M.P. ( ) Indian Official statistical Systems, Statistical Publishing Society, Calcutta.
5. Srivastava, O.S. (1983) : A textbook of Demography, Vikas Publishing.

ADDITIONAL REFERENCES :

1. Gupta and Mukhopadhyay P.P. ( ) Aplied Statistics, Central Book Agency.
2. Pressat R. (1978) : Statistical Demography, Methuen and Co. Ltd.

PAPER-II

(Paper Code-0908)

STATISTICAL QUALITY CONTROL AND COMPUTATIONAL TECHNIQUES

UNIT-I Importance of statistical methods in industrial research and practice, specification of items and lot qualities corresponding to visual gauging, count and measurements, types of inspection, determination of tolerance limits. General theory of control charts, causes of variation in quality, control limits, sub-grouping, summary of out-ot control criteria, charts for attributes, np chart, p - chatr, c- chart, u- chart, Charts for variables- X- and R charts, design of X and R charts versus p-charts, process capability studies. (30L)

UNIT-II Principle of acceptance sampling- problem of lot acceptance, stipulation of good and bad lots, producer's and consumers risks, single and double sampling plans, their OC functions, concepts of AQL, LTPD, AOQL, average amount of inspection and ASN function, rectifying inspection plans, Sampling inspection plans, Indian Standards Tables Part-I (including applications), IS 2500 Part I. (15L)

UNIT-III Computational techniques : Difference tables and methods of inferpolation, Newton's and Lagrange's methods of interpolation, Divided differences, numerical differentiation and integration, Trapezoidal rule, Simpson's one-third formula, iterative solution of non-linear equations. (15L)

UNIT-IV Linear Programming : Elementary theory of convex sets, definition of general linear programming problems (LPP), formulation problems of LPP, examples of LPP, Problems occurring in various fields, graphical and Simplex method of solving an LPP, artificial variables, duality of LPP. Transportation Problem (non-degenerate and balanced cases only), Assignment Problem. (30L)

UNIT-V Four short notes, one from each unit. Student have to answer any two.

REFERENCES :

1. Brownless K.A. (1960) : Statistical theory and Methodology in Science and Engineering. John Wiley and Sons.
2. Grant E.L. (1964) : Statistical Quality Control, McGraw Hill.
3. Duncan A.J. (1974) : Quality Control and Industrial Statistics, Traporewala and Sons.
4. Gass S.I. (1975) : Linear Programming Methods and Applications, McGraw Hill.
5. Rajaraman, V. (1981) : Computer Oriented Numerical Methods, Prentice Hall.
6. Sastry S.S. (1987) : Introductory Methods of Numerical Analysis, Prentice Hall.
7. Taha H.A. (1989) : Operations Research : An Introduction, Macmillan Publishing Company.

ADDITIONAL REFERENCES :

1. Bowker H.A. and Liberman G.T. (1962) : Engineering Statistics, Prentice Hall.
2. Cowden D.J. (1960) : Statistical Methods in Quality Control, Asia Publishing Society.
3. Garvin W.W. (1960) : Introduction to Linear Programming, McGraw Hill.
4. Mahajan M. (2001) : Statistical Quality Control, Dhanpat Rai & Co. (P) Ltd.
5. Rao S.S. (1984) : Optimization Theory and Applications, Wiley Eastern.

6. Krishnamurthy E.V. and Sen S.K. (1976) : Computer Based Numerical Algorithms, Affiliated East-West Press.

PRACTICAL

1. Computing measures of mortality & fertility, Construction of life tables and examples involving use of life tables, Graduation of mortality rates by Gompertz curve, fitting of a logistic curve.
2. Construction of Index Numbers by Laspeyre's, Paasche's, Fisher's method.
3. Determination of trend in a time series, construction of seasonal indices.
4. Fitting of Pareto curve to income data, Lorenz curve of concentration, Estimation of price elasticity of demand form time series data.
5. Drawing of X-R, np, p and c- charts. Drawing of OC curve for single and double sampling plans for attributes, AOQ and ATI curves.
6. Construction of difference tables, use of Newton's Lagrange's methods of interpolation and divided difference formulae, numerical evaluation of integrals using Trapezoidal and Simpson's one-third formulae, solution of non-linear equation by Newton-Raphson iterative method.
7. Formulation of LPP's and their duals. Solving LPPs by graphical and simplex methods, transportation and assignment problems.

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DEFENCE STUDIES

PAPER-I

PROBLEMS OF WAR AND PEACE (Paper Code-0921)

Aim : The objective of this paper is to acquaint the students about the multidimensional problems of war and peace and humanitarian laws.

Note : Question will be set from each unit, there will be only internal choice.

Unit-I U.N.O. AND WORLD PEACE

1. Organs and its role.
2. Main specialized agencies of U.N.O.
3. Role of U.N.O. in world peace.
4. Peace keeping forces of the U.N.O.
5. Veto power and Security Council.

Unit-II WAR AND PEACE

1. Sattlement of International Disputes.
2. Diplomatic agents and Consuls.
3. War Crimes.
4. Neutrality.
5. Intervention.

Unit-III HUMANITARIAN LAW

1. Basic concepts and development of Humanitarian law.
2. UN General Assembly declaration of human rights on Dec. 10, 1948.
3. Protection of Victims and defenceless in armed conflict, POWs, wounded and civilians in Armed Forces.
4. Central Human Right Commission : Organisation and Function.
5. State Human Right Commission : Organisation and Function.

Unit-IV REFUGEE LAW

1. Meaning, Concept and causes of Refugee.
2. Refugee and IDPs.
3. Refugee law in India.
4. Refugee Problem in South Asia.
5. Role of International Committee of Red Cross and UNO in Refugee Problems.

Unit-V LAWS OF WAR

1. Law of Land war.
2. Law of Sea war.
3. Law of Air war.
4. Space law.
5. The International Court of Justice.

SELECTED READINGS :

1.	Maunce clark, J	:	Readings in the Economics of War.
2.	International Security	:	Modern political Science series.
3.	Rajani Kothari	:	Word order.
4.	Openhem, I	:	Use of Forces by states and International law.

PAPER - II

MODERN WARFARE

(Paper Code-922)

Aim : To enable students to appreciate the impact of Political, economic and technological developments on the patterns of conflicts between nations.

Note : Question will be set from each unit, there will be only internal choice.

UNIT-I
1. Development of Nuclear weapons.
2. Effects of Nuclear Explosion.
3. Spread of Nuclear Weapons.
4. Missile and their characteristics.
5. Type of Missiles.

UNIT-II
1. Trends in Science and Technology and their impact on war.
2. Role of Research and Development.
3. Development of Weapons and their impat on tactics
4. Command, Control, Communication and Intelligence (C^3I) in Modern Warfare.
5. Elements of National Power.

UNIT-III
1. Military Satellites.
2. Explosive Bombs.
3. War Gases.
4. Micro Organs : as a weapons.
5. Smart Weapons.

UNIT-IV
1. Rocket Technology and India.
2. Missile Technology and India.
3. Nuclear Technology and India.
4. Atomic Minerals and India.
5. Space Technology and India.

UNIT-V
1. New word order - Political, Social and Economical.
2. Alliance and Regional co-operation.
3. Mobilisation of resources for war.
4. War time economics.
5. New trends.

SELECTED READINGS :

1.	Halailan Morton	:	Coutemporary Military strategy
2.	Brodue, Y.	:	Strategy in the Missile Age.
3.	Markabi, Y.	:	Nuclear war and Nuclear peace
4.	Osanka. F.M.	:	Modern Guerilla warfare
5.	Gerald. J.	:	Defence Psychology
6.	Know Kalus	:	Science and Defence
7.	Pandey Girishkant	:	Yudh mein vigyan aven Tachniki.

PRACTICALS

50 marks

There shall be practical examination of 3.5 hours duration carrying.

The division of marks shall be as follows :

(1)	Plain Table Survey	:	15 Marks.
(2)	Experimental Military Psychology	:	15 Marks.
(3)	Group Descussion & Lectring :		05 Marks.
(4)	Viva-Voce :		05 Marks
(5)	Sessional work & Record	:	10 Marks.

Section - A

Plain table Survey by inter section methods. (Atleast ten exercises in a session).

Section - B

Military - Psychology Experiment :

(1) Muller-Layer-Illusion test.

(2) Koh's Block Design Test.

(3) Allexander Pass Along Test.

Section - C

Group Discussion and Lectures based on current topic on any international & national Problems.

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INDUSTRIAL CHEMISTRY

PAPER - I

(Paper Code-0925)

CHEMICAL PROCESS ECONOMICS — M.M. 34

UNIT-I
1. Factors involved in project cost estimation, methods employed for the estimation of capital investment. 06L
2. Capital formation, elements of cost accounting. 05L

UNIT-II
1. Interest & investment cost, time value of money equivalence. 03L
2. Depreciation, method of determining depreciation, taxes. 04L
3. Some aspects of marketing, pricing policy. 04L

UNIT-III
1. Profitability criteria, economics of selecting alternatives. 03L
2. Variation of costs with capacity, Break-even point, optimum batch sizes, Production, schedulling etc. 05L
3. Sampling of Bulk materials, techniques of sampling of solids, liquids and gasses. 03L
4. Collection & Processing data. 02L
5. Particle size determination. 02L
6. Rheological properties of liquids, plastics and their analysis. 03L

INDUSTRIAL ORGANIZATION

UNIT-IV
1. Concept of scientific management in industry. 04L
2. Functions of management, decision making, planning, organising. directing & control. 09L
3. Location of industry. 03L

UNIT-V
1. Materials management. 05L
2. Inventory control. 04L
3. Management of human resources-selection, incentives, welfare & safety. 05L

BOOKS :

1. Economics of Chemical industry, Hempel, E.H.
2. Plant Design & Economics for Chemical Engineers, Peter Time Rhaus, McGraw Hill.
3. I.C.M.A. Booklets-9 & 10.
4. Industrial Organization & Management, Bethel, L.L.
5. Industrial Organization & Management, Tarachand, Vol. I & II.
6. Book on Management, O.P. Khandelwal.
7. Rheology theory & application, Vol. 5, Elrich, R.F.

PAPER - II

(Paper Code-0926)

PHARMACEUTICALS — M.M. 33

UNIT-I
1. Historical Background & development of pharmaceutical industry in India in brief. 02L
2. Pharmacopoeias - Development of Indian pharmacopoeia & introduction ot B.P., U.S.P., E.P., N.F. & other Important Pharmacopoeias. 02L

3. Introduction to various types of formulations & roots of administration. 02L
4. Aseptic conditions, need for sterilisation, various methods of sterilisation. 02L

UNIT-II 1. Various types of pharmaceutical excipients their chemistry, process of manufacture & quality, specifications Glidants, lubricants, diluants, preservatives, antioxidants, emulsifying agents, coating agents, binders, coloring agents, flavouring agents geletin & other additives, sorbotol, mannitol, viscosity builders etc. 12L
2. Surgical dressing, sutures, ligatures with respect to the process, equipments used for manufacture, method of sterlilization and quality control. 05L

UNIT-III 1. Pharmaceutical packaging introduction, package selection, packaging materials, ancillary materials, packaging machinery, quality control of packaging materials. 05L
2. F.D.A., Important schedules & some legal aspects of drugs. 03L
3. Pharmceutical quality control (other than the analytical methods covered under core-subject) - sterility testing, pyrogenic testing, glass testing, bulk density of powders, etc. 06L

UNIT-IV 1. Evaluation of crude drugs-Moisture content, extractive value, volatile oil content, foreign organic matter, quantitative microscopic exercises, including starch, leaf content, (palisade ratio, stomatal number & index vein, islet number & vein termination number), crude fiber content, introduction to chromatographic method of dentification of crude drugs. 06L
2. Chromatography, Paper chromatography, TLC, HPLC, GLC. 04L
3. Ion chromatography. 01L

INSTRUMENTATION

UNIT-V 1. UV-Visible spectroscopy. 03L
2. IR-Spectroscopy non-dispersive IR. 03L
3. NMR Spectroscopy. 03L
4. Atomic Absorption & Flame photometry. 03L
5. Neutron diffraction. 01L
6. X-Ray Fluorescence. 01L
7. Ion Selective Electrodes. 01L

BOOKS :

1. Instumental methods of analysis, Willard, Merit, Dean.
2. Introduction to instrumental methods of analysis, Braun, R.D., McGraw Hill.
3. Analytical chemistry, J.B. Dick, McGraw Hill.
4. Quantitative Inorganic analysis, A. Vogel.
5. Instrumental methods of Analysis, Skoog & West.
6. Instrumental Methods of Analysis, B.K. Sharma.

PAPER -III

(Paper Code-0927)

DRUGS **M.M. 33**

UNIT-I 1. Phyto-chemicals-Introduction to plant classification & crude drugs, cultivation, collection, preparations for the market & storage of medicinal plants.

2. Classification of various types of drugs with examples.
3. Raw meterials, process of manufacture, effluent handling, etc. of the following bulk drugs :-
   - Sulpha drugs-sulphaguandine, sulphamethoxazole.

UNIT-II 1. Chemical constitution of plants including carbohydrates, amino acids, proteins, fats, waxes, volatile oils, terpenoids, steroids, saponins flavonoids, tanins, glycosides, alkaloids.
2. Various isolation procedures for active ingredients with examples for alkaloids, reserpine one for steroids sapogenin, diosgenin, diogron.

UNIT-III 1. Antimicrobial :- Chloramphenicol, Furazolidne, Mercurochrome, Isoniazid, Na-PAS.
2. Analgesic-AntiInflammatory :- Salicylic acid and its derivatives, Ibuprofen, Mefenamic acid.
3. Steroidal Harmones :- Progesterone, Testosterone, Methyl testosterne.

UNIT-IV 1. Vitamins :- Vit.-A, Vit.-B6, Vit.-C.
2. Barbiturates :- Pentobarbital.
3. Blockers :- Propranolol, Atenolol.
4. Cardiovascular Agent :- Methyl dopa.
5. Antihistamins :- Chloropheneramine Maleate.

UNIT-V 1. Products based of fermentation processes :- Brief idea of micro-organisma, their structure, growth & usefulness. Enzyme systems useful for transformation, microbial products.
2. General principles of fermentation processes & product processing.
3. Manufacture of antibiotics - Pencillin-G & semi synthetic pencillines, Rifamycin, Vitamin-B12.
4. Bio-transformation process for prednisolone, 11-hydroxylation in steroids.
5. Enzyme catalysed transformation, manufacture of ephidrine.

BOOKS :-

1. Practical Pharmacognosy, T.B. Wllis.
2. Practical Pharmacognosy, T.N. Vasudevan.
3. Modern Pharmacognosy, Remstad, McGraw Hill.
4. Indian Pharmacopoea, 1985.
5. British Pharmacopoea, 1990.
6. Hand Book of Drugs & Cosmetic Act, Mehrotra.
7. Pharmaceutical excipients.
8. Pharmaceutical Dosage forms.
9. Principles of Medicinal Chemistry, W.O. Foye, Lea & Febigen, Publication Phidelphia.
10. Text Book of Organic Medicinal & Pharmaceutical Chemistry, Willson, Gisvold, Derge; Lippinett-Toppan.
11. Essentials of Medicinal Chemistry, Korolkovas & Burkhatter, Wiely Interscience.

PRACTICAL

Marks : 50

The Practical examination will be of 08 Hrs. Duration spread over two days carrying 50 Marks.

Two experiments have to be performed.

1. Synthesis of common industrial compounds involving two step reactions. 4-Bromoaniline, 3-Nitroaniline, Sulphanilamide, 4-Aminoben zoic acid, 4-Nitroben zoic acid, dihalobenzenes, Nitrohal obenzenes.
2. Industial analysis of common raw meterials as per industrial specification :- Phenol, Aniline, Formaldehyde, Hydrogen per Oxide, Acetone, Epoxide, Olefins, Oils etc.
3. Demonstration of various pharmaceutical packaging materials, quality control tests of some materials,-Al Strips, Cartons, Glass bottles.
4. Limit tests for chlorine, heavy metals, arsenic, etc. of two representative bulk drugs.
5. Demonstration of various pharmaceutical products.
6. Active Ingradient analysis of few types of formulations representing different methodsof analysis-acidimetry, alkalimetry, non-aqueous.
7. Determination of sulphate ash, loss of drying & other tests of bulk drugs, complete I.P. monograph of three drugs representing variety of testing methods.
8. Evaluation of crude drugs-macroscopic examination-determination & identification of starch grannules, calcium oxalate.
9. Palisate ratio, stomatal index-determination & Identification of few drugs. Tlc method for identification.
10. Microbiological testing-determination of mic of some aNtibacterial drugs by zone/cup plate method.

DISTRIBUTION OF MARKS :

1.	Experiment No. 1.	20
2.	Experiment No. 2.	10
3.	Viva	05
4.	Sessional 05	
5.	Project Work	10
	Total	**50**

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COMPUTTER SCIENCE

PAPER - I

(Paper Code-0909)

COMPUTER HARDWARE PART-C

AIM : The emphasis is on the design concepts & organisational details of the common PC, leaving the complicated Electronics of the system to the computer engineers.

Objective of the Course :

1. To introduce the overall organisation of the microcomputers and operating systems.
2. To introduce the interaction of common devices used with computers with operating softwares, excluding the Assembly languages, with special reference to DOS/WINDOWS.
3. To introduce the working of hardware components, Micro-Processor and various chips used in micro-computers by operating system, without the use of electronic circuitry.
4. To introduce the use of operating systems architecture with IBM-PC & clones, excluding Assembly language, with forms an important part of hardwares.

N.B. : Since the computer organisation study is very vast & complicated, so the study is restricted only to the description and understanding part, hence the paper-setter is requested to keep this important factor in mind.

UNIT-1 : ORGANISATION OF Micro-Processor & MIRCO-COMPUTER :-

1. Introduction & organisation of Micro-Computer :

(a) Basic Components of Micro-computer : Basic Block; Prom ram memory; Data memory; I/O Ports; Clock generator; Integration of functional blocks.

(b) Interconnecting Components in a Micro-computer : Necessary functional block; Bussed architecture for microcomputer; memory addressing; Addressing I/O ports; comparision of I/O mapped and memory mapped I/O.

(c) Input Output Techniques : Non-CPU devices, Program & interrupt controlled I/O; Hardware controlled I/O or DMA.

2. An Introduction to the various as :

(a) General understanding of different μP or CPU :
Intel 8088, 286, 386, 486, 586 Pentium, P54C, MMX P55C; Motorola 6800 & 88100 series; CYRIX & AMD CPUs.

(b) The Registers of CPU : (Give Example of P-8088) Register organisation of 8088, Scrach pad segment, pointer, Index and Flag, Registers.

(c) Memory addressing modes of P-8088 : Segment offset; Data addressing modes; Addressing for branch instructions.

(d) I/O Addressing with P-8088 : Memory mapped I/O & I/O mapped I/O.

UNIT-2 : SYSTEM HARDWARE ORGANISATION OF COMPUTERS :

1. Hardware Organisation of the Personal Computer :

(a) Block diagram with various parts of PC.

(b) The Mother Board of General P.C. : 8088 CPU; ROM & RAM; Keyboard

& its interface; System timer/counters; Hardware interrupt vectoring; DMA controller & channels; Interfacing to audio speaker; Bus slots & facture cards.

(c) The Serial I/O ports, COM-1 & COM-2.

(d) The parallel Port for Printer.

(e) Expansion Slots for RAM.

(f) Disk Controllers : For floppy, Hard disk, CD-ROM & Cassets drives.

2. The Video Display of PCs :

(a) Video Monitors; Monochrome and colour.

(b) Video Display Adapters & Their Video Modes; Monochrome & colour graphics adapters.

(c) Video Control Through ANSI-SYS.

(d) Video Control Through ROM-BOIS : INT 10H.

(e) Direct Video Control; Monochrom & colour graphics adapters.

(f) Installing Customized Character Sets.

UNIT-3 : ORGANISATION OF OPERTING SYSTEM WITH SYSTEM HARDWARE :

1. The ROM-BIOS Services :

(a) Introduction to UNIX, ENIX, SUN, solaris, DOS & MAC with special reference to DOS & Windows, its ver., as DOS becomes more popular than others in PCs.

(b) The ROM-BIOS Diskette Services, INT 13H.

(c) The ROM-BIOS Serial Port Services, INT 14H.

(d) The ROM-BIOS Keyboard Services, INT 16H.

(e) The ROM-BIOS Printer Services, INT 17H.

(f) Miscellaneous Service Provided by the ROM-BIOS : INT 05H, INT 11H, INT 12H, INT 18H, INT 19H, INT 1AH.

2. The fundamental of Operating System viz. DOS/WINDOWS :

(a) The loading of DOS & Its Basic Structure ; ROM bootstrap, IO.SYS, DOS.SYS & Command..COM.

(b) The Execution of the programs under DOS ; EXEC functions, program segment prefix; Features of COM & EXE program files.

(c) Device Handling by Dos ; FDD, HDD, CON, Keyboard, PRN, AUX, CLOCK and NUL devices; Block devices; Character devices; Driver installation sequence.

(d) File Structures of DOS ;

(e) The DOS Interrupts : INT 20H-2FH

(f) The DOS functions through INT 21H; Discuss only the understanding part of various other DOS function to handle hard & softwares.

(g) Installation of windows : Important system files in windows.

UNIT-4 : ORGANIZATION & HANDLING BY OPERATING SYSTEMS :

1. Disk and Files under DOS :

(a) Logical Structure of a Disk : Organisation of disk for use; Boot record ; FAT

files; disk or root directory.

(b) File Organisation on a DOS disk : Logical volumes ; Sub directories; Volume lables.

(c) Manipulating Files under DOS : File attributes ; date and time, file Access; FCB functions.

2. Memory Allocation, Program Loading and Execution :

(a) Memory Management under DOS : EXEC loader; Memory Management & its functions; Modifying a Program's memory allocation.

(b) Loading and Executing Programs under DOS : The EXEC function ; Memory considerations; parameter blocks; calling & returning from EXEC.

(c) Loading the program overlays through EXEC.

UNIT-5 : ORGANISATION OF HARDWARE BY OPERATING SYSTEM :

1. Interrupt Handling through DOS :

(a) Types of interrupts.

(b) Interrupt Vector Table in PC.

(c) Interrupt Service Routines.

(d) Special Interrupts in PC : Clock Interrupt; The -C or Break Interrupt ; DOS reserved interupt INT 28H ; Patching memory resident routines.

2. Filters for DOS :

(a) Filters in operating systems.

(b) Redirection of I/O under DOS.

(c) The Filters Supplied with DOS.

(d) Writing Filters to run under DOS.

3. Handling of Various Versions of Windows O.S. :

(a) Setup Installation

(b) Trouble shooting

(c) Networking features

Text Book :

1. Hardware and Software of Personal Computers.
   By Sanjay K. Bose. (Wiley Eastern Ltd. New Delhi).

Supporting Text Books :

1. Digital System from Gates to Mircoprocessor.
   By Sanjay K. Bose. (Wiley Eastern Ltd. New Delhi).
2. Computer Fundamentals : Architecture & Organisation.
   By B. Ram.. (Wiley Eastern Ltd. New Delhi).

Reference Books :

1. IBM PC-XT and Clones : By Govinda Rajalu.
2. Microprocessor and interfacing : By Douglas Hall.
3. Insight the IBM-PC : Peter Norton.
4. Micriprocessor System : 8086/8088 family architecture, programming & design : By Liu and Gibson.

PAPER - II

(Paper Code-0910)

Atm : To introduce DBMS and RDBMS using Back-end tool and Front-end tool.

Object of the Course :

1. To introduce Data BAse Management System concepts.
2. To introduce the Relational Database Management System and Relational Database Design.
3. To introduce the RDBMS software and utility of query language.
4. To introduce basic concept of GUI Programming and database connectivity using Visual Basic.

UNIT-1 : CONCEPT OF D.B.M.S. AND DATA MODELS

(a) Introduction to DBMS :- Purpose of Data base systems, views of data, Data Modeling Database Languages, Transaction management, Storage Management, Database Administrator and User, Database System Structure.

(b) E-R Model : Basic concepts, Constraints, Keys, Mapping Constaint, E-R Diagram, Weak and Strong Entity sets, E-R Database Schema, Reduction of an E-R Schema to Table.

UNIT-2. : RELATIONAL DATABASE MANAGEMENT SYSTEM

(a) Relational Model : Structure of Relational Database, Relational Algebra, Domain Relational Calculus, Extended Relational- Algebra Operation, Modification of database, Views.

(b) Relational Database Design : Pitfalls in Relational Database Desing, Decomposition Functional Dependencies, Normalization : 1NF, 2NF, BCNF, 3NF, 4NF, 5NF.

UNIT-3 : INTRODUCTION TO RDBMS SOFTWARE - ORACLE

(a) Introduction : Introduction to personal and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL*PLUS.

(b) DDL and DML : Creating Table, Specifying Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views : What is Views, Create, Drop and Retrieving data from views.

(c) Security : Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges.

(d) PL/SQL : Block Structure in PL/SQL, Variable and constants, Running PL/SQL in the SQL*PLUS, Data base Access with PL/SQL, Exception Handling, Record Data type in PL/SQL, Triggers in PL/SQL.

UNIT-4 : G.U.I. PROGRAMMING

(a) Introduction to Visual Basic : Event Driven Programming, IDE, Introduction to Object, Controlling Objects, Models and Events, Working with Forms, MDI Form Working with standard Controls.

(b) Overview of Variables, Declaring, Scope, Arrays, User defined data types, Constants, Working with procedures : Function, Subroutine, and Property.

Working with Data, Time, Format, String, and Math's Function. Controlling Program Execution: Comparison and Logical Operators, If...Then statements, Select Case Statement, Looping Structures, Exiting a loop. Error Trapping and Debugging.

(c) File Organization : Saving data to file, Sequential and Random access file, the desing and coding.

UNIT-5 : V DATA BASE PROGRAMMING IN VB

(a) Introduction :- Concept of DAO, RDO, ADO, input validation : field & form level validation, ADO object model : the ADO object Hierarchy, the connection object, the command object, record set object, parameter object, field object, record object, stream object, Error object, parameter object.

(b) Using Bound control to Present ADO data : Using the ADO data control, ADO data control properties, binding simple controls : Data list, data combo, Data Grid, Data Form Wizard : single form wizard, Grid form, master/Detail form. Programming the ADO data control : Refresh method, Event, Hierarchical flex Grid control.

(c) Data Environment & Data Report : Creating connection, Using command object in the data Environment, Data Environment option and operation, Binding Form to the data Environment, ADO Events in the Data report, Print Preview, Print, Export, Data report in code : Data reports Events, Binding data reports Directly.

REFERENCE BOOKS :

1. Data Base System Concept : By Hery F. Korth, Tata McGraw Hill
2. Fundamental of Data Base System Concept : Nawathe & Elmasri (Pearson educations)
3. Oracle Complete Reference : By Oracle Press
4. Introduction to OOPS & VB : By V.K. Jain, Vikas Publishing House
5. Database Programming VB 6 : By B.P.B. Publication

PRACTICALS :

1. Practicals on Oracle :

At least 20 practicals covering the SQL, PL/SQL, Triggers, Views.

2. Practicals on Visual Basic :

At least 20 pracricals on VB that covering basic and data controls components.

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INFORMATION TECHNOLOGIES

PAPER - I

(Paper Code-0928)

AMPLIFIERS AND OSCILLATORS

UNIT-I **POWER AMPLIFIER :** Classification of power amplifiers, requirement of power amplifiers, single ended class A power amplifier, and its efficiency, transformer coupled power amplifier, power dissipation curve, harmonic dissipation curve, harmonic distortion in pushpull power amplifier, power and efficiency calculation for pushpull for pushpull power amplifier, Distortion in pushpull power amplifier, Advantages of pushpull power amplifier.

UNIT-II **FEEDBACK AMPLIFIERS AND OSCILLATORS :** Feedback in amplifiers, types of feedback positive, and negative feedback. Derivation of input and output impedance in voltage and current series feedback. Advantages of negative feedback. Positive feedback. Berkhauson criteria for sustained oscillator. RF oscillators-Hartley oscillatot, Colpetts oscillators (Qualitative study) relaxation osillators, Multivibrators-Astable, Monostable.

UNIT-III **OPERATIONAL AMPLIFIER AND POWER CONTROL DEVICES :** Differential amplifier, operational amplifier, Characteristics of an ideal OPAMP, definition of input bias current input offset current, current driff, impout offset, common mode rejection ratio, slew rate, universal biasing technique, Application of OP-Amp, as inverting, non-inverting amplifiers, differentiation, Integratior, scal charger and voltage follower, Silicon controlled rectifier (SCR), Diac, Traic and UJT (Only qualitative study).

UNIT-IV **THE INTEL 8080/8085 MICROPROCESSOR :** Introcution, the 8085 pin diagram and functions, The 8085 architecture, addressing modes, the 8080/8085 instruction set, the 8080/8085 data transfer instructions, the 8080/8085 arithmetic instructions, the 8080/8085 logical instructions the 8080/8085 stack, I/O and machine controlled instructions.

UNIT-V **PROGRAMMING THE MICROPROCESSOR :** Machine and assembling languages simplified instruction set, Instruction set, arithmetic poeration, Instructions set logical operations, instruction set data transfer operations, instruction set branch operations, instructuion set-subroutine all and return operations, instruction set miscellaneous operations, writing a program, addressing modes, program branching, program looping using subroutines.

Programming the 8080/8085 microprocessor : Introduction straight-line programs looping programs, mathematical programs.

PAPER - II

(Paper Code-0929)

FUNDAMENTAL DATA STRUCTURE

UNIT-I **Introduction to Data STructure :** The concept of data structure, Abstract data structure, Analysis of Algorithm, The concept of list.

Stacks and Queues : Introduction to stack & primitive operation on stack, Stack as an abstract data type, Multiple Stack, Stacks application : infix, post fix, and Recursion, Introduction to queues, Primitive Operations on the Queues, Queue as an abstract data type, Circular Queue, Dequeue, Priority Queue.

UNIT-II **Linked List :** Introduction to the linked list of stacks, The linked list of queues, Header nodes, Doubly linked list, Circular linked list, Stacks & Queues as a Circular linked list, Application of linked list.

UNIT-III Trees: Basic Terminology, Binary Trees, Tree Representations as Array & Linked list, Binary tree representation, Traversal of binary trees : In order, Preorder & post order.

Application of Binary tree, Threaded binary tree, B-Tree & Height balanced tree, representation of B^+ & B* trees, Binary tree representation of trees, Counting binary trees, 2-3 Trees algorithm or manipulating 2-3 Trees.

UNIT-IV Searching & Sorting : Sequential Searching, Binary search, Insertion sort, Selection sort, Quick sort, Bubble sort, Heap sort, Comparison of sorting methods.

UNIT-V Tables & Graphs : Hash Table, Collision resolution Techniques, Introduction to graphs, Definition, Terminology, Directed, Undirected & Weighted graph, Representation of graphs. Graph Traversal Depth first & Breadth first search, Spanning Trees, minimum spanning Tree, The basic, Greedy Strategy for computing Algorithm of Kruskal and prims.

TEXT & REFERENCE BOOK :

Fundamentals of Data structure : By S. Sawhney & Horowith

Data Structure : By Trembley & Sorrenson.

Data Structure Using Pascal : By Tannenbaum & Alugenstein

Data Structure : By lipschuists (Schaume's Outline Series Mcgraw Hill Publication)

Fundamentals of Computer Algorithm : By Ellis Horowitz and Sartaj Sawhney.

PRACTICAL WORK

1. The sufficient practical work should be done for understanding the date structure with C++.
2. The sufficient practical work must be performed on stacks queues linked list, trees etc.
3. All practical works should prepared in form of print outs and voluated while practical examination.

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INDUSTRIAL MICROBIOLOGY

Paper	Title	Time	Marks
First	Agriculture and Food Microbiology	3 hrs.	50
Second	Fermentation Technology & Government Regulations	3 hrs.	50
	PRACTICAL Examination (including sessionals)	4 hrs.	(20+5) 25
	Viva-Voce Exam. based on "Summer Job-Training Report"		25

PAPER-I

(Paper Code-0930)

AGRICULTURE AND FOOD MICROBIOLOGY M.M. : 50

UNIT-I Soil fertility and management of agricultural soils. Influence of available nitrogen on soil-fertility. Importance of crop-rotation. Soil management. Management practices : Pesticides and their impact and effect on soil fertility.

UNIT-II Microbial diseases of crop plants with special reference to Wheat, Rice, Maize, Groundnut, Mustard, Grapes, Potato and Papaya.

UNIT-III Control of plant diseases. Chemical control of plant diseases. Biological Control- its mechanism and importance. Biopesticides. Concept of integrated pest management (IPM). Bacterial insecticides.

UNIT-IV Food spoilage mechanism, Spoilage of stored products, fruits and vegetables. Microbial spoilage of milk and meat. Food borne diseases.

UNIT-V Food preservation methods - Asepsis, Pasteurisation canning, dessication, low temperature, Anaerobiosis, filteration.

Chemical preservation of food - salt and sugar, organic acids. Use of SO_2, ethylene and propylene oxides, wood smoke.

PRACTICALS

1. Study of microbial diseases of crop plants.
2. Study of effect of fungicides and insecticides on microorganisms.
3. Study of antagonistic activities amongst microorganisms.
4. Study of fungal contaminants from stored agricultural products.
5. Study of food spoilage microorganisms from sweets and bakery products.
6. Study of effect of the preservatives on the growth of microorganisms.
7. Study of UV radiations on microorganisms.
8. Study of the effect of agrochemicals on soil inhabiting microorganisms.

RECOMMENDED BOOKS :

1. Modern Plant Pathology by Bilgramy and Dubey.
2. Food Microbiology by Frazier.
3. Microbiology by S.S. Purohit.
4. Microbiology by P.D. Sharma.
5. Agricultural Microbiology by Rangaswami.
6. Plant Pathology by R.S. Mehrotra.

PAPER-II

(Paper Code-0931)

FERMENTATION TECHNOLOGY AND GOVERNMENT REGULATIONS

M.M. : 50

UNIT-I Fermentation equipments and production process. Principal types of fermenters - The batch fermenters, continuous stirred tank fermenters, Tubular fermenter, The fluidised bed fermenter, Solid State fermenters. Computer control of fermentation process. Strain improvement process.

UNIT-II Industrial production of organic acids - Lactic and citric acid.

Enzymes - amylase, protease and amino acids - L-lysine and glutamic acid.

UNIT-III Production of alcohol, wine, beer and acetic acid.

Production of antibiotics - Penicillin and Streptomycine.

Industrial production of vitamins - Vitamin B12 and Riboflavin.

UNIT-IV Importance of microorganisms in dairy industries. Production of cheese, Butter milk; and in bakery industries - leavening of bread, Indian fermented foods.

Fungi and bacteria as a source of single cell proteins (SCP) and proteins.

UNIT-V Role of international organisation in biotechnology. Government programmes for biotechnology development. Government regulations of recombinant DNA research. Hazardous industrial wastes, Mycotoxin hazards in the production of fungal products. Regulations for disposal of biohazardous materials. Patenting of the products in Industries.

PRACTICALS

1. Measurement of production of citric acid by Aspergillus niger.
2. Measurement and production of alcohol by yeast.
3. Demonstration of Transformation of steroids.
4. Demonstration of IAA production by microbes.
5. Demonstration of enzyme production by microorganisms.
   (a) Amylase (b) Cellulase
6. Demonstration of mushroom cultivation.

RECOMMENDED BOOKS :

1. Industrial Microbiology by L.E. Casida.
2. Fermentation Technology by Whittakar.
3. General Microbiology, Vol. II, by Powar and Daginawala.
4. Molecular Biology and Biotechnology by H.D. Kumar.
5. Elements of Biotechnology by P.K. Gupta.

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ELECTRONICS

		Max.M.	Min.M
Paper-I	Power Electronics, Microprocessors and IT Fundamental's	50	33
Paper-II	Communication Systems	50	
Paper-III	Practicals and Project	50	17

PAPER - I

(Paper Code-0911)

POWER ELECTRONICS, MICROPROCESSORS AND IT FUNDAMENTAL'S

UNIT-I Comparative study of semiconductor power Devices : Power Diodes, Power Transistors, Unijunction Transistor, Silicon controlled Rectifier, Diac and Triac.

Structural Description and working of Unijunction Transistor (UJT), Characteristic curve, Use of a UJT as a Relaxation oscillator.

Description and working of a DIAC, Characteristic curve.

Description and working of a Triac, Characteristic curve, Triac as a switch.

Silicon controlled Rectifier : Description of the structure and idea of doping profiles of different layers, Two Transistor model analysis of SCR, Voltage current Characteristics, Forward and Reverse Blocking states; Triggering mechanisms and methods of turn on, turn off mechanism.

UNIT-II 8085 up Instruction Sets and Programing of 8085 microprocessor : Logic 8 bit Instructions of 8085 Data Transfer (copy) Instructions, MOV,

Arithmatic Instructions (ADD, ADI, SUB, SUI, INR, DCR), Logic operations : ANA, ANI, ORA, ORI, XRA, XRI, Branch Operations : Unconditional and Conditional Jump Instruction, Rotate Operations : RLC, RAL, RRC, RAR, 16 Bit Arithmatic and Logical operations.

Use of Instruction set to make following programs.

(i) Data Block Transfer.

(ii) To Arrange a Series in Assending and Decending Order.

(iii) Largest Number Finding.

(iv) To Carry out simple arithmatic operations : Addition, Division Multiplication, Subtraction.

UNIT-III Programmable Interface Devices : Internal Architecture and pin out diagram of the 8155/8156 and 8355/8755 Multipurpose Programmable Devices, The 8279 Programable kayboard/display interface.

Interfacing Data Converters : Digital to Analog (D/A) converter, Analog to Digital (A/D) converter.

UNIT-IV Information Technology :

Information theory - Introduction information in communication system, measurement of information, the binary digit (bit).

Data sets and their connection requirements, Modem : Classification, modes of modem operation, modem interconnection, modem data transmission speed.

Internet basics : Basic information about Http, WWW, HTML, shell and TCP/IP account, Browsers - Netscape and Internet explorer, e-mail.

UNIT-V Communication Technology :

LAN, WAN and MAN, wireless network, Internetwork, network topology, OSI and TCP/IP reference models, comparision between them and their criticism. Details about Physical layer : magnetic media, twisted pair (UTP and STP), coaxial cable, fiber-optic cable Basic idea about ISDN.

REFERENCES :

1. Power Electronics : M.H. Rashid Prentice Hall of India, New Delhi.
2. Microprocessor Architecture Program and Applications : R.S. Gaonkar Penram Publication, Mumbai.
3. Computer Network : A.S. Tanebaum, Second Edition Prentice Hall of India Pvt. Ltd.
4. Introduction to Microprocessors : A.P. Godse, VTU Publishers, Pune.
5. Power Electronics : Alok Jain Penram Publishers, Mumbai.
6. Microprocessors & Interfacing : Douglas V. Hall Tata Mcgraw Hill.

PAPER - II

(Paper Code-0912)

COMMUNICATION SYSTEMS

UNIT-I Analysis of passive filters (low pass, band pass and high pass), elementary idea of active filters-Butterworth and Cbevyshev response) Noise : Thermal noise, shot noise, Partition noise, low fequency and transit time noise, Generation and recombination noise, equivalent noise resistance, signal to noise ratio, noise factor, noise temperature.

UNIT-II Modulation : Principle of modulation, wave spectra and effect of filtering an complex wave : Amplitude modulation; frequency spectrum of AM, average power average voltage, modulation index for multiple sine waves, linear and square modulators, collector modulator, balance modulator, single side band (SSB) generation/method, diode detector, advantages and disadvantages of SSB over DSB AM : SSB detection, Transmitters and Receivers : Superheterodyne receiver, AM Transmitters.

UNIT-III Angle Modulation : Elements of frequency and phase modulation frequency spectrum of FM waves, inter system comparisions (FM and AM); Generation of FM, direct and indirect methods; Angle - Modulator circuits, varactor diode and FET modulators; Foster Seelay discriminator and ratio detector.

UNIT-IV Pulse Modulation : Pulse Modulation, pulse transmission, pulse amplitude modulation, time division multiplexing, pulse time modulation, pulse width and pulse position modulation, digital filtering, pulse code modulation; Block diagrams of PCM transmission and receiving circuits.

UNIT-V Television engineering : Scanning process, characteristics of human eye, aspect ratio, persistence of vision and flicker, resolution and video bandwidth, interlaced scanning, blanking, synchronizing and equalizing pulses, Vestigial side band signal, standard channel characterstics, TV camera tubes Image orthicon and vidicon; Block diagram of TV transmitter and receiver.

Three colour system, luminance and chrominance signal, colour TV camera, Shadow mask, Trinitron and in line colour picure tubes.

REFERENCES :

1. Electronic Communication Systems : George Kennedy, Tata Mcgraw Hill.
2. Principles of Communication Systems : Taub & Schilling TMH
3. Communication Systmems : Simon Haykin, Mcgraw Hill.
4. Monochrome & Color Television : R.L. Gulati, New Age International, New Delhi.

PAPER - III

PRACTICALS AND PROJECT

A student is required to do atleast 12 experiments and a project work in the academic year.

The scheme of practical examination will be as follows :

- One experiment and Working and Demonstration of Project works - 5 :

	Marks	
Experiment	-	20
Viva	-	05
Project work & Viva	-	15 (10+5)
Sessional	-	10
Total	**-**	**50**

1. Study of SCR characterstics.
2. Study of Diac and Triac characteristics.
3. Study of UJT Characterstics.
4. Study of UJT as a relaxation oscillator.
5. Study of AM generation and detection.
6. Radio Receiver measurments.
7. Study of low pass, band pass and high pass filters.
8. Study of FM using voltage controlled oscillators.
9. Study of DC choppers.
10. Study of Pulse code modulation.
11. Study of electronic ragulation of D.C. & A.C. Motors.
12. Any four experiments on microprocessors.

NOTE : Other experiments of equal standard may also be set.

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ANTHROPOLOGY

PAPER-I

(Paper Code-0919)

"FUNDAMENTALS OF HUMAN GENETICS & HUMAN GROWTH"

AIM- The aim of this paper is to introduce the students the basics of Human Genetics and Human Growth.

UNIT-I Human Genetics : History, aims and scope. and its application to human society Cell division : Mitosis and Meiosis. Mendelism, Chromosomes ; Normal and Abnormal chromosomes. Genes, concept of DNA & RNA. Types of Inheritance : autosomal, (Dominant and Recessive). Sex linked Inheritance.

UNIT-II Concept of Race. Formation of Racial groups. Criteria for racial classification. Racial elements in India. Major stocks of the world and their broad sub divisions.

UNIT-III Types of twins and their importance in genetic investigation. Inheritance of ABO Blood groups, P.T.C., Colour blindness and dermatoglyphics. Genetic councelling, Eugenics. Population Genetics.

UNIT-IV Definition and scope of Human growth. Methods of studying human growth and Development. Ageing, Nutritional requirement for normal growth. Common nutritional disorder (Protein, Fat, Carbohydrates, Mineral, Vitamin).

UNIT-V Ecology : definition and scope. Varieties of human ecosytems. Environmental Population. Definition, nature and scope of biological demography. Demographic Profiles : Fertility, Mortality, Morbidity.

RECOMMENDED READINGS :

1. Agrawal S.N. : India Population Problems
2. Bogue : Principles of Demography
3. Bresler : Human Ecology
4. Gran and Shamir : Methods of Research in Human Growth
5. Harri.II. : Biochemical Genetics Man
6. Harrison. A.E. (editor) : Human Biology
7. Phyllis and Home, P.S. : Basic nutrition in health & disease
8. Race, R.R. & Sanger R. : Blood Group in Man
9. Stern C. : Principles of Human Genetics
10. Tanner, J.M. : Human Growth
11. Theodarson : Studies in Human Ecology
12. Walson and Lowry : Growth and Development of Children
13. Winchester A.W. : Principal of Genetics
14. रघुवंशी अरूण एवं चन्द्रलेखा : पर्यावरण प्रदूषण
15. Sinnot, Dunn & Dozansky : Principles of Genetics

PAPER-II

(Paper Code-0920)

THEORIES IN SOCIAL CULTURAL ANTHROPOLOGY

AIM : The main aim of this course is to introduce the student about the basic pricinciples and Theories of Social cultural Anthropology to-provide preliminary understatnding of various theoretical models evolved by Social and Cultural Anthropology.

UNIT-I The contributions made by the following Anthropologists to Social-Cultural Anthropology. (I) E.Durkheim, (II) F. Boas, (III) R. Redcfield, (IV) A. L. Kroeber, (V) S.C. Dube, (VI) M.N. Shrinivas, (VII) L.P. Vidyarthi.

UNIT-II Evolution: Biological and cultural Evolutionism; classical Evolutionism; E.B. Tylor, L.H. Morgan.

Neo - Evolutionism; jLeslie white, Gordon childe.

Culture traits, Culture Complex, Culture Area, Culture focus.

Diffusion of Culture : British diffusionist : Genrman - Austrian diffusionist (Kuttre kriese American diffusionist (Culture Area).

UNIT-III Function and structure: Functionalism (Malinowski) and Structure Functionalism (Redcliffe Brown) Structuralism (Levi strauss).

UNIT-IV Personality : Basic personality and Model personality.

Culture pattern : Configurationalism (Ruth Benedict). Anthropological study of National character.

UNIT-V Feild work tradition in Anthropology Major tools of Research: Schedule, Questionaire, Participant observation, interview, case study, Geneological Method. The main bases of Anthropological Methods: Historical Method, Comparative Method and Functional Method.

PAPER-III

PRACTICAL

Obejctive : The main of this practical coures is to introduce the student about the tools and Method, analysis & statistical methods used in Human Biology. Laboratory Procedures in blood grouping and dermatoglyphics would give confidence in Dealing with all the applied dimensions they process.

PART-I : Somatometry :

(a) Measurements on body :

(i) Height vertex, (ii) Height tragus, (iii) Suprasternale height, (iv) Biacromial Breadth, (v) Bi-illioncristal breadth, (vi) Tibial Height, (vii) Upper extremity Length, (viii) Sitting height, (ix) height dactylion, (x) Body weight.

(b) Head and Face Measurement :

(i) Morphological upper facial length.

(ii) Physiognomic upper facial length.

(iii) Morphological facial length.

(iv) Bizygomalic breadth.

(v) Max head length

(vi) Max head breadth

(vii) Nasal length

(viii) Nasal breadth

(c) Indices :

(i) Cephalic Index

(ii) Nasal Index

(iii) Facial Index

PART-II Genetic Traits :

ABO blood group ; colour blindness, PTC taste sensitivity, Dermatioglyphics, Methods of taking finger and palm prints and their analysis.

PART-III Statistics

Mean, Median, Standard deviation, X^2 test.

BOOKS RECOMMENDED :

1. Basin M.K. and I.P. Singh : Anthropometry
2. Cummins H. and Midlo C. : An Introduction of Dermatoglyphics
3. Dunsford and Bowley : Blood Group Techniques
4. Fisher R.S. : Statistical methods for Research Workers
5. मित्रा, मिताश्री : प्रायोगिक मानव विज्ञान भाग-2
6. Olivia : Practical Anthropology

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ELECTRONICS EQUIPMENT MAINTENANCE

		Max. Marks	Min. pass Marks
Paper - I	Trouble shooting and maintenance of audio and video Equipments.	50	17
	Practical	50	17
	Project	50	17

PAPER-I

(Paper Code - 0913)

TROUBLE SHOOTING AND MAINTENANCE OF AUDIO AND VIDEO EQUIPEMENTS

UNIT-I **REMOTE CONTROL AND SPECIAL CIRCUITS :**

Remote control, electromechanical control system, electronic touch tuning frequency synthesiser, TV tuner, automatic fone tuning (AFT), booster emplifier, automatic brightness control, instantious circuitry, picture tube boosters.

ALIGNMENT AND SERVICING EQUIPMENTS :

Antistatics and low leakage multimeters, soldering Iron, Vacuum tube voltmeter (VT VM) Cathode Ray Oscillouscope (CRO) single Generation Video pattern Generator Coulor IIur Generation Vector Scope, High voltage probe Cable connectors shielding and Graunding.

UNIT-II **TELEVISION :**

Trouble shooting procedure, troubles shooting monochrome receivers, servicing of various functional blocks, trouble, shooting colour receivers, servicing circuit modeles, saprets precautions in television servicing.

TELEVISION CAMERA TUBES :

Basic principles and maintenance recording.

UNIT-III **BLOCK DIGRAM OF VCR :**

Requirement of VCR, retaining video drums, helical scan, guard band, frequency response, serva systems, tape tension regulatar, real servo, system control.

Different formats, the quacruplex format, type B segmented format, type C formet, the U matic format, the 1/2" V.H.S. format, 3-Max system.

UNIT-IV **SINGAL PROCESSING, CHROME PROCESSING :**

Colour under technique, recovery of down converted chrome signals, luminance processing. frequency modulation, deviation and band width, autometic gain correction, limited, pre-enphasis, replay of luminance signal, Y/C delay, drop out compensator, block diagram of main requirements, zero guard band system, turners and modulators, the modulator.

Servo mechanisms and system control :

Recording, playback, tracking, capstan servo system control, loading and tereading and play mode, record mode, auto stops, counter, audio video muting.

UNIT-V **CARE OF MECHANICAL SYSTEM :**

Cleaning of head and tape path. Lubrication, replacement of parts, replacement of audio CTC head, replacement of video drum, dihedral error, table height, tape tension. drive toungue stop brenks.

ELECTRONIC SYSTEM ALUGNMENTS :

Instruments, fault finding the power supply, free funning speed the servo system, tracking, video system, playback section alignment, amplifier balance and gain, luminance signal adjustment, D.O.C., F.M. demodulator, limited balance, carrier leak, noise canceller, colour processing, up conversion automatic colour correction, autometic face connection recording, luminance, synctip or clamping frequency, deviation set, white clip, chrominance, summary.

NEW TECHNOLOGIES :

Industrial aspects of consumer electronics, jigs and fixture, quality control/ management, production techniques, business cycle new technologies, compact disc, laser disc.

PAPER - II

(Paper Code - 0914)

PRACTICAL

A student is required to do atleast 2 experiments in an acadmic year, and one month summer Training. The scheme of practical examination will be as follows :

(1) On experiment of 3 hours duration and one month summer Training.

(2) The marks for summer training will be awarded by the teachers teaching the students on the basis of the certificate issued by the external supervisor of the summer training.

Marks	
Experiment	25 Marks
Sessional	10 Marks
on month summer training	15 Marks
Tdtal	**50 Marsk**

Orientation and connection to TV antenna. Knowledge of booster connection and replacement. Knowledge of bloon Unit - different types (for different TV sets) and replacement of ballon, Replacement of front end.

Power supply and resistance cold tests. Voltage measurement at different points. To build SMPS for voltage between 6-15 volts (using IC's).

Horizantal and vertical oscilator checking and testing using CRO.

To see and read circuit diagram and to identity (Locate) various block on p/s, H and V deflection, video amplifier, audio, section, chroma section, IF section, tuner, tube and direction yokes (connecting and adjustment).

Audio section wave form testing step by step-sound separator, sound take off from IF section and tenonwards to detector amplifier, IF alignment and loud speaker. (intercarrier sound take off).

If stage testing : IF alignment, tunner and band select.

Chroma processor : testing singals at various IC's.

Remote control studies-range, direction various, controls, IR transmitter and receiver, coding of signal.

Fault finding : cold testing and voltage testing of various parts. (Revision of parts 1 to 9).

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BIOTECHNOLOGY

PAPER - I

GENERAL BIOTECHNOLOGY

Plant, Environment and Industrial Biotechnology

Time : 3 Hrs **MM-50**

UNIT-I Plant cell and tissue culture : General introduction history, scope.
Application of tissue culture
Concept of cellular differentiation.
Agro bacterium. Ti and Ri plasmid.
Bt gene. Molecular marker (RFLP, RAPD), edible vaccines.

UNIT-II Organogenesis, Embryogenesis. Protoplast isolation and fusion.
Germplasm storage and Cryopreservation.
Anther and Ovary culture.

UNIT-III General introduction and scope of environmental biotechnology.
Environmental pollution and its type.
Control of pollution through biotechnology,
Wastewater treatment :- Physical, Chemical, and Biological.

UNIT-IV Biofertilizer, Biopesticides, IPR.
Global environmental problem- General introduction, Ozone depletion. Acid rain.
Green house effect.

UNIT-V Bioreactors and its type.
Fermentation (Lactic acid, alcohol).
Maintenance of Industrial microorganisms.
Food technology- introduction, canning. packing and food preservation.

PAPER - II

IMMUNOLOGY

Time : 3 Hrs **MM-50**

UNIT-I Immunology - General Concept, history and Development.
Immune system and immunity, Organization of Immune system.
Antigen - Antibody and its type.

UNIT-II Cell involved in immune system. Type and cells. Basic structure and function. Cytokines.
Cell mediated immunity Interferons. Hypersensitivity.

UNIT-III Antigen - antibody interaction. Principles and types.
Immunohaematology - General concept. Blood group system. Rh factor. medical application of blood groups.

UNIT-IV Origin and diversity in immune system.

Effectors mechanisms.

Immunity of infection diseases monoclonal Antibodies.

UNIT-V Autoimmune diseases. Hemolytic anemia. Rheumatoid arthritis. Insulin dependent diabetes. Myasthenia gravis. Organ transplantation. Immunodeficient diseases. Cancers. AIDS.

PRACTICAL

EXPERIMENTS

Plant :

1. Sterilization of plant materials.
2. Preparation of Tissue culture media.
3. Plant tissue culture by plant parts.

Environment :

1. Determination of total dissolved solids of water.
2. Determination of DO, BOD, COD of water.
3. MPN Test.

Industrial :

1. Food preservation techniques.
2. Application of biopesticieds on microorganisms
3. Production of Citric acid by microorganisms.

Immunology :

1. Blood grouping in relation to Antigen Antibody interaction.
2. Rh factor determination.
3. Widal Test
4. VDRL Test.
5. Double diffusion experiment
6. ELISA Test

BIOTECHNOLOGY

Time : 4 HRS **MM-50**

Scheme	**Marks**
1. Experiment based on Paper - I	
(i) Plant tissue culture	08
(ii) Environment / Industrial	07

2.	Experiment based on Paper - II	15
3.	Spots 05 (based on paper I & II, at least two spots from each paper)	10
4.	Viva-voce	05
5.	Sessional	05
	Total	**50**

BOOKS -

1. A test Book of Biotechnology : Indu Shekher Thakur - I.K. International Pvt. Ltd., New Delhi.
2. Biotechnology (Fundamentals and Applications) : S.S. Purohit - Agrobios (India), Jodhpur.
3. Fundamentals of Microbiology and Immunology : Ajit Kr. Banerjee, Nirmalya Banerjee - New central Book Agency (P) Ltd., Kolkata.
4. Plant Biotechnology : R.S. Chawla - Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
5. Plant Biotechnology : B.D. Singh - Kalyani Publication, New Delhi.
6. Biotechnology : Fundamental & Appliction : S.S. Purohit
7. Immunology : J. Kubey et al.
8. Immunology : Roitt et al.
9. Fundamental of Immunology : W. Paul.
10. Plant Tissue culture : Rojdov
11. Plant Tissue Culture (Practical) : H.S. Chawla.

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BIOCHEMISTRY

PAPER - I

MOLECULAR BIOLOGY

UNIT-I BASIC CONCEPTS OF GENETIC INFORMATION

a. Nucleic acids as genetic information carriers, experimental evidence e.g. bacterial genetic transformation, Hershey - Chase Experiment, TMV reconstitution rexperiment.

b. Central dogma of molecular genetics - current version, reverse transcription and retroviruses.

c. Primary structure of nucleic acids and their properties, silent features of eukaryotic, prokaryotic and viral genome; highly repetitive, moderately repretitive and unique DNA sequences.

d. Basic concepts about the secondary structures of nucleic acids, 5' 3' direction antiparallel strands, base composition, base equivalence, bae pairing and base stacking in DNA molecule. and buoyant density and their.

UNIT-II STRUCTURAL LAVELS OF NUCLEIC ACIDS AND SEQUENCING

a. Scondary and tertiary structure of DNA : Watson and Crick model, A.B. and Z types of DNA major and minor grooves, chirality of DNA, tertiary structure of DNA.

b. Structure and properties of RNA; Classes of RNA secondary and tertiary structures.

c. Nucleic acid hybridization : Cot $T_m^{\rightarrow}$ value and satellite DNA.

d. Sequencing : Restriction and modification system; sequencing of DNA and RNA.

UNIT-III a. DNA REPLICATION

DNA replication in prokaryotes - conservative, semi conservative and dispersive types, experimental evidence for semi conservative replication. DNA polymerases, other enzymes and protein factors involved in replication. Mechanism of replication. Inhibitors of DNA replication.

b. TRANSCRIPTION

Transcription in prokaryotes RNA polymerase, promoters, initiation, elongation and termination of RNA synthesis, inhibitors of transcription. Reverse transcriptase, post transcriptional processing of RNA in eukaryotes.

UNIT-IV TRANSLATION AND REGULATION OF GENE EXPRESSION

a. Genetic code : Basic feature of genetic code, biological significance of degeneracy. Wobble hypothesis, gene within genes and overlapping genes.

b. Mechanism of translation : Ribosome tructure, A and P sites, charged tRNA, f-mat-tRNA initiator codon, Shine Dalgarno consensus sequence (AGGA), formation of 70S initiation complex, role of EF-Tu, EF-Ts, EF G and GTP, nonsense codons and release factors RF 1 and RF 2.

c. Regulation of gene Expression in prokaryotes : Enzyme induction and repression,

operon concepts, Lac operon, Trp operon.

UNIT-V MUTATION AND REPAIR

a. Mutation : Molecular basis of mutation, types of mutation, e.g. transition, transversion frame shift, insertion, deletion, suppresser sensitive, germinal and somatic, backward and forward mutations, true reversion and suppresion, dominant and recessive mutation, spontaneous and induced mutations = Ledergerg's replica plating experiment.

b. Mutagenecity testing : Correlation of mutagenecity and carcinogenicity : Ames testing, Random and site directed mutagenesis.

c. DNA Rapair : UV repair system in E.Coli, Significance of thymine in DNA.

RECOMBINATION AND TECHNOLOGY

Restriction endonucleases, brief discussion of steps in DNA cloning. Application of recombinant DNA technology.

Books :

1. Biochemistry J David Rawn, Neil Patterson Publisher, North Carolina.
2. Molecular biology of the gene JD Watson, NH Hopkins, JW Robert, JP Stretz, AM Weiner, Freeman San Francisco.
3. Fundamental of biochemistry by D Voet and CW Pratt, John Wiley & Sons, NY.
4. Text book of biochemistry Thomas M Devin, John Weley & Sons, NY.

PAPER - II

NUTRITIONAL, CLINICAL & ENVIRONMENTAL BIOCHEMISTRY

M.M.-50

UNIT-I NUTRITIONAL BIOCHEMISTRY

Nutrition and dietary habits

a. Introduction and definition of foods and nutritiori. Factors determining food acceptance, physiological, energy, body building (growth and development).

Regulation of body temperature. Physiology and nutrition of carbohydrates, fats, proteins and water. Vitamins A,D,E,K, Vit B-Complex and Vit C and minerals like Ca, Fe and Iodine and their biological functions. Basic food groups : energy giving foods, body building foods and protective foods.

b. Composition of balanced diet, recommended dietary allowances (RDA) for average indian, locally available foods, inexpensive quality foods and food stuff's rich in mor ethan one nutrients. Balanced vegetarian diet, emphasis on nutritional adequacy.

UNIT-II NUTRITATINE AND CALORIFIC VALUES OF FOODS

a. Basic concepts of energy expenditure, units of energy, measurement of energy expenditure by direct or indirect calorimetry, calculation of non protein RQ with respect to carbohydrates and lipids. Determination of heat production of the diet. The basal metabolism and method of measuring basal metabolic rate (BMR),

energy requirements during growth, pregnancy, lactation and various physiological activities. Calculation of energy expenditure of average man and women.

b. Specific dynamic action (SDA) of foods, naturitive value of various kinds of foods generally used by Indian population. Planning of dietary regimes for infants, during pregnancy and old age. Malnutrition, its implications and relationship with dietary habits and prevention of malnutrition pecially protein-calories malnutrition (Kwashiorkor and Marasmus) by improvements of diets. Human milk and its virtues, breast vs formulated milk feeding. Food preservation standards, food adulterations and precautions, government regulations on poreservation and quality of food.

UNIT-III CLINICAL BIOCHEMISTRY

i. Basic concepts of clinical biochemistry

a. Definition and scope of clinical biochemistry in diagnosis, a brief review of units and abbreviation used in expression concentration and standard solutions. Quality control. Manual vs automation in clinical laboratory.

b. Collection and preservation of biological fluids (blood, serum, plasma, urine and CSF) Chemical analysis of blood, urine and CSF. Normal values for important constitutes (in SI units) in blood (plasma / serum), CSF and urine, clearance tast for urea.

UNIT-IV (i) CLINICAL ENZYMOLOGY

a. Definition of functional and non- functional plasma enzymes. Isozymes and diagnostics Tests. Enzymes pattern in health and diseases with special mention of plasma lipase, amylase, cholinesterase, alkaline and acid phosphatase, SGOT, SGPT, LDH and CPK.

b. Functional tests of kidney, liver and gastric fluids.

(ii) Hypo and hyper-gylcemia, glycogen storage diseases, lipid mal-absorption and steatorrhea, sphingolipidosis, role of lipoproteins. Inborn errors of amino acid metabolism alkaptonuria, phenyl-ketonuria, albinism, gout and hyper-uricemia.

UNIT-V ENVIRONMENTAL BIOCHEMISTRY

(i) **Air pollution :** Particulate matter, compounds of carbon, sulphur, nitrogen and their interactions, methods of their estimation, their effect on atmosphere.

(ii) **Water pollution :** Types of water boides and their general characteristic, major pollutants in domestic, agricultural and industrial wastes, methods of their estimation, effects of pollutants on plants and animals, treatment of domestic and industrial wastes, solid-wastes and their treatment.

Books :

1. Modern nutrition in health and diseaser by Whol and Goodhart.
2. Human nutrition and Dietetics-S. Davidson and passmore-ELBS Zurich.
3. Tietz fundamental of clinical Chemistry by Cart A Burits & ER Ashwood Saunders WB Co.
4. Leacture Notes on Clinical Biochemistry-LG Whitby, AF Smith, GJ Beckett.

PRACTICAL FOR IIIrd YEAR

LABORATORY - III (BCH 305)

1. Estimation of DNA by diphenylamine method.
2. Effect of temperature on the viscosity of DNA using Ostwald's Viscometer.
3. Extraction of RNA and its estimation by Orcinol method.
4. Estimation of hemoglobin by measuring total iron in blood.
5. Estimation of calcium and phosphorus in serum & urine.
6. Estimation of creatine and creatinine in urine.
7. Estimation of immunoglobulins by precipitation with saturated ammonium sulphate.
8. Denaturation fo enzyme, studies on DNA.
9. a. Separation of proteins by column chromatography.
   b. Determination of proteins by dye binding assay.
10. Separation of proteins by SDS-polyacrylamide gel electrophoresis.

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Structure & Syllabi for One Year DCA Programme

1. The title of the programme is "Diploma in Computer Application" (DCA) and introduced from the academic year 2014-15.
2. **Objectives:** The objectives of the Programme shall be to provide sound academic base for proceeding career in Computer Application.
3. **Eligibility for admission**: In order to be eligible for admission to DCA a candidate must be (10+2) with minimum 40% marks in aggregate.
4. **Duration**: The duration of the DCA Programme shall be one year.
5. **The scheme of Examinations:** The DCA Examination will be of 800 marks as given Below:
   i. Theory Papers: 600 marks
   ii. Practical Papers: 200 marks
6. **The Standard of Passing and Award of Class**

   In order to pass in the examination the candidate has to obtain 33% marks out of 100. (Minimum 33% marks must be obtained separately in theoretical papers as well as practical papers of University Examination).

   The class/division will be awarded on the basis of aggregate marks obtained by the candidate for examinations.
7. The Medium of Instruction and Examination (Written and Viva) shall be English/Hindi.
8. **Instructions to Paper Setters:**
   a. In each theory paper, six questions are to be set and paper has maximum 100 marks. Question paper should be in English as well as Hindi.
   b. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 30 marks.
   c. Apart from Question No. 1, rest of the paper shall consist of five units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 14 marks.

SCHEME OF EXAMINATION FOR ONE YEAR DCA PROGRAMME
w.e.f. Session 2017-18

Paper No.	Title of the Paper/s	Term End Examination	Total Maximum Marks	Minimum Passing Marks in Term End Examination
		Maximum marks		
I	Fundamentals of Computers	100	100	33
II	Windows & PC Packages	100	100	33
III	Print Technology and Desktop Publishing	100	100	33
IV	Internet and Web Technology	100	100	33
V	Programming in C	100	100	33
VI	Introduction to Operating System	100	100	33
VII	LAB-I PC Package and DTP Lab	100	100	33
VIII	LAB-II Programming in C Lab	100	100	33
		Total Marks	**800**	

PAPER-I
FUNDAMENTALS OF COMPUTERS

UNIT-1

Brief History of Development of Computers ,Computer System Concept, Computer System Characteristics ,Capabilities and Limitations, Types of Computers-.,Personal Computer (PCs) - IBM PCs, Types of PCs- Desktop, Laptop, Notebook, Palmtop, etc.
Computer organization: Basic Component of Computer system - Control Unit, ALU, I/O, Memory.

UNIT–II

Input Devices :Keyboard, Mouse, Joystick, Scanners, Digital Camera, MICR, OCR, OMR, Light pen, Touch Screen, Voice Recognition, Bar Code Reader, Output Devices Monitors - Characteristics and types of monitor, Size, Resolution, Refresh Rate, Dot Pitch, Video Standard - VGA, SVGA, XGA etc. Printers: Impact and Non Impact Printers, Daisy wheel, Dot Matrix, Inkjet, Laser. Plotter, Sound Card and Speakers.

UNIT–III

Bytes and Addressable Memory, Memory Sizes, Types of Memory: RAM, Cache, ROM, Flash Memory, CMOS, Memory Access Times, Expansion Slots And Adapter Cards, Removable Flash Memory, Ports And Connectors: USB Ports, FireWire Ports, Buses, Storage: Characteristics of a Hard Disk, RAID, NAS, External and Removable Hard Disks, Miniature Hard Disks, USB Flash Drives, Cloud Storage, Optical Discs: CDs, DVDs.

UNIT–IV

Software – Definition, Types of Software- System Software, Application Software, System Software- Operating System, Language Translator(Compiler, Interpreter), Utility Programs. Operating system- Definition, Function, Types of operating system- Batch Processing, Multiprogramming, Time Sharing Operating System, Multiuser, Multitasking, Multiprocessing Operating System.

UNIT–V

Network- Direction of Transmissions Flow-Simplex, Half Duplex Full Duplex, Types of Network-LAN, WAN, MAN etc. Topologies of LAN-Ring, Bus, Star, Mesh and Tree topologies. Computer Virus: Virus working principals, Types of viruses, Virus detection and Prevention Viruses on network, Antivirus software's.

Text Books: 1. Fundamentals of Computers, P. K. Sinha, BPB.
2. Fundamental of Computers, Raja Raman V. Prentice Hall of India, New Delhi.
3. Introduction to Computers, Norton, Peter, McGraw Hill.
4. Computer Fundamentals, B. Ram, New Age International Pvt. Ltd.
5. Fundamental of Computer & IT, S.Jaiswal, Wiley dreamtech India.

References: 1. A+ Certification All-in-One Desk Reference for Dummies, G. Clarke
1. IBM PC & Clones: Hardware Trouble Shooting and Maintenance, B.Govindarajalu

PAPER-II
WINDOWS & PC PACKAGES

UNIT–I

Disk Operating System (DOS) and MS Windows 7: Introduction, History & Versions of DOS, DOS System Files. DOS Commands: Internal and External, Executable V/s Non Executable Files in DOS; **MS Windows 7:** Introduction to MS Windows; Features of Windows; Various versions of Windows & its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts & Autostarts; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hardware & Software program on your computer.

UNIT–II

MS Word 2007: Introduction to MS Office, Introduction to MS Word, Features & area of use. Working with MS Word, , Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements, Working with -Styles, Text Attributes, Paragraph and Page Formatting, Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing & various print options.

UNIT–III

Advanced Features of MS-Word 2007 : Spell Check, Thesaurus, Find & Replace; Headers & Footers, Inserting - Page Numbers, Pictures, Files, Autotexts, Symbols etc., Working with Columns, Tabs & Indents, Creation & Working with Tables including conversion to and from text, Margins & Space management in Document, Adding References and Graphics, Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

UNIT–IV

MS Excel 2007: Introduction and area of use, Working with MS Excel, concepts of Workbook & Worksheets, Various Data Types, Using different features with Data, Cell and Texts, Inserting, Removing & Resizing of Columns & Rows, Working with Data & Ranges, Different Views of Worksheets, Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text; Use of Formulas, Calculations & Functions, Cell Formatting including Borders & Shading, Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

UNIT–V

MS PowerPoint 2007: Introduction & area of use, Working with MS PowerPoint, Creating a New Presentation, Working with Presentation, Using Wizards; Slides & its different views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects, Designing & Presentation of a Slide Show, Printing Presentations, Notes, Handouts with print options.

Text Books: 1. Comdex Computer Course Kit (windows 7 with office 2010), Gupta Vikas, Dreamtech Publication **2.** Mastering MS Office 2000, Professional Edition by Courter, BPB Publication. 3. MS Office 2000 Training Guide by Maria, BPB Publications. 4. MS Office complete by SYBEX. 5. PC Software Made Simple, Taxali, BPB.

PAPER-III
PRINT TECHNOLOGY AND DESKTOP PUBLISHING

UNIT–I

Print Technology: Introductions to Printing, Types of Printers, Inkjet and DM Printer, Screen Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate were making, Laser printers - Use, Types, Advantage of lager printer in publication.

UNIT–II

Page Maker: Page Maker Icon and help, Tool Box, Styles, Menus etc., Different screen Views, Importing text/Pictures, Auto Flow, Columns, Master Pages and Stories, Story Editor, Menu Commands and short-cut commands, Spell check, Find & Replace, Import Export etc., Fonts, Points Sizes, Spacing etc., Installing Printers, Scaling (Percentages), Printer setup Use of D.T.P. in Advertisements, Books & Magazines, News Paper, Table Editor.

UNIT–III

Adobe Photoshop: Adobe Photoshop CS4: Menus and panels, Exploring the Toolbox, Working with Images: Working with Multiple Images, Rulers, Guides & Grids, Image Size Command, Adjusting Canvas Size & Canvas Rotation, Creating, Selecting, Linking & Deleting Layers, Painting with Selections, Red Eye Tool, Clone Stamp Tool, Color creation, Quick Mask Options, Creating Straight & Curved Paths, Creating Special Effects.

UNIT–IV

CorelDraw X4: CorelDraw X4 Command Bars & Tools, Drawing Area-Objects-Lines, Working with Text & Artistic Media Tool, Fills & Modifying Outlines, Drop Shadows, Importing and Editing OCR Text, Templates, Drawing and Editing Curves and Lines, Three-point Tools, Clipart, Special Characters and Creating Symbols, Working with Layers & Creating a Master Layer, Brush Tools and Adding Objects, Interactive Tools, PowerClip Feature and the Envelope Tool.

UNIT–V

Other Work in DTP: Scanning, Type of Scanner, Importing image, text from scanner, ABBY fine reader, Acrobat (PDF) to Word, and Word to PDF, PDF Editor, PDF Annotator, PDF Infix, Voice to word conversion**.**

Text Books: 1.How to Do Everything Adobe Photoshop CS4, Chad Perkins, TMH
2. Desktop Publishing Software: Adobe Creative Suite, Adobe Frame Maker, Adobe Indesign, Adobe PageMaker, Altsoft Xml2pdf, Bookmaking Software; Uni.press.org
3. Specifications of Adobe PageMaker (Paperback); Cede Publishing
4. Adobe Pagemaker 7.0 Inver 1st Edition, Kevin G. Proot, Ceneage Learning Pvt Ltd.
5. Corel Draw X4: The Official Guide, (Paperback), Gary David Bouton, TMH

Reference Books: 1. Corel DRAW X4, Deborah Miller, Pearson Education
2. Photoshop CS4 Quicksteps, Carole Matthews & Gary David Bouton, TMH

PAPER-IV
INTERNET AND WEB TECHNOLOGY

UNIT–I

Applications of Internet, History of Internet, WWW, Various Services , World Wide Web (WWW**)** History, Working, Web Browsers, Its function Concept of Search Engines, client server architecture

UNIT–II

Internet : Evolution, Protocols, Interface Concepts, Internet Vs Internet, Growth of Internet, ISP, Connectivity - Dial-up, Leased line, VSAT etc., URLs, Domain names, Portals, Applications.

E-Mail: Concepts, Basics of Sending & Receiving, E-mail, Free E-mail services.

UNIT–III

Transfer Protocols, Telnet & Chatting, Client/Server Architecture Characteristic, FTP & its usages. Telnet Concept, Remote Logging, Protocols, Internet chatting - Voice chat, text chat.

UNIT–IV

Searching the Web, HTTP, URLs, Web Servers, Web Protocols. Web Publishing Concepts, Domain Name Registration, HTML, Design Tools, HTML Editors, Image Editors.

UNIT–V

HTML Concepts of Hypertext, Versions of HTML, Elements of HTML Syntax, Head & Body Sections, Building HTML Documents, Inserting Texts, Images, Hyperlinks, Backgrounds And Colour Controls, Different HTML Tags, Table Layout and Presentation, Use of Font Size & Attributes, List types and its Tags.

Text Books:

1. Computer Networks, Andrew S. Tanenbaum, PHI / Pearson Education Inc.,
2. Computer Networking: A Top-Down Approach Featuring the Internet, James F. Kurose, Keith W. Ross, Pearson Education Inc., New Delhi.
3. Introduction to Data Communications and Networking, Wayne Tomasi, Pearson Edu
4. Data Communications and Networking, Curt White, CENGAGE Learning Pvt. Ltd.
5. Computer Networks, L. L. Peterson & B. S. Davie, Elsevier Inc,
6. Data Communication and Networking, Behrouz A. Forouzan, Tata McGraw-Hill.

References: 1. Data & Computer Communication, Black, PHI.
2. Data and Computer Communication, William Stallings, Pearson Education.
3. Computer and Communication Networks, Nader F. Mir, Pearson Education, 2007.
4. Communication Networks, Walrand, TMH.
5. Internetworking with TCP/IP, Douglas E. Comer, Prentice Hall India.
6. Computer Networks: Principles, Technologies and Protocols, Natalia Olifer & Victor Olifer, Wiley India Pvt. Ltd., New Delhi.

PAPER-V
PROGRAMMING IN 'C'

UNIT-I

C Language – Character set, Tokens of C - tokens-constant-keywords and identifiers - variables- data types- declaration and assignment of variables defining symbolic constants.- Operators and Expressions: Types of Operators- Arithmetic, Relational and Logical Operators Assignment, increment and decrement of operators - conditional bitwise and special operators - arithmetic expression and its evaluation - hierarchy of arithmetic operations - evaluations, precedence and associatively - mathematical functions.

UNIT-II

Control Branching and Decision-Making in C - If statement Switch statement - GOTO statement - The? : Operators. - Decision - Making and Looping, Types of Loop, nesting in a loop.

Arrays in C Single Two-dimensional and Multi-dimensional arrays. Handling of Character Set: Declaration & Initialization of string variables - reading from and writing to screen -Arithmetic operations - String handling functions.

UNIT-III

Functions: Definition, Library Functions User Defined Functions, Function Prototype, Function Definition, Function Call, Types of User Defined Functions, Arrays and Functions.

Structures and Unions: Definitions initialization and assigning values to members' arrays of structures and arrays within structures structure with in structure- unions - size of structures.

UNIT-IV

Declaration and initialization of pointers - pointer expression - pointer and arrays - pointer and character strings pointers and functions - pointers and structures pointer on pointers.

UNIT-V

File Maintenance in "C": Defining, Opening and closing a file - Input/Output operations on a file- random access to file - command line arguments.

Text Books:

1. Programming in "C" E Balgurusamy Tata mc Graw-Hill
2. The "C" Programming Language: Briain W. Kenigham & Dennis Ritchie
3. The Spirit of "C"- Henrry Mulis
4. Let Us C, Yashwant Kanetkar, BPB

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PAPER-VI
INTRODUCTION TO OPERATING SYSTEM

Unit – I

Introduction to Operating System

What is an Operating System, Operating Systems Architecture, Types of Operating Systems, Process Model, Process States and Transitions, System Calls.

Unit – II

Process Management

Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, CPU Scheduling: Scheduling Criteria, Scheduling Algorithms, Process Synchronization: Background, Deadlocks.

Unit –III

Memory Management

Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand Paging.

Unit –IV

Device and StorageManagement

File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management.

Unit –V

File-System Implementation

A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.

Text Books:

1. Operating System Concepts, Silbersachatz and Galvin, Pearson Education Pub.
2. Operating Systems, Madnick E., Donovan J., Tata McGraw Hill,
3. Operating Systems, A. S. Tannenbaum, PHI

Reference Books:

1. Operating Systems Internals and Design Principle, William Stallings, Prentice Hall Publishers
2. Operating Systems - A Concept Based Approach, Dhananjay M. Dhamdhere, TMH

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PAPER-VII
LAB-I
PC PACKAGE AND DTP LAB

Note: - Practical should cover syllabus of respected theoretical papers.

The break-up of marks for Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Lab Record	20	
2.	Viva-voce	30	
3.	Program Development and Execution	50	
	Total Marks	100	33

PAPER-VIII
LAB-II
PROGRAMMING IN C LAB

Note: - Practical should cover syllabus of respected theoretical papers.

The break-up of marks for Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Lab Record	20	
2.	Viva-voce	30	
3.	Program Development and Execution	50	
	Total Marks	100	33

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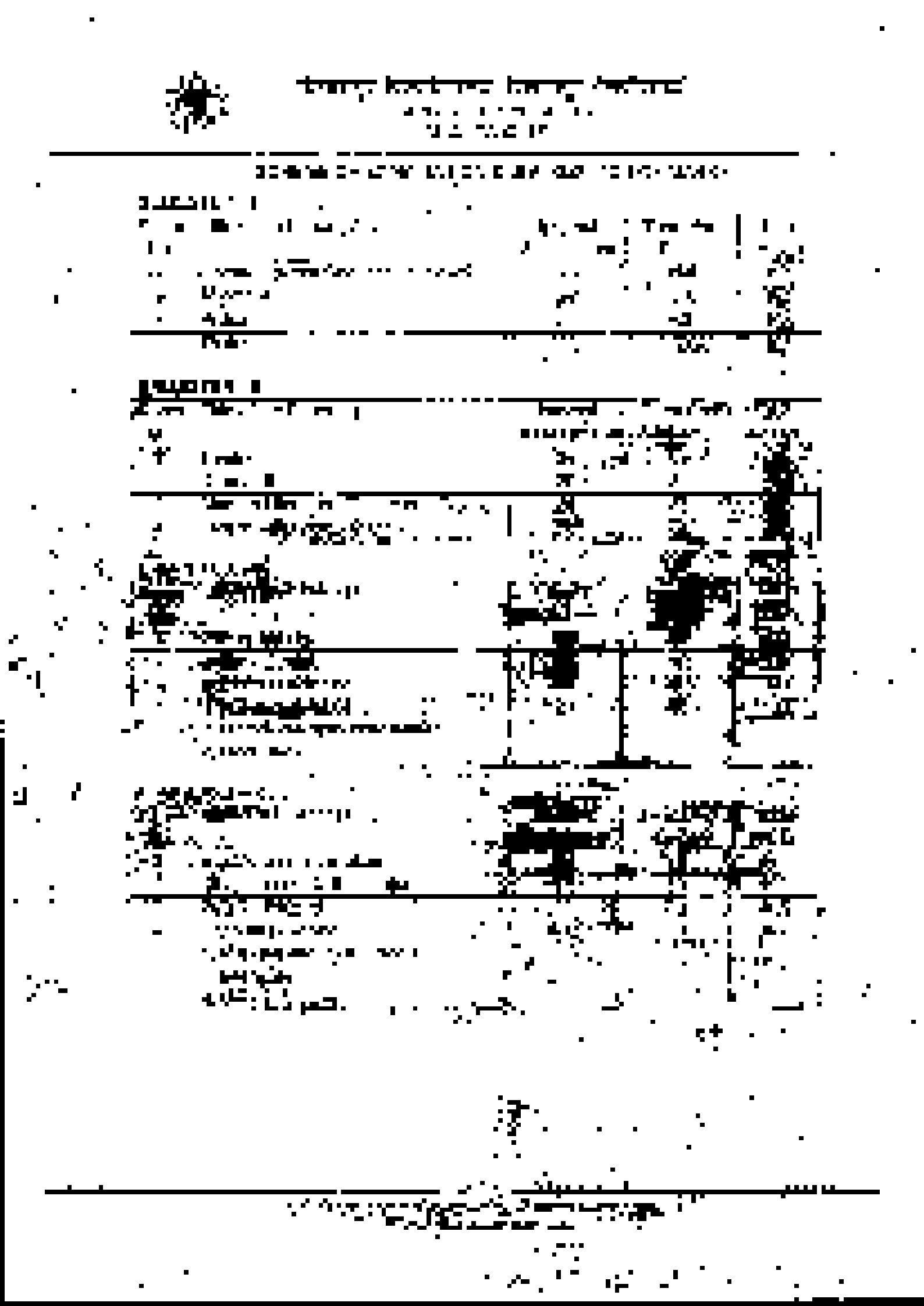

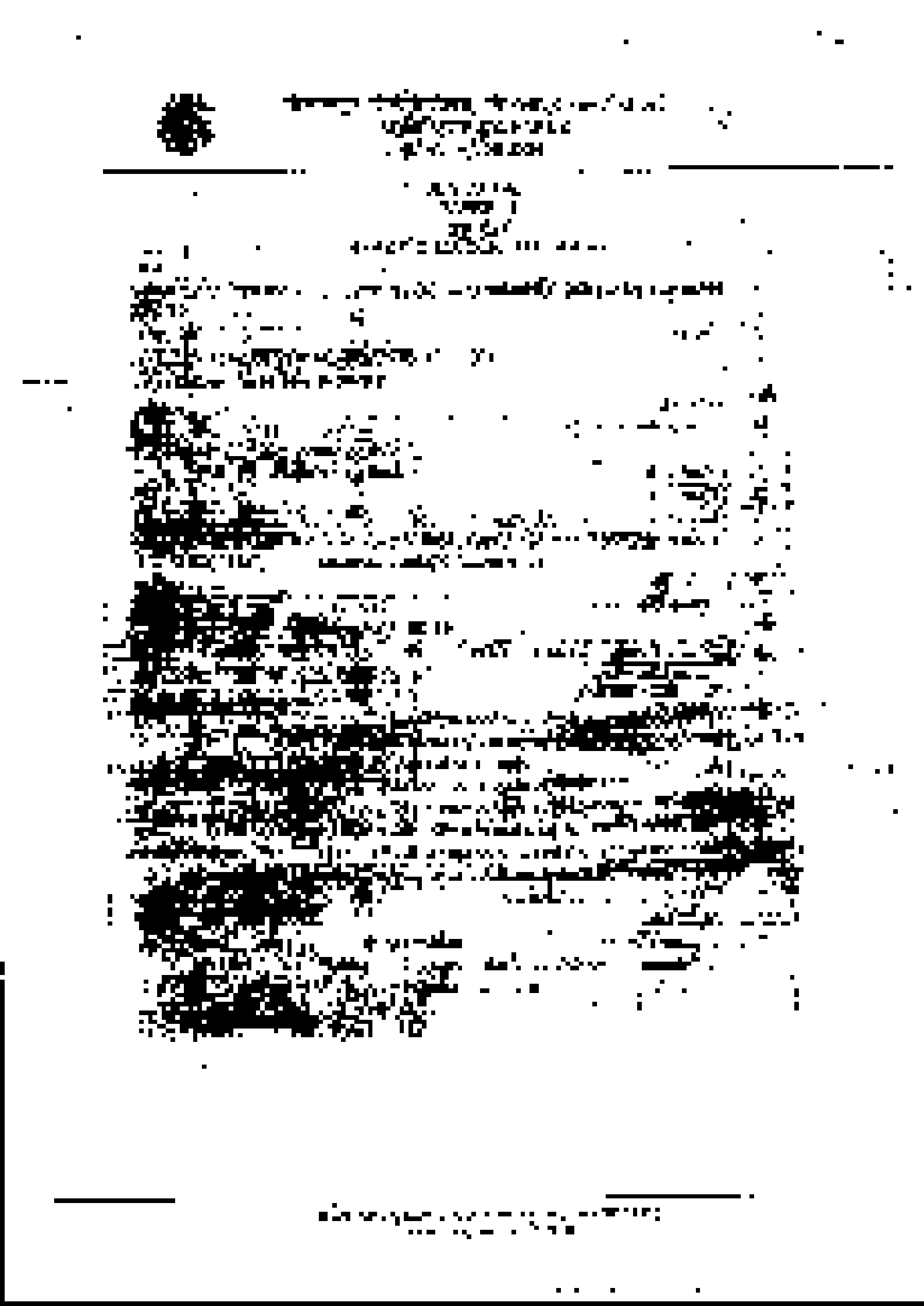

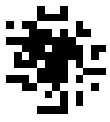

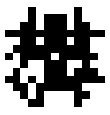

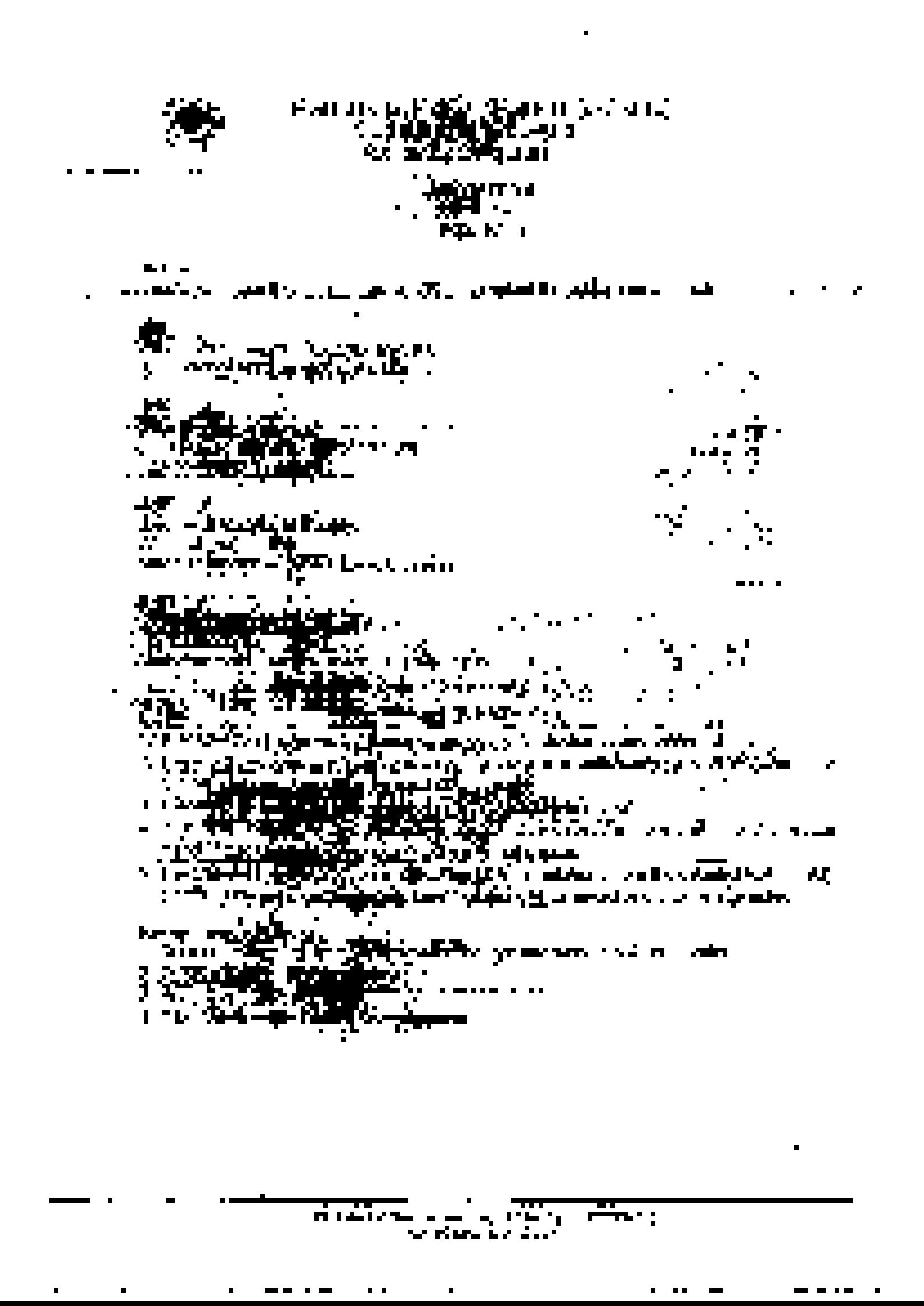

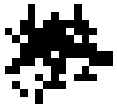

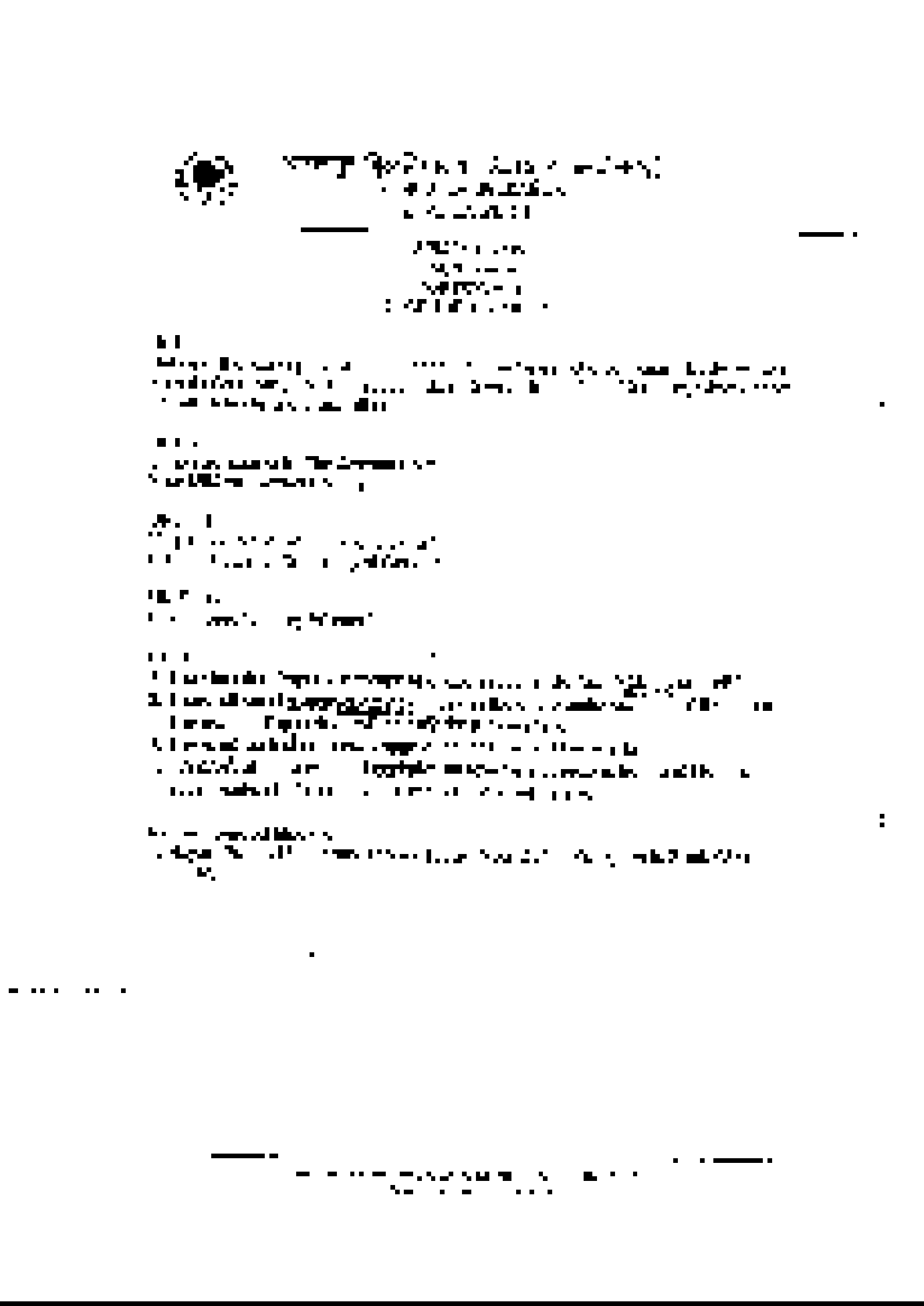

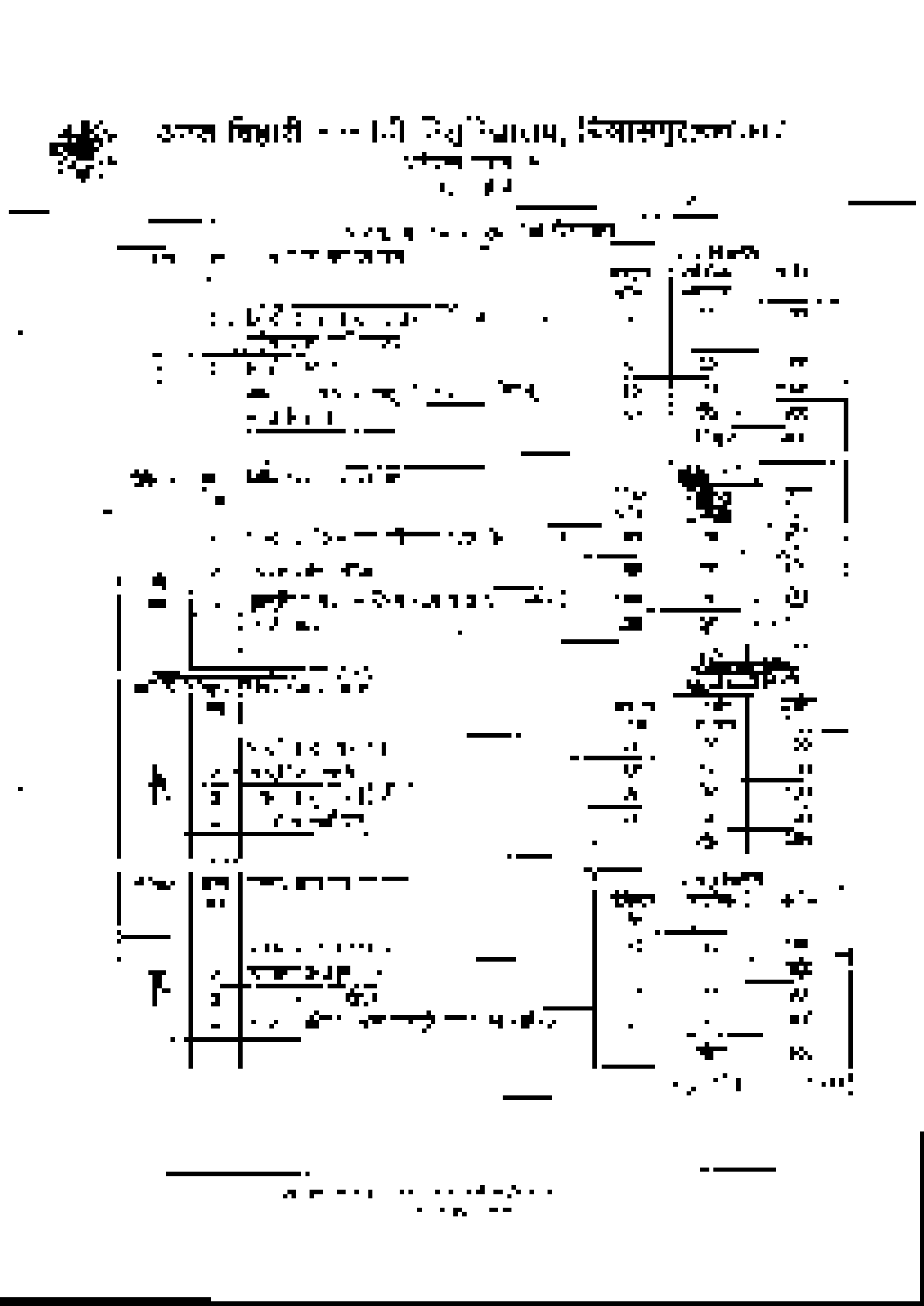

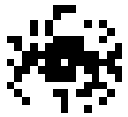

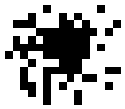

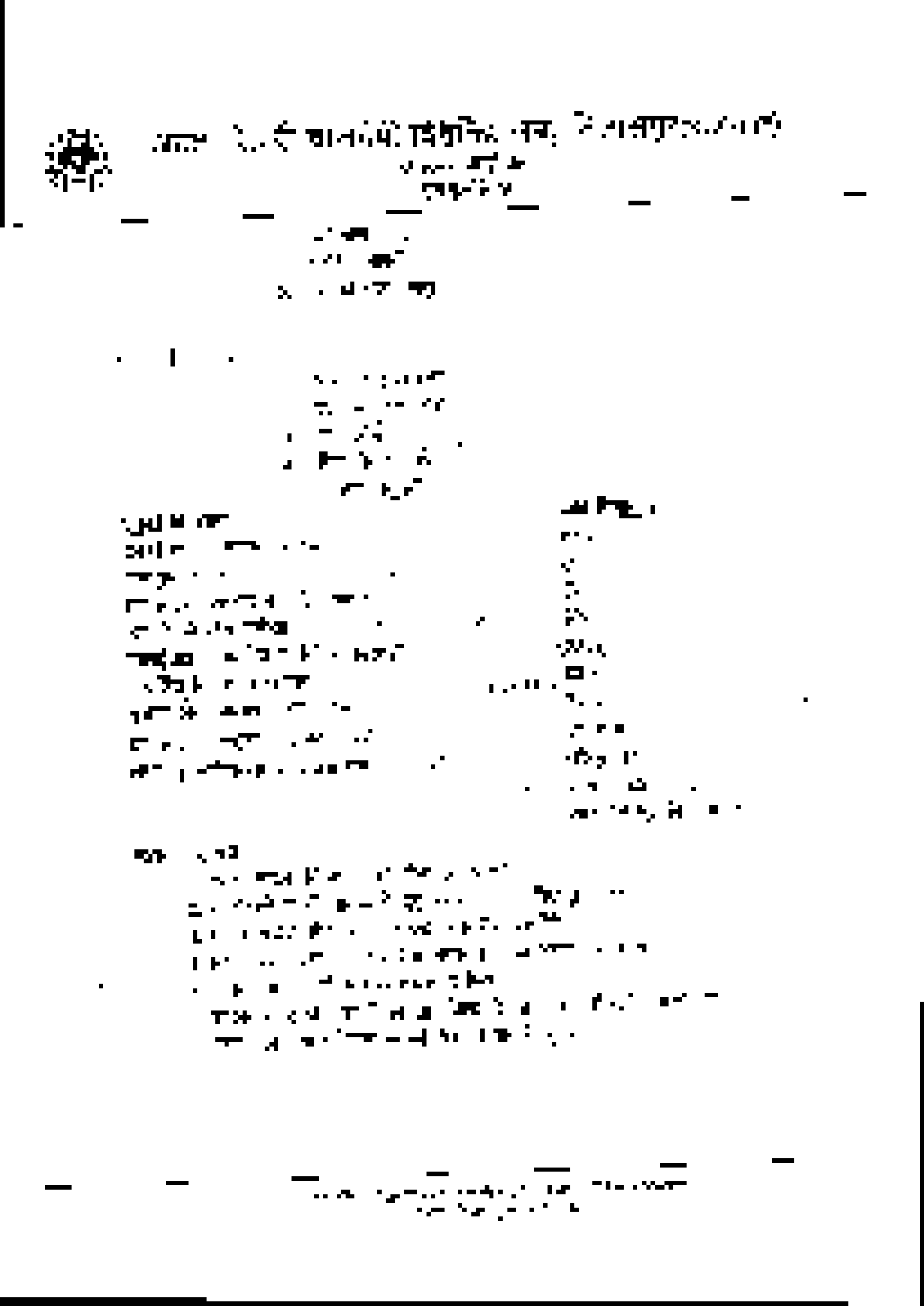

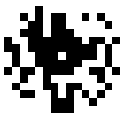

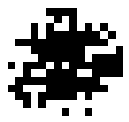

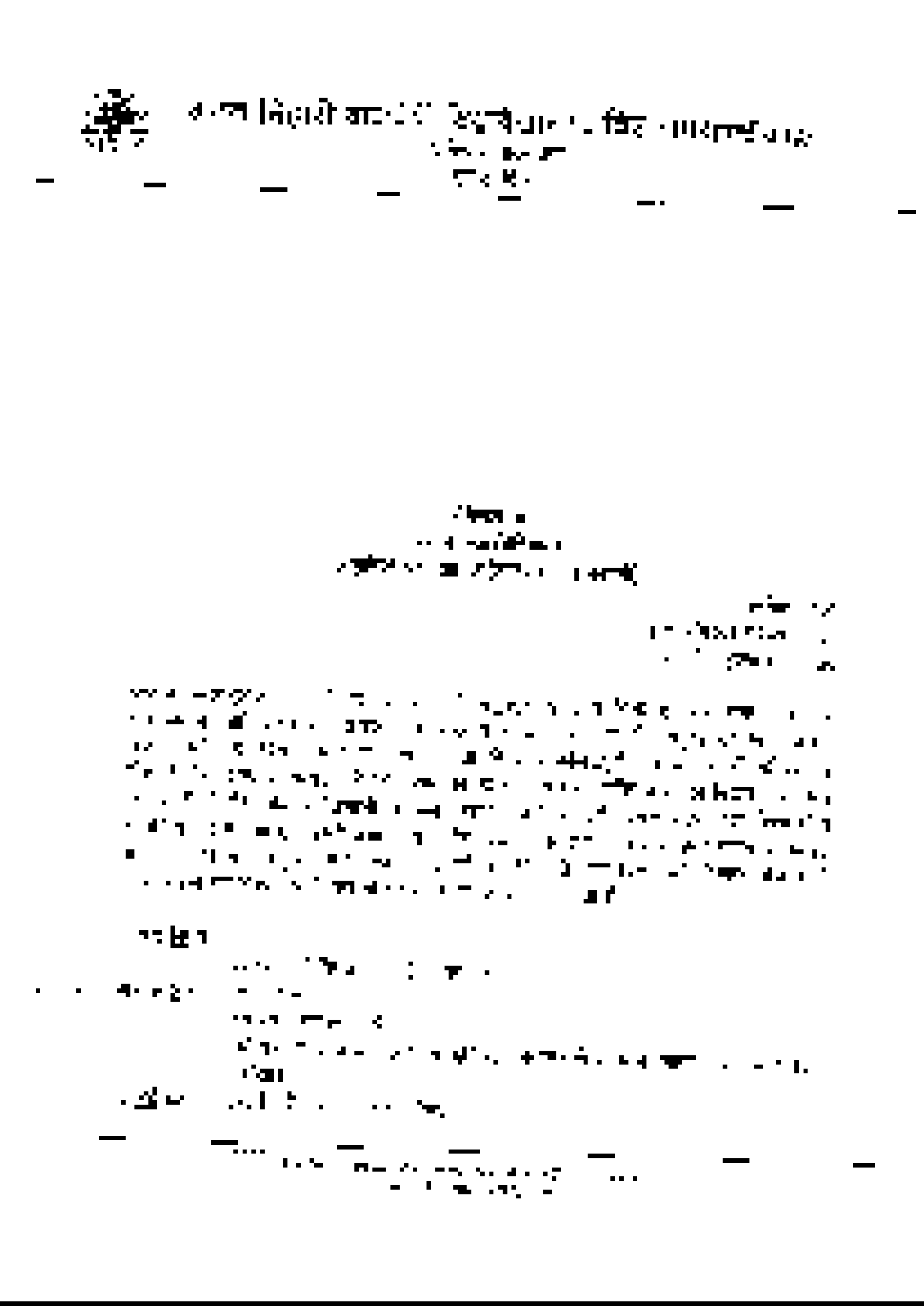

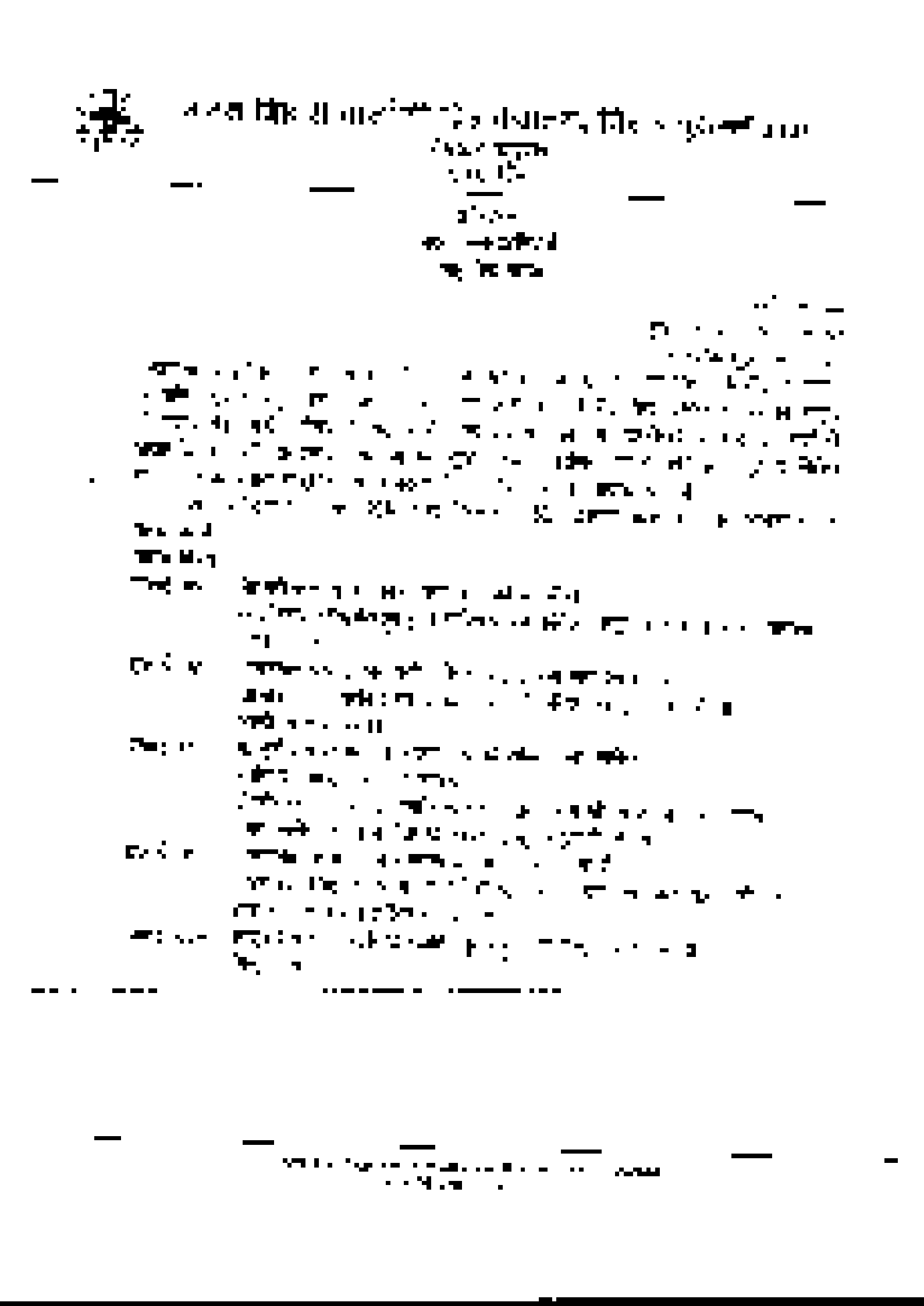

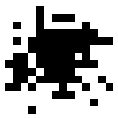

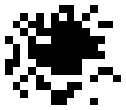

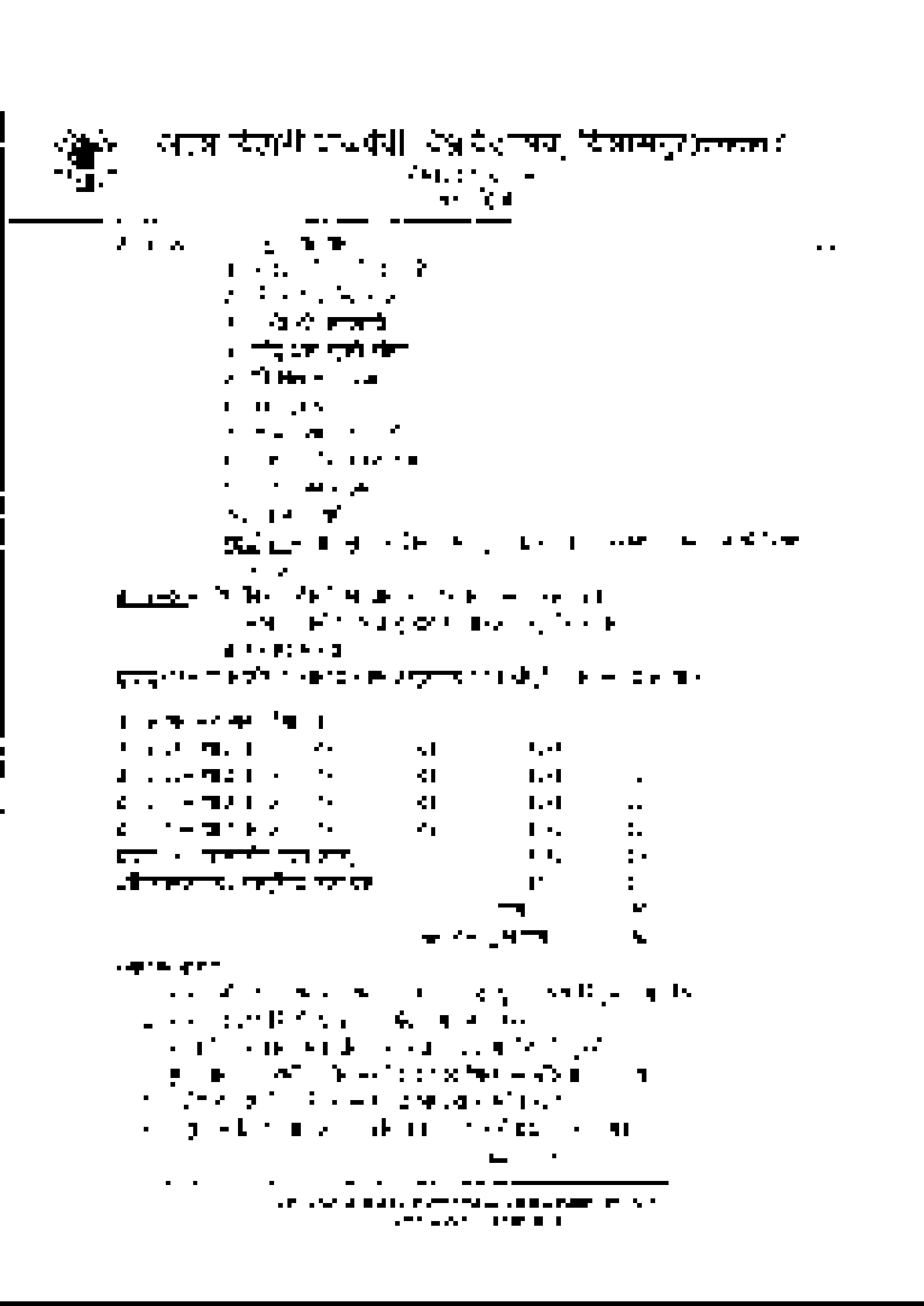

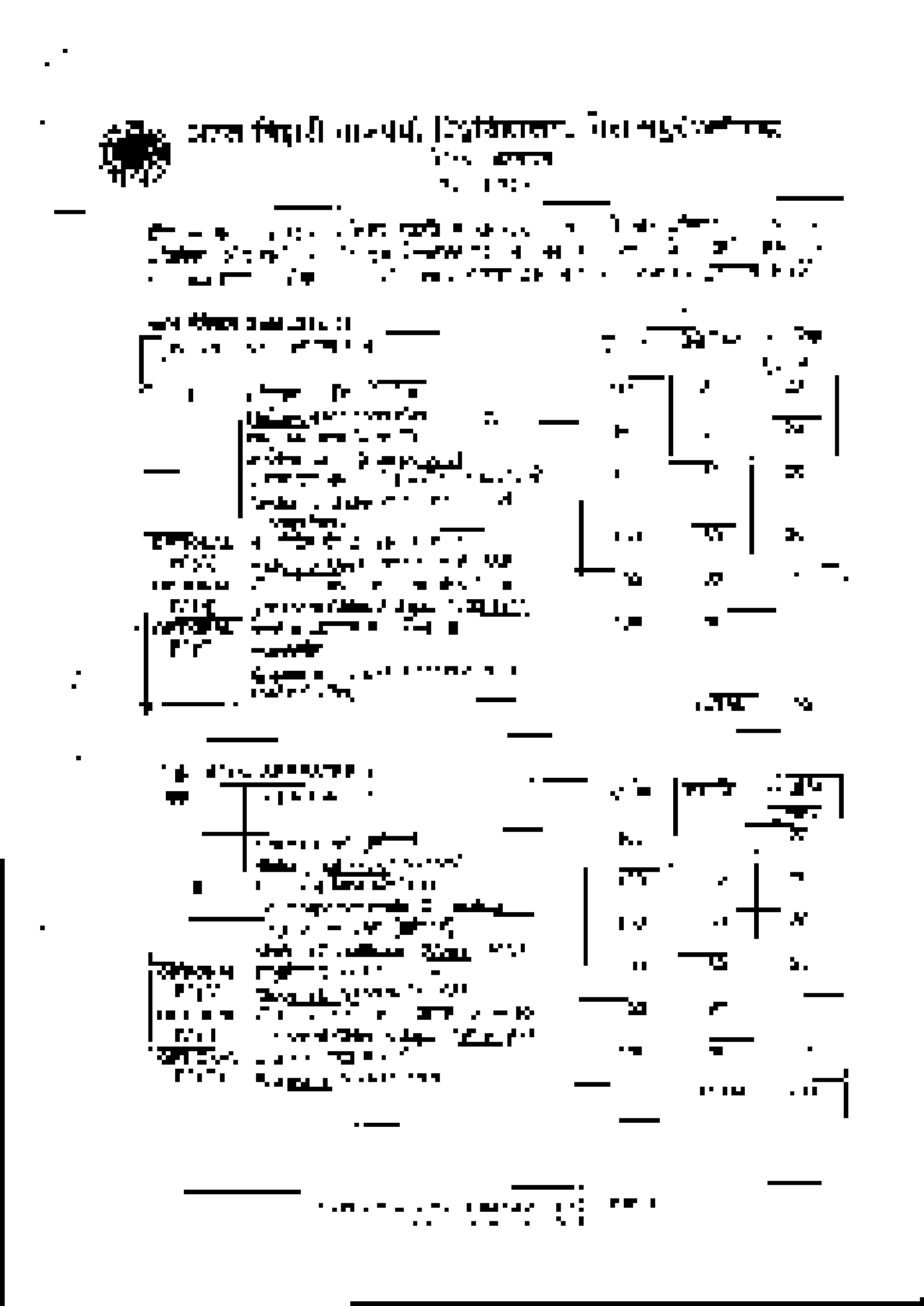

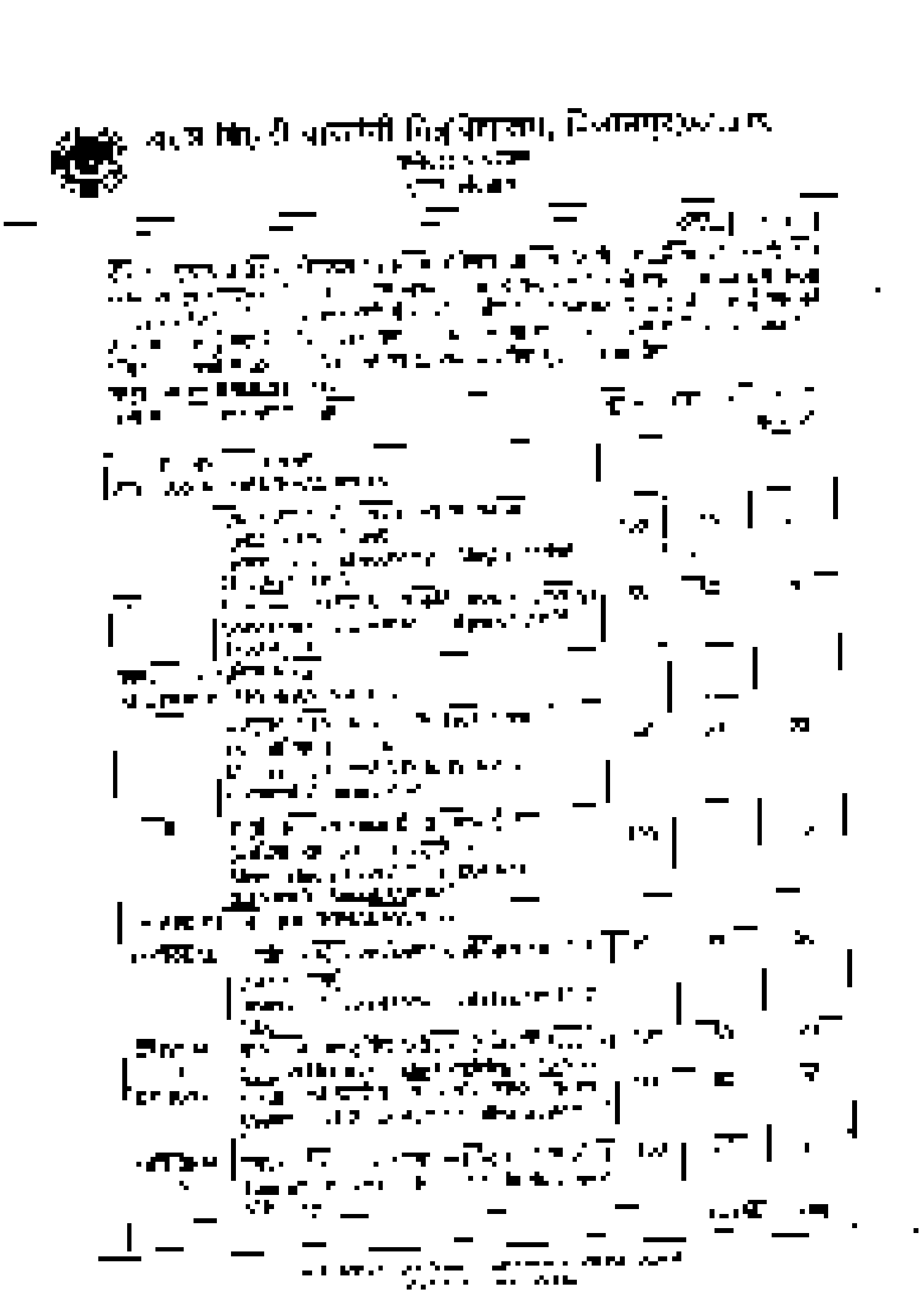

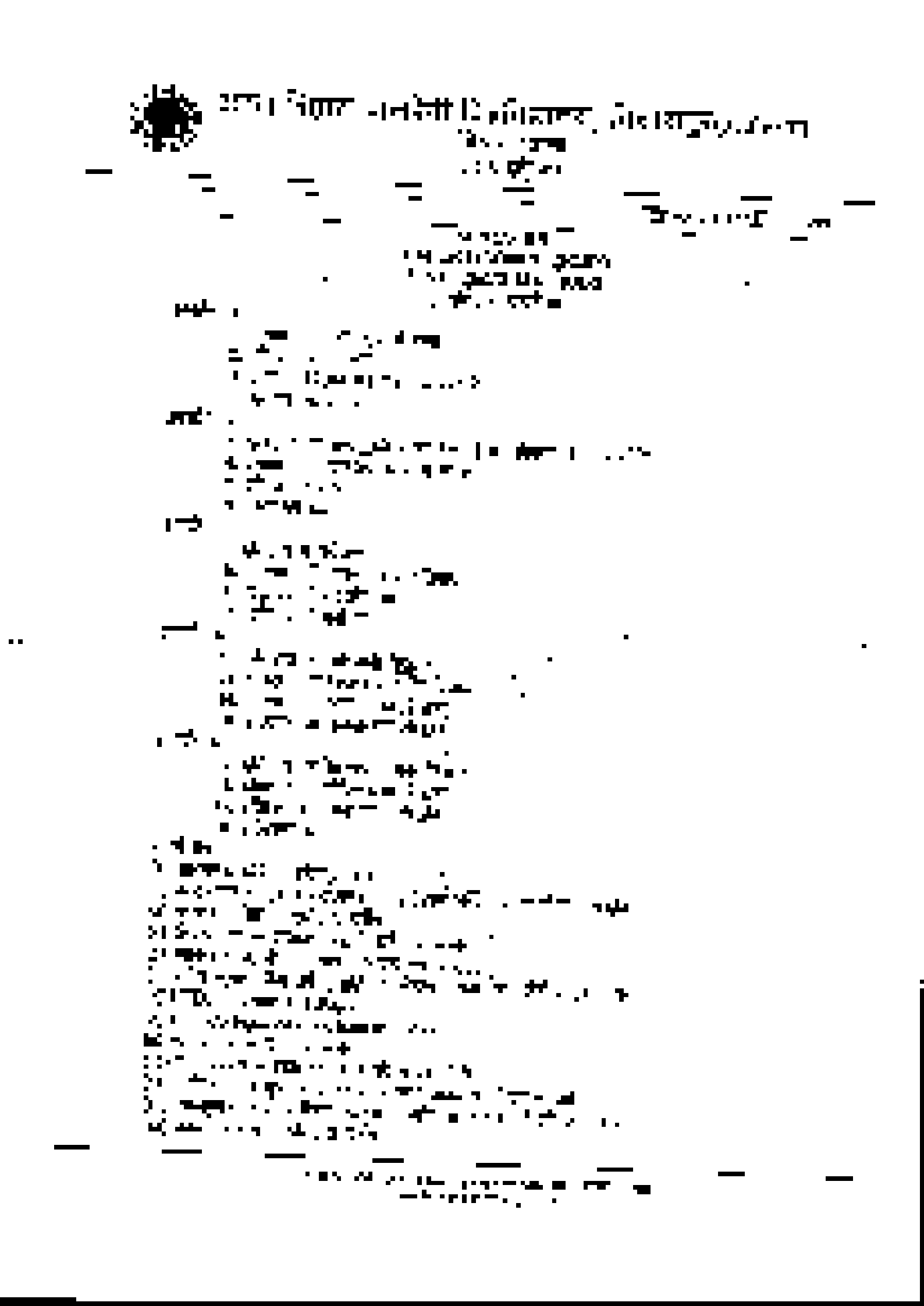

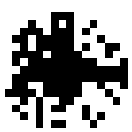

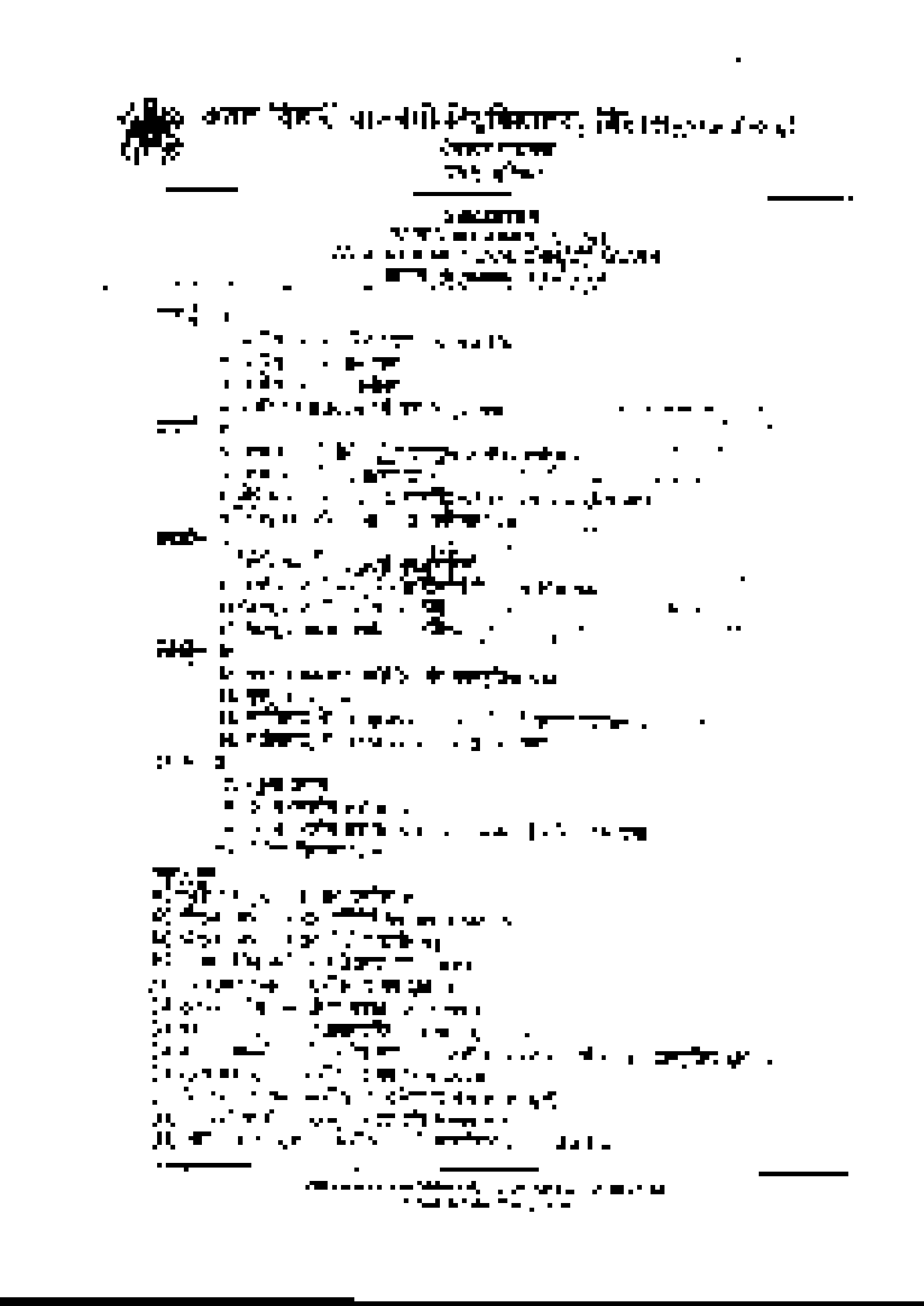

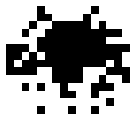

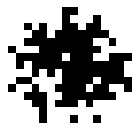

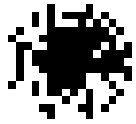

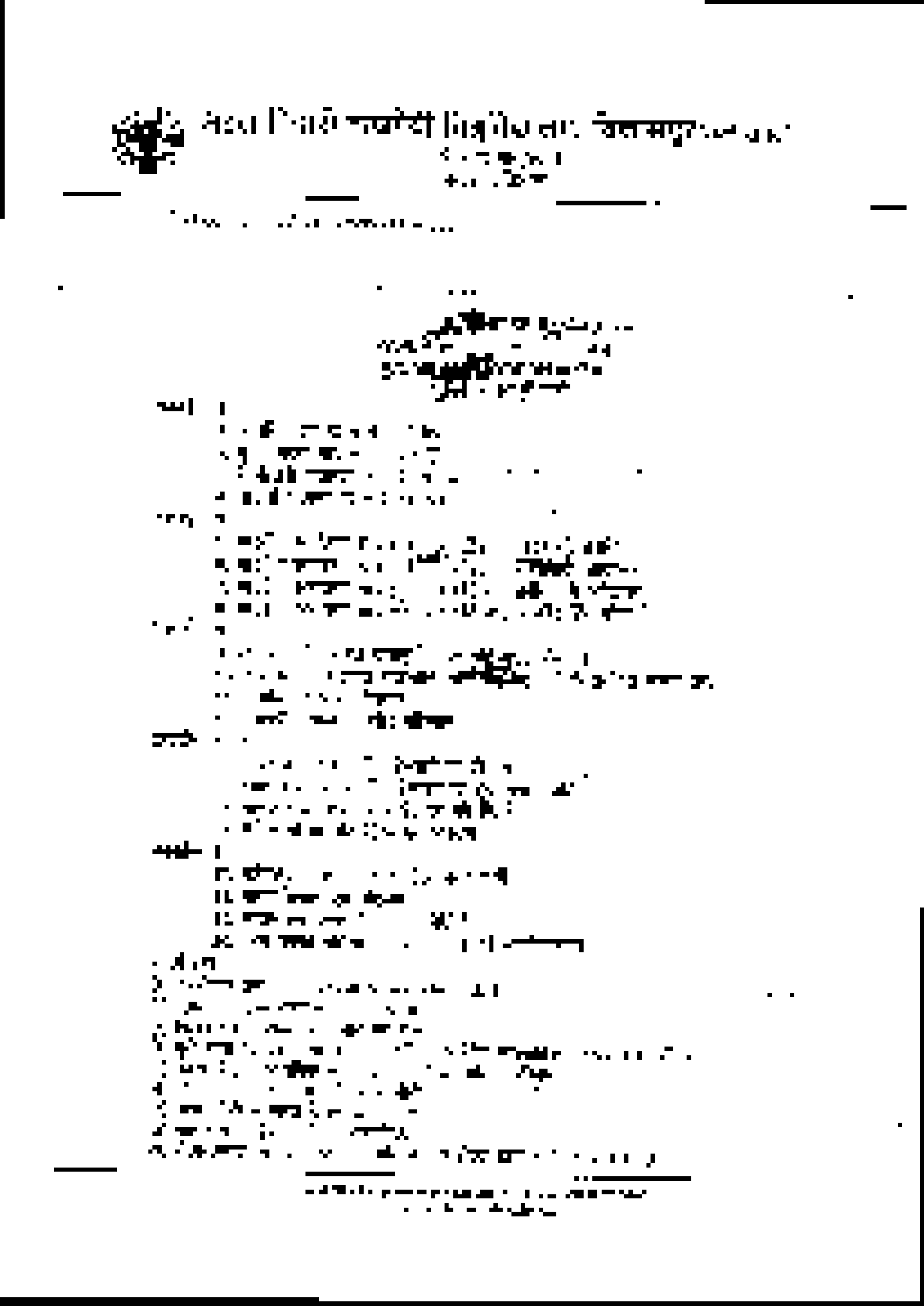

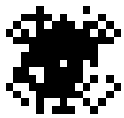

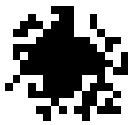

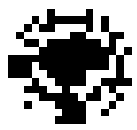

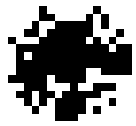

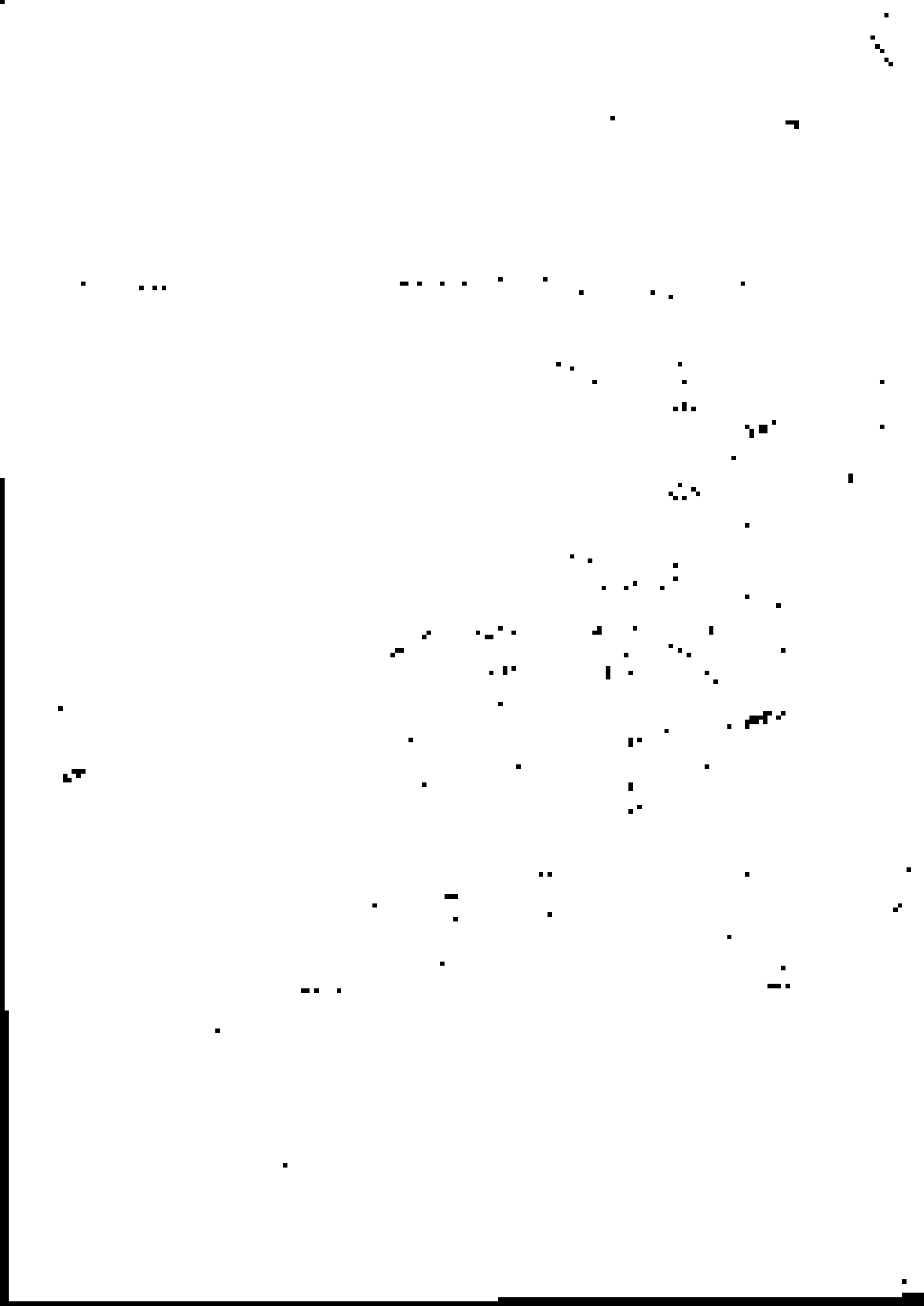

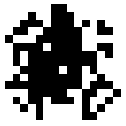

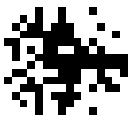

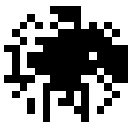

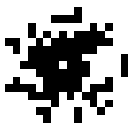

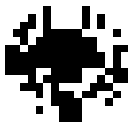

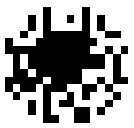

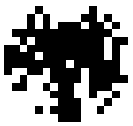

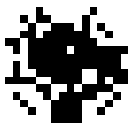

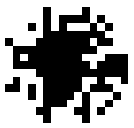

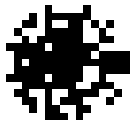

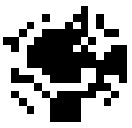

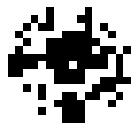

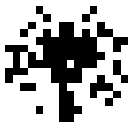

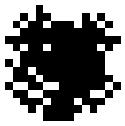

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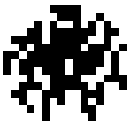

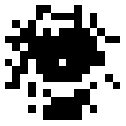

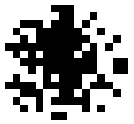

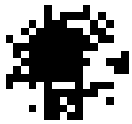

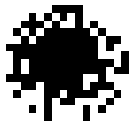

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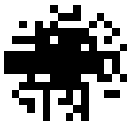

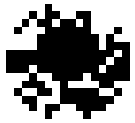

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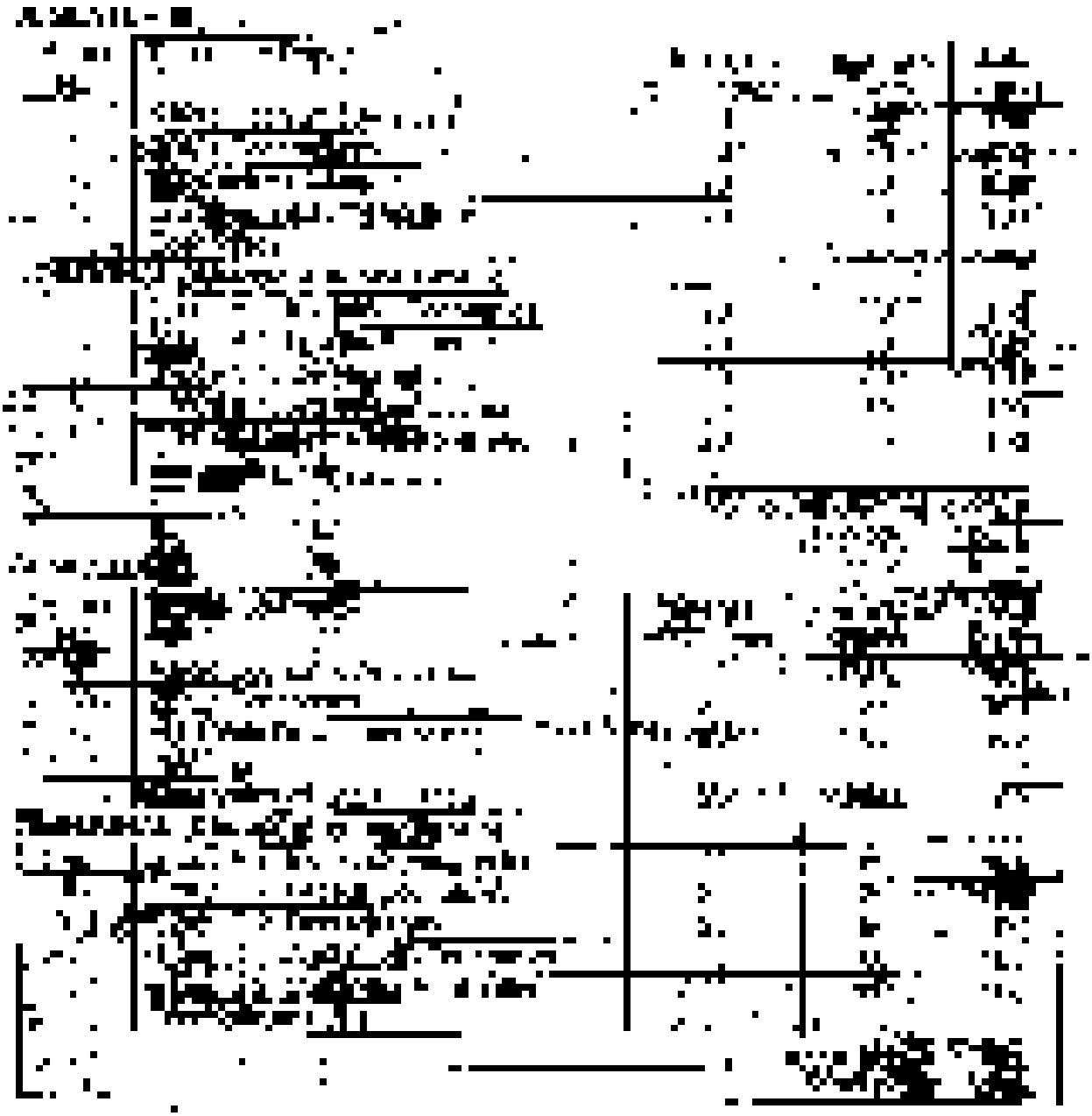

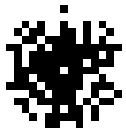

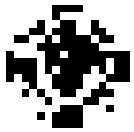

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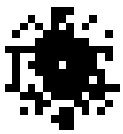

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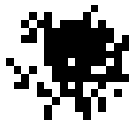

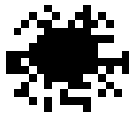

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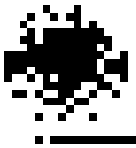

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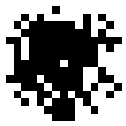

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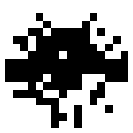

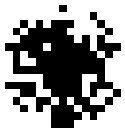

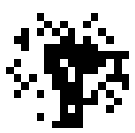

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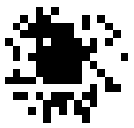

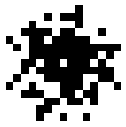

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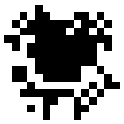

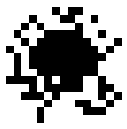

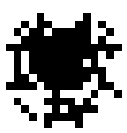

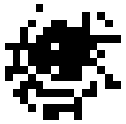

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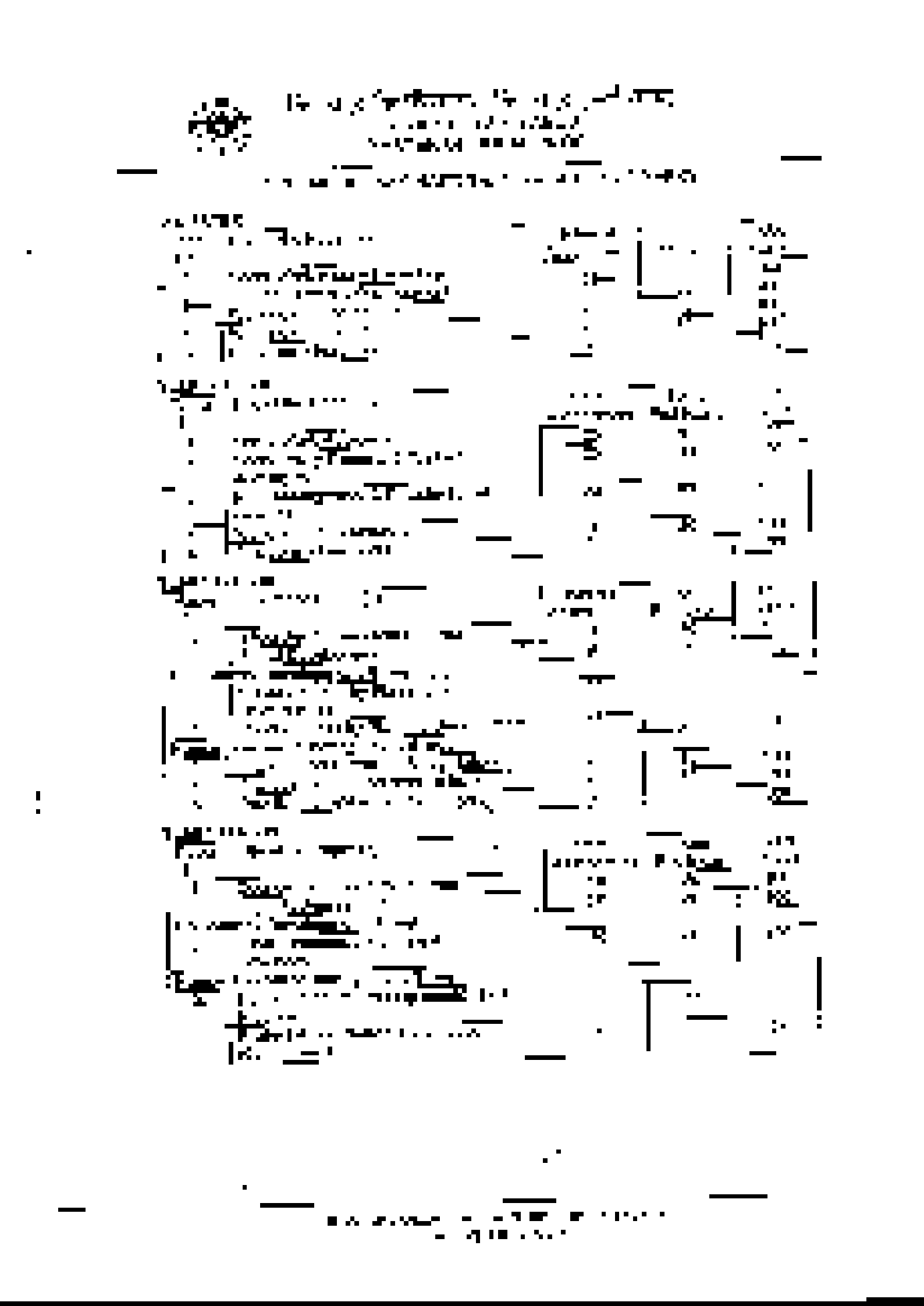

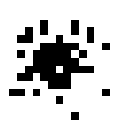

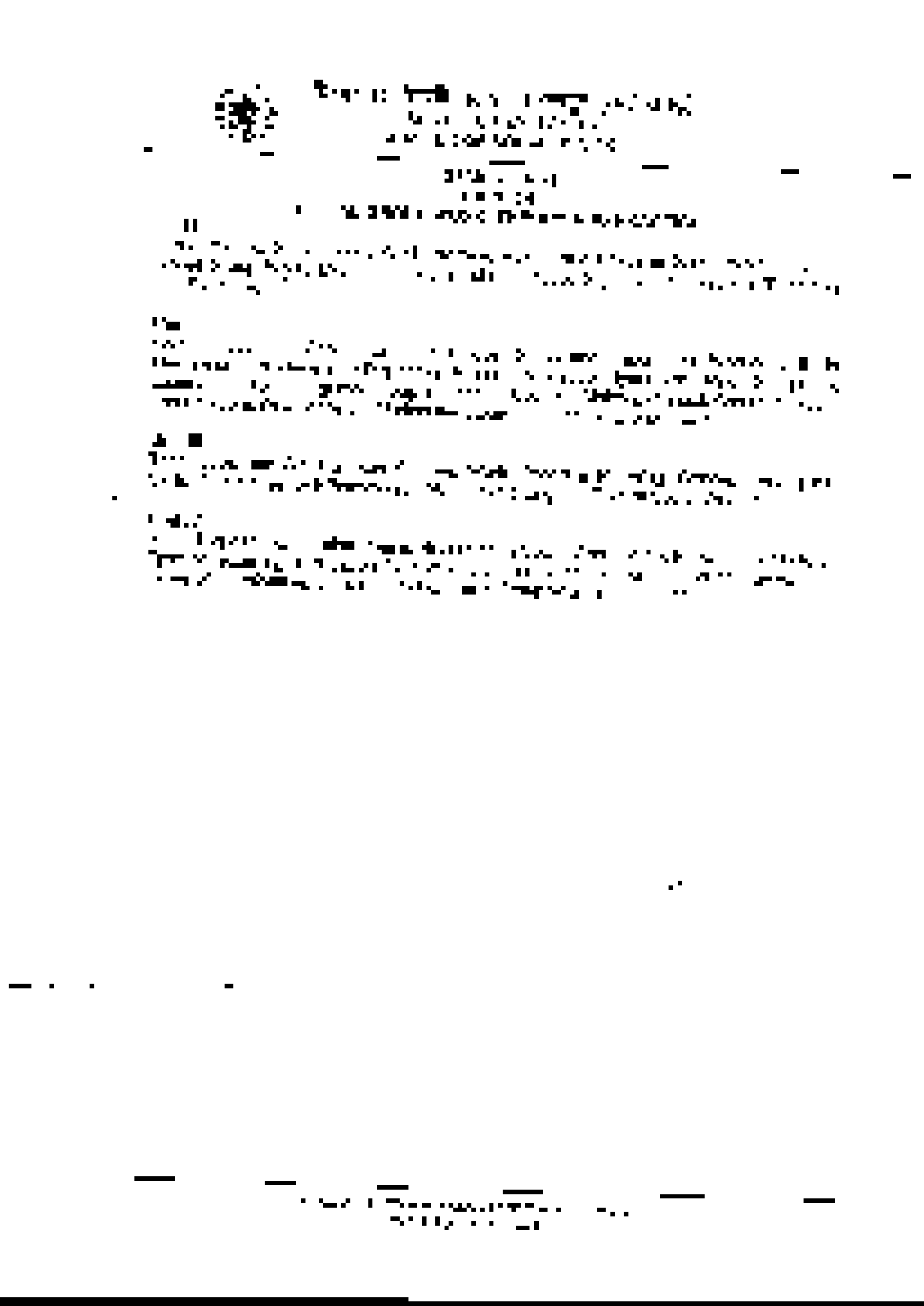

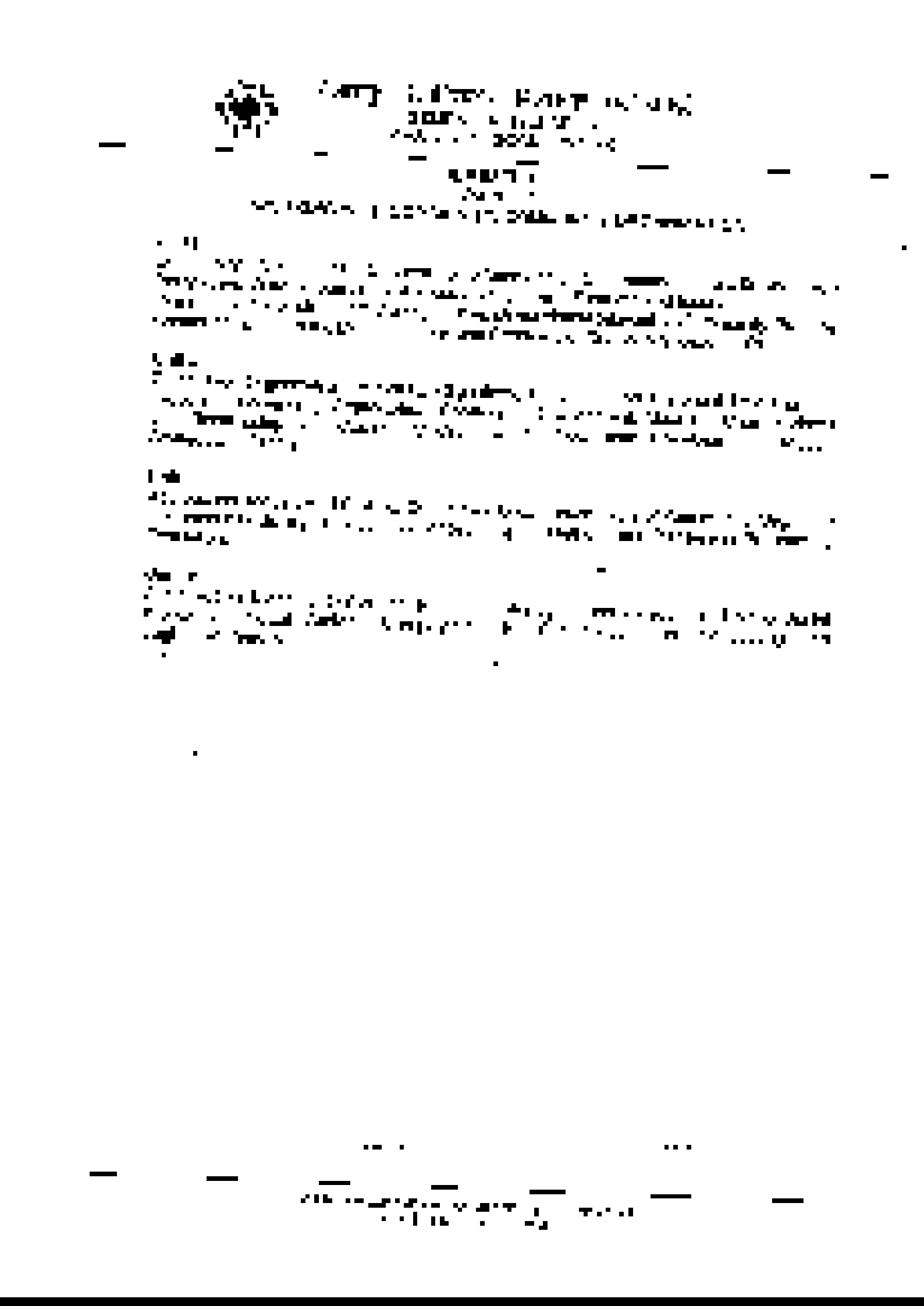

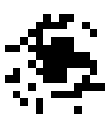

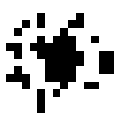

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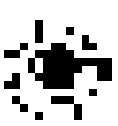

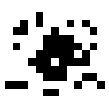

YEAR WISE PLAN
PGDCA

S.N.	Subject Name	End Semester Examination Maximum Marks	End Semester Examination Minimum Passing Marks
1.	Fundamentals of Computer and Information Technology	100	40
2.	PC- Packages and Computerized Accounting System	100	40
3.	Data Communication and Computer Network	100	40
4.	Programming using 'C' & C++	100	40
5.	Relational Database Management System (Oracle)	100	40
6.	System Analysis & Design	100	40
7.	PC Package and Tally ERP Lab	50	17
8.	C,C++ and Oracle Lab	50	17
9.	Project	100	40

PAPER-I
FUNDAMENTALS OF COMPUTER & INFORMATION TECHNOLOGY

UNIT- I

Introduction to Computer and Information Technology: Brief history of development of computer & generations of computer, Computer system characteristics. Capabilities and limitations block diagram of computer. Types of computer-Analog, Hybrid, digital, micro, mini, mainframe, super computer. Personal computer, types of PCs desktop, laptop, notebook, palmtop etc. Number system Data representation in computers, Number system of computers binary, octal, hexadecimal, representation & their conversion, Coding system ASCII, BCD, EDCDIC etc.

UNIT- II

INPUT/OUTPUT devices: keyboard, mouse, monitor, trackball, joystick, digitizing table, scanners, digital cameras, MICR, OCR, OMR, Bar-code reader, Voice recognition, light pen, touch screen, devices, printer, plotter.

UNIT- III

Storage device: Data storage and retrieval methods-sequential, direct and index sequential- various storage devices-magnetic tape, magnetic disks, cartridge tape, data drives hard disk drives, floppy disks, optical disks-CD, VCD, CDR, CDRW, DVD.

UNIT- IV

Computer software: types of software, system software, application software, operating system, utility program, assemblers, compilers and interpreter. Operating system functions, Types batch, single user, multi user, multiprogramming, multiprocessing, Programming languages, machine, assembly, high level, 4GL, their merits and demerits. Computer virus –types of virus, virus detection & prevention virus on network.

UNIT- V

Data Communication & networks: analog and digital signals, modulations, amplitude modular (am), frequency modulation (fm), phase modulation (pm), communication process, direction of transmission flow, simplex, half duplex, full duplex. Types of network LAN, WAN, MAN etc, Topologies of LAN ring, bus star, mesh and tree topologies, communication protocols TCP/IP protocol suit. Communication channels media twisted, coaxial fiber optic, serial and parallel communication, Network operating system (NOS), bridges, hub, routers, repeater and gateways. Modem working and characteristics. Types of connections- dialup leased lines, ISDN, broadband.

Text & Reference Books:

01. Computer fundamentals, P.K. Sinha, BPB
02. Computer today by S.K. Basandra Galgotia Publications.
03. Fundamentals of information by Axexos Leon & Mathews Leon, Vikas Publishing House, New Delhi

PAPER-II
PC PACKAGES & COMPUTERIZED ACCOUNTING SYSTEM

UNIT- I

Fundamental of DOS & Windows: Fundamental of DOS booting process, internal and external commands, creating and executing batch files and directories creating text files. Introduction to windows features, various versions of windows, origin of windows parts of windows screen types and anatomy of windows using.

UNIT- II

Introduction to word processing (MS-word): Advantages of word processing, editing a file using paragraphs, bullets, indentation, ect. Formatting features, printing the documents, it includes paper-size, margins, header and footer, page no., using macros. Advance word processing, header and footers. Finding text, mail merge and other application, mathematical calculations, table handing.

UNIT- III

Introduction to spread sheet (MS-Excel): Definition and advantages of electronic worksheet, working of spread sheet, range and related operations. Setting saving and retrieving work sheet file, inserting deleting coping & moving of data cells, inserting and deleting rows & columns, protecting cell printing a worksheet, erasing a worksheet, graphs, creation, types of graphs creating a chart sheet 3D column charts, moving and changing the size of chart, printing the chart.

UNIT- IV

Introduction to Powerpoint (MS- Powerpoint): Creating a presentation, inserting/deleting slides, different slide views, editing slides,. Slide transition & editing special effects inserting sound, picture, chart, organization chart.

UNIT- V

Accounting software Tally ERP 9: Basic principles of double entry accounting system, creating new company security controls, groups, ledger, voucher type, modifying, new company, voucher entry, generating profit & loss account, trial balance and balance sheet, backup & restore.

Text & Reference Books:

01. Comdex Computer Course Kit (Windows 7 with office 2010), Gupta vikas, Dreamtech Publication.
02. Mastering MS Office 2000, Professional Edition by Courter, BPB Publication.
03. MS Office 2000 Training Guide by Maria, BPB Publication.
04. PC Software, Ravi Taxalli, BPB
05. Computer Fundamental by P.K. Sinha
06. Financial Accounting with Tally 9.001 edition by Vikas Gupta.
07. Mastering Tally ... ERP 9 By A.K. Nandhani.

PAPER-III
DATA COMMUNICATION & COMPUTER NETWORK

UNIT- I

Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model.

UNIT- II

Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission.

UNIT- III

Multiplexing, LLC, error detection and correction, flow control, HDLC, LANs- applications, architecture, Ethernet, 802.3 LANs, token ring, FDDI, IEEE 802.6, circuit switching, packet switching, message switching, connection oriented and connectionless services.

UNIT- IV

Principles of internetworking– connection– oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices.

UNIT- V

Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)

Text & Reference Books:

01. Computer networks– A.S. Tanenbaum. PHI
02. Data communication and networking – Behrous A. Forouzan. TMH

PAPER-IV
SYSTEM ANALYSIS AND DESIGN

UNIT- I

The system concept: characteristics, elements and types of a system, the system development life cycle, considerations, for candidate systems prototyping. The role of system analyst.

UNIT- II

System planning and initial investigation: Information Gathering, information gathering tools. Structured analysis, the tools of structured analysis (DFD, Data Dictionary, Decision tree and Pseudo codes Decision Tables), PROS and CONS of each tool, system performance definition description of outputs, feasibility study. Cost/ Benefit analysis, Data analysis, Cost/ Benefit analysis, the system proposal.

UNIT- III

Stages of system design: Design methodologies, development activities, input design, output design forms design, types of forms, basics of form design layout considerations and forms control.

UNIT- IV

File structure: File organization, objectives of database, data structure, system testing and quality assurance, why system testing, what do we test for, the test plan quality assurance, trends in testing, role of data processing auditor, training and documentation.

UNIT- V

Implementing and software maintenance: conversion combating resistance to change, post implementation review, software maintenance, hardware/software selection and the computer contract, suppliers, procedure for hardware/software selection, financial considerations in selection, the computer contract system security disaster recovery planning.

Text & Reference Books:

01. System analysis and design, Elias M. Awad, Galgotia Publication (P) Ltd.
02. System analysis and design, International Ed. Perry Edwards, McGraw Hill Pub.

PAPER-V
PROGRAMMING IN C & C++

UNIT- I

Introduction to "C" Language: Fundamentals, simple I/O statements, reading and writing, data types constants, variable, operators & expressions, library function, control statements, if-else, while, do-while, goto, for statements switch, break, looping statements, functions recursion, arrays, multidimensional arrays, strings & pointers.

UNIT- II

Programming in C++, functions, class, object, constructor and destructor: Call by reference, call by value, return by reference, inline function, constant argument, function overloading, static member function, static data member,. Classes: implementing class, classes and members, accessing class members, implementing class methods, array of object, friend function. Constructor & destructors: parameterized constructor, multiple constructor, constructor with default argument, copy constructor, destructor.

UNIT- III

Operator overloading & type casting: Operator overloading, unary operator overloading, binary operator overloading, manipulates string using operator overloading, type conversions: basic to class, class to basic, class to class.

UNIT- IV

Inheritance, virtual function: single inheritance, multilevel inheritance, multiple inheritance, hybrid inheritance, hierarchical inheritance, virtual base class, abstract class.

UNIT-V

Pointer & File: Pointer to object, this pointer, virtual function and pure virtual function. File: opening and close file, detecting end of the file

Text Books:

01. Let us C by Yaswant Kanetkar BPB
02. Object oriented Programming with C++, E.Blagurusamy, Tata mc Graw-Hill
03. C++ Complete reference, Herbert Schildt, TMH.
04. ANSI C programming, E.Blagurusamy, TMH

PAPER-VI
RELATIONAL DATABASE MANAGEMENT SYSTEM (ORACLE)

UNIT- I

Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. Introduction to distributed database, client/server databases, object-relational databases, introduction to ODBC concept

UNIT- II

Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram.

UNIT- III

Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT...FORM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constrains: Not null, unique, check, primary key, foreign key, reference, triggers.

UNIT- IV

Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (INF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes.

UNIT- V

Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL

Text & Reference Books:

01. Database system concept, H. Korth and A. Silberschatz,TMH
02. Data Base Management System, C.J. Date, Narosha Publication.
03. An Introduction to database systems – Bipin Desai, Galgotia Publication.
04. SQL,PL?SQL Evan Bayross (2nd edition) BPB publications.

PC Package & Tally ERP Lab
Note: Practical should be as per syllabus of theoretical papers.

C, C++ & Oracle Lab
Note: Practical should be as per syllabus of theoretical papers.

PROJECT

Note:

01. It is compulsory, that students would have group of maximum of two students and project should be done under Government sectors/ Public Sector/ Pvt. Limited S/W Company/ Software Technology park of India/ ISO 9001 certified company etc.
02. The students should not make any project under local or private institutions.
03. The students should make project themselves and project will not be copy of other project.

Steps for Live Project

01. Getting customer's requirements
02. Designs, database and business logics.
03. Developing software application project.
04. Testing and implementing the project.
05. Troubleshooting the project application after implementation.

The break-up of marks for Practical will be as under :			
Sr. No.	**Argument**	**Maximum Marks**	**Minimum Passing Marks**
1.	Lab Record	10	
2.	Viva-voce	20	
3.	Program Development & Execution	20	
Total Marks		50	17

The break-up of marks for Practical will be as under :			
Sr. No.	**Argument**	**Maximum Marks**	**Minimum Passing Marks**
1.	Project Report	25	
2.	Viva-voce/ Presentation	25	
3.	Project Execution	50	
Total Marks		100	40