STRUCTURE OF QUESTION PAPER/DIVISION OF MARKS and
SYLLABI OF VOCATIONAL STREAM
FOR ADMISSION YEAR 2012
CLASS XII
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(iv) Travel and Tourism Techniques

1. Tourism Marketing

2. Computer Applications in Tourism

3. Accommodation and Hospitality Operations

(v) Banking

1. Advances and Foreign Exchange

2. Ancillary Services

3. Introduction to Computer Applications

(vi) General Receptionist

1. Elements of Book - Keeping and Accountancy

2. Communication and Correspondence

3. Elements of Computer Applications

(vii) Purchasing and Storekeeping

1. Purchase and Store Accounting

2. Elements of Business Law & Clearing Procedure

3. Elements of Computer Applications
(viii) **Basic Financial Services**

1. Accounting for Business  
2. Introduction to Financial Market  
3. Computer Applications in Financial Marketing

(ix) **Insurance**

1. Principles and Practices of Insurance  
2. Insurance Legislation  
3. Insurance Salesmanship

(x) **Rural Marketing**

1. Principles of Management  
2. Marketing Management  
3. Salesmanship

(xi) **Transport Services**

1. Infrastructure and Modes of Transport  
2. Transport Management  
3. ICT in Transport Industry

(xii) **Export Import Practice and Documentation**

1. Principles of Management  
2. Information Technology and E-Commerce  
3. Import Management

(xiii) **Rural Informatics Management**

1. Principles of Management  
2. ICT and E-Commerce  
3. E- Governance

(xiv) **Co-operation**

1. Elements of Book Keeping  
2. Principles of Management  
3. Cooperative Management

(xv) **Taxation Practices**

1. Elements of Books-Keeping  
2. Principles of Management
3. Fundamentals of Income Tax

(xvi) Marketing and Salesmanship
1. Principles of Management
2. Marketing Management
3. Salesmanship

III. HOME SCIENCE GROUP

(i) Food Preservation
1. Food Processing
2. Plant Management
3. Food Packaging

(ii) Commercial Garment Designing and Making
1. Dress Making
2. Commercial Clothing
3. Unit Management

(iii) Textile Designing
1. Textile Testing and Finishing
2. Textile Designing & Printing
3. Textile Dyeing

(iv) Textile Craft (Weaving)
1. Fabric Structure & Designing
2. Textile Testing and Dyeing
3. Powerloom Mechanics and Operations

(v) Knitting Technology
1. Textile Calculations and Garment Making
2. Circular Knitting
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<tr>
<td>3.</td>
<td>Industrial Leather Goods</td>
<td></td>
<td>98</td>
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</table>

### v. HUMANITIES AND OTHERS GROUPS

#### Commercial Art

<table>
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<td>2.</td>
<td>Design and Lay-out</td>
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<tr>
<td>3.</td>
<td>Technical Theory of Commercial Art</td>
<td></td>
<td>101</td>
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</table>
A. SCHEME OF STUDIES
12th CLASS EXAMINATION
(SENIOR SECONDARY CERTIFICATE EXAMINATION-II)
(VOCATIONAL STREAM)
ADMISSION YEAR 2012.... ONWARD

Subjects for Studies

(a) Compulsory Subjects : Every candidate shall offer the following subjects :

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Subject</th>
<th>Th.</th>
<th>Pr</th>
<th>CCE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>General English</td>
<td>50</td>
<td>-</td>
<td>25</td>
<td>75</td>
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<tr>
<td>2.</td>
<td>General Punjabi</td>
<td>50</td>
<td>-</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Or Punjab History and Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.*</td>
<td>Environmental Education</td>
<td>35</td>
<td>-</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>4.*</td>
<td>Computer Science</td>
<td>30</td>
<td>40</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>5.*</td>
<td>General Foundation Course (GFC)</td>
<td>35</td>
<td>-</td>
<td>15</td>
<td>50</td>
</tr>
</tbody>
</table>

Note: For the subjects mentioned at ‘*’ examination will be conducted at school level, grades will be assigned and sent to Board. But the question papers of the said subjects will be supplied by the Board & it will be compulsory for the students to score at least 33%marks/’D’ grade in these subjects to declare them pass. Grading criteria as mentioned below is same as that of academic stream.

For General Foundation Course (G.F.C) :

<table>
<thead>
<tr>
<th>Marks</th>
<th>Grading</th>
</tr>
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<tbody>
<tr>
<td>1. 90% and above</td>
<td>‘A+’</td>
</tr>
<tr>
<td>2. 75% &amp; above but less than 90%</td>
<td>‘A’</td>
</tr>
<tr>
<td>3. 60% &amp; above but less than 75%</td>
<td>‘B’</td>
</tr>
<tr>
<td>4. 45% &amp; above but less than 60%</td>
<td>‘C’</td>
</tr>
<tr>
<td>5. 33% &amp; above but less than 45%</td>
<td>‘D’</td>
</tr>
<tr>
<td>6. Less than 33%</td>
<td>‘E’</td>
</tr>
</tbody>
</table>

Note : To be declared ‘Pass’ a student has to clear General Foundation Course minimum with Grade ‘D’.

(b) Elective Subjects :

Every candidate shall offer any one trade relating to anyone of the following groups. (Each trade has three compulsory subjects of 70 marks each and 30 marks are for O.J.T.)

(i) Agriculture Group
(ii) Business and Commerce Group
(iii) Home Science Group
(iv) Engineering & Technology Group
(v) Humanities and Others Group
**Note**: 1. Six periods are for Library Studies/Extra Curricular Activities/Optional/Tutorials/Assignments.

2. Three weeks are for On-the-job training (O.J.T) every year based on the instructions sent by the Board from time to time.

3. In any subject if there is only one paper either of theory or of practical, the total marks for that subject will be 60 and the periods allotted will be ten.

4. Punjab School Education Board Regulations for Senior Secondary Examination are also applicable to vocational stream with certain exceptions.

5. The Board reserves the right to amend syllabus courses and/or scheme of studies as and when it considers necessary.

**B. General Foundation Course**

*Time: 3 hrs*  

**Theory:** 35 Marks  
**CCE:** 15 Marks  
**Total:** 50 Marks

**Structure of Question Paper**

In all, eighteen questions will be set from the prescribed syllabus. The question paper will comprise of three parts (Part-I, Part-II and Part-III). The questions will be evenly distributed from the prescribed syllabus.

Part-I will consist of Five objective type questions carrying 1 mark each. All questions will be compulsory to attempt. The answer of each question should not exceed more than one sentence.

Part-II will consist of eight short answer type questions carrying 3 marks each. Candidate will attempt any five questions out of these. A question may have two or
more parts. The answer of each question should not be more than one page of the answer sheet.

Part-III will consist of five questions carrying 5 marks each. Candidate will attempt any three question out of these. The answer of each question should not be more than Two pages of the answer sheet.

Syllabus
Part-A

1. Establishing the Unit

Procedures in setting up of an enterprise- Legal requirements; Registration of the firm, size, location, layout, sanitation, insurance etc.


Understanding the role & function of institutional network set up for promoting & supporting small entrepreneurs; Scope and benefits of assistance & incentive schemes of different institutions; Understanding the procedures & formats of application forms of institutions supporting entrepreneurs.

3. Resource Mobilization

Finance, raw-material, personnel etc. with specific product requirement. Network analysis with reference to specific product.

4. Market Assessment

Need and importance of market assessment; Components and techniques of market assessment; Nature of the product; demand analysis and assessment of consumer needs; supply analysis and market conditions; marketing practices with reference to storage, distribution, packing, credit policy, delivery, after sales service, selecting individual marketing practices; understanding the market, the market segmentation and product analysis; selecting a product and market survey for the selected product.

Part-B

5. Enterprise Management

a. Decision Making

Defining the problem, gathering information, analyzing information, identifying alternatives, selecting alternatives; A case exercise on decision making process.

b. Material Management


c. Financial Management
Accounting & book-keeping; Principles of double-entry system; Books of original record; Compilation and final accounts; Understanding financial statements; Cost concepts; Direct, Indirect & Marginal costs; pricing; budgeting and control; Preparing a small unit’s master budget; Problems in obtaining working Capital Finance.

d. Marketing Management

The Marketing Concept; The four P’s i.e. Product, price, promotion and physical distribution. Packaging; undertaking the consumer’s needs; Channels of distribution: Sole selling agents, whole-sellers, retailers, stockiest, distributors, Government purchase procedures vis-à-vis small scale suppliers, Sales Promotion & Advertising; Salesmanship, characteristics of a good salesman and dealing with customers.

e. Industrial Relation & Personnel Management

Methods and Process of Requirement; wages & Incentives; Appraisal & Trainings; Employer-Employee Relations.

f. Growth & Development, Modernization & Diversification

The concept and importance of growth; Ways of achieving growth; Diversification and modernization. Case discussion on small business growth from small business to an enterprise.

g. Industrial Visit and Presentation of Project Report

Identification of the product for self-enterprise/service unit and preparation of project report (individual work).

C. COMPULSORY SUBJECTS

Time :- 3 hours
Theory : 50 marks
CCE: 25 marks
Total: 75 marks

STRUCTURE OF QUESTION PAPER

Do all questions

Part-A (10 marks)

1. Objective type question (10 questions) based on total syllabus.
   a) Grammar 6 marks
   b) ‘I AM THE PEOPLE’ 2 marks
   c) ‘STORIES, PLAYS & TALES OF ADVENTURE’ 2 marks
Part-B (I Am The People) (19 marks)

2  a) Comprehension passage 8 marks
   b) Essay type question (one out of two) in about 100 words.  4 marks

3  a) Summary of a poem (1 out of 2 poems) 4 marks
   b) Translation from English into Vernacular. 3 marks

Part-C (Stories, Plays & Tales of Adventure) (10 marks)

4  a) Short answer type questions (3 out of 5 questions) 3x2=6 marks
   b) Essay type question (one out of two) in about 100 words. 4 marks

Part – D (11 marks)

5  a) Letter writing (personal) (one out of two) 6 marks
   b) Essay writing (Simple/Descriptive/Narrative) (one out of three) 5 marks

MARKING SCHEME FOR COMPREHENSION

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Questions</th>
<th>M.M. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name of the writer and the chapter</td>
<td>2 marks</td>
</tr>
<tr>
<td>2.</td>
<td>Short question</td>
<td>1 mark</td>
</tr>
<tr>
<td>3.</td>
<td>Short question</td>
<td>1 mark</td>
</tr>
<tr>
<td>4.</td>
<td>Short question</td>
<td>1 mark</td>
</tr>
<tr>
<td>5.</td>
<td>Match the following words with their meanings</td>
<td>2 marks</td>
</tr>
<tr>
<td>6.</td>
<td>Fill in the blanks with a suitable word from the passage</td>
<td>1 mark</td>
</tr>
</tbody>
</table>

INSTRUCTIONS FOR OBJECTIVE TYPE QUESTION

Objective type question will cover the whole syllabus.

Q1.a) Do as directed:

- Change the Tense (2)
- Change the Voice (2)
- Change the Narration (1)
- Common Errors
  - Or
- Simple Idioms (1)

b) One line answer questions from ‘I AM THE PEOPLE’. (2)
c) One line answer questions from ‘STORIES, PLAYS AND TALES OF ADVENTURE’ (2)

SYLLABUS

Book-1: I AM THE PEOPLE
1. The Portrait of a Lady
2. The Kite Maker
3. My Struggle for an Education
4. A Dialogue on Civilization
5. Paul Julius Reuter
6. The Appointed Day
7. No Time For Fear
8. Father Has a Bad Night
9. To Sir, with Love
10. Taming the Atom
11. Hunting Big Game with the Camera

Poems
1. I am the People-the Mob
2. Success is Counted Sweetest
3. Upagupta
4. The Little Black Boy
5. The Eagle
6. Snake
7. Confessions of a Born Spectator

Book-II: Stories, Plays and Tales of Adventure
1. Sparrows
2. The Last Leaf
3. My Brother, My Brother
4. The Other Side
5. My Lost Dollar
6. The Pomegranate Trees
7. The Model Millionaire
8. The Count’s Revenge
9. My Ordeal in a Jungle Air Crash
10. Escape Velocity
11. “Don’t Die, Graham! Don’t Die!” Please

I) GRAMMAR
(a) Tenses
(b) Voice (simple)
(c) Reported Speech (simple)
(d) Simple idioms
(e) Common errors

II) COMPOSITION
(a) Paragraph writing
(b) Letter writing (Personal)
(c) Essay writing (Simple/Descriptive/Narrative)
2. खलबी पेंसैंगी

अंतः : 3 पटें

खिसड़ी पेंसं: 50 अंब
सी.सी.सी: 25 अंब
पुष्पात-पृष्ठात सी पुष्प-वेंक

पत्रकारिता सीं अधिकाऱ्यां, बिदिशार्वीनं, उपवन मैट्रक अथवा पत्रकारिता सीं रिक्षेत्र विशेष विद्युमन।

पुष्पात: 1 पहिले पाठ-बुध पर अपना के मंडित पृष्ठात 20 भाग पहिले सार्वजनिक। जेब दिवस पुलित ए 1/2 अंब ए वेंबान।

अंबां दुं पहिले विशेष अधिकाऱ्यां उपवनी:

(१) पेंसैंगी मैडी अर्थात सी पाठ पृष्ठात :- 3 अंब(तेकचर, आवरण, लकड/ ठींक, कण-चंद, आवरण बंध, दिवस से प्रथम) 6 पुलित पहिले सार्वजनिक।

(२) सधारणां:- 1/2 अंब (बोहों ए पहिले ए पहिले दिवस)

(३) सवारीनां:- 1/2 अंब(पुष्पात पहिले)

(४) अधिकाऱ्यां: 1 पहिले (2 अपारीत अधिकाऱ्यां व्यास रसावन) 5 अंब

पुष्पात: 2 खलबी पेंसैंगी -12, मैडी अर्थात सी पाठ ए अधिकाऱ्यां बिच्चे अंत पुलित से विली पृष्ठात पुष्पात पहिले पहिले पहिले सार्वजनिक।

5×3=15 अंब

पुष्पात: 3 बाण-बिंगात से पृष्ठात सीं बिलों ए बिली दिवस बाँधक पहिले शिक्षात शिक्षाद शिक्षाद माहेता।

1 1/2 +4+1 1/2=7 अंब

पुष्पात: 4 मंडित-तक्षण बाम कही पाठ -पृष्ठात बिच्चे बिंग पृष्ठात बांधक। अधिकाऱ्यां पहिले बिंग दिवस एक बिंग रसावन भविष्यत ए निवास ए बिंग दिवस वेंबान।

4+1=5 अंब

पुष्पात: 5 पाठ-पृष्ठात बिंग करी कही अधिकाऱ्यां बिलों बिंग पृष्ठात बांधक सं दिवस र सीं बाणें संधिकार संस्तं शिक्षाद माहेता।

5×1=5 अंब

पुष्पात: 6 पाठ-पृष्ठात बिंग करी बिंग बिंगात से बिली दिवस ए पहिले बाणें बांधक पहिले शिक्षाद शिक्षाद माहेता।

5 अंब
पाठ-पुमड़व: 7 पंजाबी विभेदीं दे बागडीयां दे ले विभेद दा मान आपदे मस्तन विभेद निर्देश को हर विभेद 
मातृवा।

<table>
<thead>
<tr>
<th>तलावा हों:</th>
<th>पाठ-वाक्य</th>
<th>अंक</th>
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<tbody>
<tr>
<td>1.</td>
<td>पंजाबी मोहरामकात की साह-पुमड़व</td>
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<tr>
<td>2.</td>
<td>पंजाबी अन्ना निर्देश का पुनर्जन्म- वाग-यिहास दे पुंड,पंजे-वचार,</td>
<td>12</td>
</tr>
<tr>
<td>3.</td>
<td>दिखायज़: -अवधियां</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>पंजाबी-मार्गित:-विशिष्टां अन्य बागडीयां</td>
<td>14</td>
</tr>
</tbody>
</table>

कुल अंक 50

पाठ-वाक्य का निर्देश
1. पंजाबी मोहरामकात की साह-पुमड़व
   (पंजाबी मोहरामकात, पंजाब सा विभेद-पुमड़व, पंजाब दे धेऊ -विभेद, पंजाब धीरां हेब-वचार, पंजाब दे 
   वमह- विभेद, पंजाब दे भाग अन्य दिनियां, पंजाब दे धेऊ विभेद, पंजाब धीरां हेब धेऊ, पंजाब दे धेऊ-वोट, 
   पंजाब दे हेब-रच, पंजाब धीरां हवला यां विभेद)।
2. वमह-विभेद दे पुंड (मितु-पुमड़ी धीरां तम्म मर्यादा)।
3. संडेह-वचार (विभेदी गारी तमहा दा मितु मर्यादा दे पुंड दा संडेह वचार)।
4. अवधियां (अवधियां की दिखायज़ा देटी ला बदले एकादीयी)।
5. विशिष्टां अन्य बागडीयां
   (दिखायज़ा बागडीयां की तुच्छी हो पिभात विभेद उद्धेर दे पुंड बागडीयां लीना विभेद उदा पुंड बागडीयां लीना 
   पुंडता विशिष्ट)।

पाठ-पुमड़व

ढगारी पंजाबी-12 पंजाब मस्तन मोहरा वेदा रुझे पुर्वाहित

3. Punjab History And Culture

Time: 3 hrs

Theory: 70 Marks
CCE: 30 Marks
Total: 100 Marks

STRUCTURE OF QUESTION PAPER

1. There will be 22 questions in all. All questions will be compulsory.
   10 × 1 = 10

2. Question No. 1 to 10 will carry 1 mark each. Answer to each question should be 
in about 1 - 15 words.

3. Question No. 11 to 15 will carry 3 marks each. Answer to each question should 
be in about 30- 35 words.
   5 × 3 = 15
4. Question No. 16 to 20 will carry 5 marks each with 100% internal choice. Answer to each question should be in about 75-85 words. \[ 5 \times 5 = 25 \]

<table>
<thead>
<tr>
<th>TOPIC NO.</th>
<th>Questions carrying 1 mark</th>
<th>Questions carrying 3 marks</th>
<th>Questions carrying 5 marks</th>
<th>Questions carrying 10 marks</th>
<th>Total</th>
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<td>2</td>
<td>1</td>
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<td>5, 6, 7, 8, 9</td>
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<td>3</td>
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<td><strong>Total questions</strong></td>
<td><strong>10</strong></td>
<td><strong>5</strong></td>
<td><strong>5</strong></td>
<td><strong>2</strong></td>
<td><strong>22</strong></td>
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<tr>
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<td><strong>15</strong></td>
<td><strong>25</strong></td>
<td><strong>20</strong></td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>

5. Question No. 21 & 22 will carry 10 marks each. Answer to each question should be in about 250 - 300 words. Three will be 100% internal choice in these questions. The paper setter should not set more than one such question from one chapter. \[ 2 \times 10 = 20 \]

**SYLLABUS**

1. The great Mughals and their legacy to the Punjab.
2. Guru Nanak Dev Ji.
4. Banda Singh Bahadur and his martyrdom.
5. Sikhs became the Masters of the Punjab.
6. The Punjab under Maharaja Ranjit Singh.
7. The British occupation of the Punjab.
8. Some famous Legends of the Punjab:-
   a. Puran Bhagat  
   b. Heer Ranjha  
   c. Sohni Mahiwal
9. Classical Literature of the Medieval period.
4. ENVIRONMENTAL EDUCATION
ENVIRONMENTAL EDUCATION (Annual System 2012-13)
CLASS – XII

Time: 2hrs

Structure of Question Paper

1. There will be one theory paper comprising of 16 questions. All questions will be compulsory.
2. Question No. 1-5 are very short answer type questions carrying 1 mark each. Answer to each question will be in line or few words only.
3. Question No. 6-10 are short answer type questions carrying 2 marks each. Answer to each question will be in 20-30 words.
4. Question No. 11-15 are short answer type questions carrying 3 marks each. Answer to each question will be in 40-50 words.
5. Question No. 16 is long answer type question carrying 5 marks. Answer to this question will be in 80-100 words.
6. In Question no: 16, there will be 100 percent internal choice.
7. There will be no objective type questions such as yes/No, tick/cross, fill up the blanks, multiple choice, true/false etc.
8. The question paper should be strictly from the prescribed syllabus based on above mentioned guide lines.

Unit wise distribution of marks will be as follows.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit I Biodiversity</td>
<td>8- Marks</td>
</tr>
<tr>
<td>Unit II Environment Management</td>
<td>6- Marks</td>
</tr>
<tr>
<td>Unit III Sustainable Development</td>
<td>7- Marks</td>
</tr>
<tr>
<td>Unit IV Sustainable Agriculture</td>
<td>7- Marks</td>
</tr>
<tr>
<td>Unit V Environment Actions</td>
<td>7- Marks</td>
</tr>
</tbody>
</table>

SYLLABUS

Unit -1 Biodiversity

- Concept and value of biodiversity
- Levels of biodiversity species, eco and genetic.
- Balance in nature.
- Biodiversity for sustenance of mankind.
- Resource limitation.
- Ecological role of biodiversity.
- Interdependence among different species.
- India as a mega diversity nation.
- Economic potential of biodiversity.
• Loss of biodiversity-threatened, endangered and extinct.
• Strategies for conservation of biodiversity in situ and ex situ.
• Mitigating the people-wildlife conflict.

**Unit -II Environmental Management**

• Need for environment management vis-à-vis development.
• Aspects of environmental management-ethical, economic, technological and social.
• Legal provisions for environmental management.
• Approaches for environmental management-economic policies, environmental indicators, setting of standards, information exchange and surveillance.

**Unit -III Sustainable Development**

• Concept of sustainable development.
• Concept of sustainable consumption.
• Need for sustainable development for improving the quality of life for the present and future.
• Challenges for sustainable development-political and administrative will, dynamic and flexible policies, appropriate technologies, comprehensive review and revision mechanism, human approach.
• Development of skilled manpower.
• Role of individual and community.
• Role of national and International agencies (both governmental and non-governmental).

**Unit -IV Sustainable Agriculture**

• Need for sustainable agriculture.
• Green revolution-impact on environment.
• Importance of soil for crops. Irrigation systems, use of manure and fertilizers.
• Crop protection-major plant pests and diseases (wheat, rice, cotton sugarcane, potato), measures for their control-agrochemicals.
• Impact of agrochemicals on environment.
• Elements of sustainable agriculture-mixed farming, mixed cropping, crop rotation, biological and economic considerations, use of bio fertilizers and bio pesticides, biological pest control, integrated pest management.
• Application of biotechnology in crop improvement.
• Management of agricultural produce-storage, preservation, transportation and processing.
Unit V Environmental Actions

- Meeting basic human needs, food, water, shelter and fuel for all.
- Population control
- Changing consumption patterns.
- Prevention and control of environmental pollution,
- Waste management - reduce, reuse and recycle;
- Community movement for ecological restoration and conservation of environment like joint forest Management (JFM), student's participation in tree rearing, social and agro-forestry.

CCE

Example projects and Activities:

It is expected that student will undertake two projects or activities. These projects should be undertaken individually and student will prepare a report in each case. Teachers may plan and design projects and activities depending upon the local situations, available resources and environmental issues of concern. The projects and activities given below are only suggestive and not prescriptive.

- To study the status of an endangered species listed for region by collecting information through different sources and observation and to assess the reasons for its diminishing number. Suggest ways and means to protect the species.
- To conduct a survey of plants and trees in the locality and collect information about their cultural, economic and medicinal values from the local people and available literature. To prepare an action plan for afforestation and planting of trees as trees are the most valuable in terms of their cultural, economic importance and medicinal use.
- To study the practices followed in the region for storage, preservation, transportation and processing of perishable or non perishable farm products and to assess the extent of their wastage due to faulty practices.
- To make a list of raw materials used by the family for preparing different types of dishes. To identify the plants and their parts from which food material is obtained. To make a list of plants on which the animals depend for their food. To prepare a report supported by diagrams/photographs/pictures/ graphs to focus on the importance of biodiversity in providing food to human population.
To study the impact of changes in agricultural practices or animal husbandry including poultry, piggery, fishery and apiculture over a period of time in the local environment or in a given locality or village. The components for analysis may include: types of crop, land area under cultivation, mechanization, use of electricity, mode of irrigation and agrochemicals, agro wastes and their disposal, types of animal breed and their feed, types of shelter and health care, method of preservation and processing of products and animals wastes and their disposal. To suggest an action plan for modifying the prevailing practices so as to make them environment friendly and sustainable.
5. विभिन्न तरीके

<table>
<thead>
<tr>
<th>कक्षा नं.</th>
<th>आधिकारिक दर प्रति</th>
<th>बृहस्पति दिन</th>
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<th>2 अंकों के पृष्ठ</th>
<th>4 अंकों के पृष्ठ</th>
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पत्र दर्पण (डिल्ली पुलिस)

विभागों में विभाग की दुरुपयोगी

- भी बगल किस बदलाने चाहते हैं, जो अधिकारी, भी बुराबीर
- कार्यालय नियुक्ति
- भी बगल के रूप में कहा जा रहा कि नियुक्ति, जो देरे देरे की पहुँच चलती, दे कार्यकारिणी भी दे डिल्ली पुलिस
- निर्देशिकाविद नियुक्ति

1. सत्तिविड़ देवमात्रा दी बतवें
• बृहिभा
• चिन्हरेखात्र अथवा मटिविद्वेषित
• पूजाभ मटिविद्वेषित ती मंदिरिता मूलचित्र बायकी
• मटिविद्वेषित पुण्यत्र अथवा दिनिका पुण्य लिंग, मटिविद्वेषित, मार्गित त्रै मटिविद्वेषित पुण्यत्र
• मस्तर्ट हिस्प्टर्ट आर्दर्यप्दर्त
• मटिविद्वेषित पुण्यत्र मटिविद्वेषित (strcat () function)
• मटिविद्वेषित स्ट्रम (strcmp () function)
• मटिविद्वेषित स्ट्रिम (strlwr () function)
• मटिविद्वेषित स्ट्रिम (strrev () function)
• मटिविद्वेषित स्ट्रिम (strupr () function)

पूजाभ विविधता - 1

पूजाभ मटिविद्वेषित मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै

पूजाभ विविधता - 2

पूजाभ मटिविद्वेषित मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै

पूजाभ विविधता - 3

पूजाभ मटिविद्वेषित मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै बढ़ते घरंग त्रो मटिविद्वेषित त्रै

2. पूजाभ विविधता देशसभात

• बृहििवा
• छिन्हरेखा देशसभात सत्यवेदनी देशसभात पूजाभ दीपसूचीदेशसभात, देशसभात त्रै समुदाय
• आभुुिंग मात्र पूजाभभििग
• हृिंग लाभ
• भुिीिंग देशसभात पूजाभ
• देशसभात त्रै घटबृहििग
• छिन्हरेखा देशसभात देशसभात, मिलख छिन्हरेखा
• देशसभात त्रै यथिँग बाली
• देशसभात यथिँग आभुुिंग, विनविन छिन्हरेखा भुिंग
• सत्यवेदनी देशसभात
• ऋषिवेदनी देशसभात
• देशसभात यथिँग आभुुिंग, बिनविन भुिंग त्रै

3. विनेश दुुिी मेधः - 1

• बृहििवा
• पूजाभ दीपसूची दुुिी मेधः त्रथ भुिीिि दुुिी, भुिीिि दुुिी, पिििििि दुुिी
• बर्णबालसभात, पूजाभ भुिीिि त्रै मार्गित
• मार्गित दुुिऀि
• बूढ़ों देभज दोबारासम
• आद्वी पेपच दोबारासम
• वैदेश दोबारासम तो नृत्य व शेड बनान, भोजन करना बनाना मंग च. मी. नाब. (V.C.R) दर बीलास क वैदेश (capture) वचन तार सभा
• तीमला तीर्थी बैग नाग या मी. नाब दर IEEE 1394 पेपट तार सभा, भाषीवेदना दर धार पेटच संग पू. मी. बी. पेपट तार सभा
• विधेश मूली भेक बिडवेदना ता मीठा ऊपर एं टूच-पल, पल, मोटी-वेह तां टाफीह टफीह पेपस, बेरबान तें, वारफाभेन पें, टीज्हक, वें तें, मेटीब
• मदलीबाद : मदली बेंक दी बंद, मदली बेंक दी विधास्त
• विधेश मूधीभेद दी बनें : मूधी टाफम पें, बौढी देपच, टेरियट बौढी, विभितीबीडीबीडी
• बेरबान, मयाभ घटत, मदवी हट घटत, बौढी टैव, आद्वी तैव, टाफोट टैव
• उड़ून भार विधेश मूधीभेद (hands on windows movie maker) : तिझु पूनेवेट फूलुटा, आपटे, वैपीटुट दें बौढी दिमावेट वटास, दिमावेट दिमावेट वटास
• बौढी मतील / मेटीबा व बिभिन्न टू सेट, तिझु बेंकवाम घटटुटर, आद्वी मंग बौढी टू दे बागां बिंक बेंडर, मयाभ बौढी एवी आद्वी मंग बौढी टू नर्गर, बिभिन्न टू वैदेश बिंक वार्षी वटास, दिए बौढी मंग मेटीबा बुझी विभास हेंडोरी

4. बिंडे मूधी मेयां - 2

• बूढ़ोंवा
• टाफीह-टफीह बिझु
• मदली बेंक बिंक बौढी बिभिन्न नेंजरा
• मदली बेंक बिङ टाफम टू वैडीह बार वटास, टाफीह टफीह दा बुझी वटास उंडे विभिन्न वेंज्रास, हिज बौढी मंग उंडे वेंजरा
• विभिन्न दी टाफीह दा विभिन्न दी बार्षी वटास, हिज विभिन्न दी टाफम मंग बार्षी बार्षी, टार्क पुष्पीह टू माब वटास, टूटे उंडे बौढी विभिन्न वटास टू आद्वी बिंक नर्गरा, मूधी मंग भेक बार्षी,
• बौढी टाफमिन्न, बौढी दिब्बेस्टम, टाफोट भान बौडियेदम, बौढी बिन्नमिन्न टू सागु वटास, बौढी दिब्बेस्टम नंतर, टाफोट दे बौडियेद, पी-बिझु मूधी टाफोट, आद्वी भेक बार्षी, आद्वी मंग विवाह रट भाजीह वटास, आद्वी विभिन्न दू टाफीह टफीह बिझु, वेडिटिया आद्वी, बौढी मंग आद्वी भेक मंग बार्षी वटास ।

5. इतिहासविज्ञान मेंजर र्म

• बूढ़ोंवा
• इतिहासविज्ञान की उंडे हे, इतिहासविज्ञान की नंदा, इतिहासविज्ञान तमीलीमिन्नी
• इंडियन हॉल मिन्नी
• इतिहासविज्ञान : टाफेडमी की उंडे हे, इंडियन टेपेंडे बीआं मूध विभिन्न, कीडीबाध भान टेपेंडे, मलग - टेपेंडे, टी-टेपेंडे, भेज-टेपेंडे, भाग्य, मी-टेपेंडे
• पुंडितविज्ञान : पुंडितविज्ञान विभिन्न केवेल (या भेक भेक) बौढी टाफमिन्न पुंडितविज्ञान भान उपीवेदतेमिन्न टाफमिन्न पुंडितविज्ञान (बौढी टाफमिन्न पुंडितविज्ञान, उपीवेदतेमिन्न टाफमिम्म पुंडितविज्ञान), पुंडितविज्ञान इतिहासविज्ञान
• चेतना की विध्बशत : मंचाण वेतन की उंडे हे, काट बाजीह दर
6. चार्टरीय डेवलपमेंट

- डेवलपमेंट
- मात्रवेत्र डेवलपमेंट (Strlen())
- मात्रेवी डेवलपमेंट (Strcpy())
- मटलीट डेवलपमेंट (Strcat())
- मटलेख डेवलपमेंट (Strcmp())
- तीटचह डेवलपमेंट (getchar())
- पुटचह डेवलपमेंट (putchar())
- पिट्टमेड डेवलपमेंट (Printf())
- मैरेटमेद डेवलपमेंट (Scanf())
- वेम डेवलपमेंट (Cos())
- ओवलफ डेवलपमेंट (Exp())
- एंड डेवलपमेंट (Pow())
- सववट डेवलपमेंट (Sqrt())
- ओमचेंद डेवलपमेंट (fmod())
- डेवलपमेंट (Fabs())
- सीस डेवलपमेंट (Ceil())
- सीसेंट डेवलपमेंट (floor())
- फिक्सलेख आउट सिसलेख डेवलपमेंट (islower() and isupper())
- फुलिख आउट फुलिख डेवलपमेंट (tolower() and (toupper())
- डेवलपमेंट दे साफ

7. डी-गवर्नन्स (e-Governance)

- डी-गवर्नन्स दे पूज़ा घोषणा:
- पाट धरत, उन रख्तें, बिदे बी, बी बोध, भास्कर पूर्ण
- डी-गवर्नन्स दे बॉड्जी-मॉड्जी बंदवरँडेंडिमंड, बैंकिंग, अटॉ-साइट इंटरनेट आउट उच्ची टिकडिटां, आटॉ- 
  टिकडिटां, डी-टिकडिटां, इम्पॉर्ट अंतर्गत
- भविष्य मंत्र

बंधिितरत मार्केट (पूजेली)
अनावरणी क्षेत्र (पूजेली पूकिम्बर)

माध्यम: 3 पृष्ठ

पूकिम्बर कर्तांक अंक संख्या इच्छिय क्रमांक बेडिएली:

<table>
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<tr>
<th>माध्यम - दे</th>
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<th>माध्यम - दी</th>
<th>पूकिम्बर डिवेलपमेंट डेवलपमेंट</th>
<th>माध्यम - दी</th>
<th>पूवालभ डिवेलपमेंट डरकिल</th>
<th>माध्यम - दी</th>
<th>पूवालभ</th>
<th>माध्यम - दी</th>
<th>पूवालभ</th>
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माध्यम: 41
1. मैंने नैचर साइन्सीय लेख में पढ़ा क्योंकि पूनात पृष्ठ पर है और मैं उसके साथ लिखना।
    पूनात पृष्ठ अभ्यास के दौरान तथ्य संबंधित किया था। संबंध रिसर्च के दौरान विभिन्न अध्ययन के लिए जो कुछ देख हो अक्षरांश वेवदास।

2. मैंने नैचर साइन्सीय लेख में पढ़ा क्योंकि पूनात पृष्ठ पर है और मैं उसके साथ लिखना।
    पूनात पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पर है और मैं उसके साथ लिखना।

3. मैंने नैचर साइन्सीय लेख में पढ़ा क्योंकि पूनात पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पर है और मैं उसके साथ लिखना।
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4. मैंने नैचर साइन्सीय लेख में पढ़ा क्योंकि पूनात पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पृष्ठ पर है और मैं उसके साथ लिखना।
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पाठ बुन (पूनात पृष्ठ)

1. महत्त्व द्वारा ली हुई विषये
   - महत्त्व द्वारा ली हुई विषये, जिन्हें लिखित विषयों से संबंधित
   - पूनात पृष्ठ में ली हुई विषये: विषय विषय विषय
   - महत्त्व द्वारा ली हुई विषये: अन्य विषय
   - महत्त्व द्वारा ली हुई विषये: विषय
   - महत्त्व द्वारा ली हुई विषये: (I/O getchar(), putchar(), printf())
   - महत्त्व द्वारा ली हुई विषये: (string.h)

2. पूनात पृष्ठ विषय-1
   - पूनात पृष्ठ विषय-1, जो पूनात पृष्ठ विषय-1
   - महत्त्व द्वारा ली हुई विषये: विषय
   - विषय
   - अन्य विषय

3. पूनात पृष्ठ विषय-2
   - पूनात पृष्ठ विषय-2, विषय
   - महत्त्व द्वारा ली हुई विषये: विषय
   - विषय
   - अन्य विषय
5. कार्योंकी डेवलपर

- डेवलपर
  - मात्रेशेत्र डेवलपर (Strlen() )
  - माटेयरील डेवलपर (Strcpy() )
  - माटीट डेवलपर (Strcat() )
  - माटेवेक्स डेवलपर (Strcmp() )
  - ग्रेंटचर डेवलपर (getchar() )
  - पुटचर डेवलपर (putchar() )
  - प्रिंटफेड डेवलपर (Printf() )
  - मेटेउफेड डेवलपर (Scanf() )
  - बिंग डेवलपर (Cos() )
  - ब्रेंक डेवलपर (Exp() )
  - सबर डेवलपर (Pow() )
  - समतल डेवलपर (Sqrt() )
  - ब्राह्मण डेवलपर (fmod() )
  - डेवलपर डेवलपर (Fabs() )
  - मीडिया डेवलपर (Ceil() )
  - फ्लोर डेवलपर (floor() )
  - तिलीम और तिलीम डेवलपर (islower() and isupper() )
  - फ्लोर और तिलीम डेवलपर (tolower() ) and (toupper() )
D STRUCTURE OF QUESTION PAPER
FOR ELECTIVE SUBJECTS
(Theory)
For question paper carrying 25 marks (Theory) each (except those specified at *)

NOTE: The length of the answer to a question for all 12th class vocational stream subjects depends upon the nature of the question. The suggested limit is only a guideline for the students to answer a question in limited space and limited time. This practice will help him in competitive tests.

*SUBJECTS HAVING 60 MARKS THEORY ARE:-

<table>
<thead>
<tr>
<th>GROUP</th>
<th>TRADE</th>
<th>SUBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering &amp; Technology</td>
<td>Computer Techniques</td>
<td>Advanced Mathematics &amp; Computer Commercial Applications</td>
</tr>
<tr>
<td>Humanities &amp; Others</td>
<td>Commercial Art</td>
<td>Technical Theory of Commercial Art</td>
</tr>
</tbody>
</table>

Time: 2 hrs
Time : 3 hrs

Theory: 25 Marks
Practical: 35 Marks
CCE: 30 Marks
Total: 90 Marks

Structure of Question Paper

In all, fourteen questions will be set from the prescribed syllabus. The question paper will comprise of three parts (Part-I, Part-II and Part-III). The questions will be evenly distributed from the prescribed syllabus.

Part-I will consist of Five objective type questions carrying 1 mark each. All questions will be compulsory to attempt. The answer of each question should not exceed more than one sentence.

Part-II will consist of seven short answer type questions carrying 3 marks each. Candidate will attempt any five questions out of these. A question may have two or more parts. The answer of each question should not be more than one page of the answer sheet.

Part-III will consist of two questions carrying 5 marks each. Candidate will attempt any one question out of these. The answer of each question should not be more than Two pages of the answer sheet.
For question paper carrying 60 marks (Theory) each.

Time: 3 hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

Structure of Question Paper

In all, twenty seven questions will be set from the prescribed syllabus. The question paper will comprise of three parts (Part-I, Part-II and Part-III). The questions will be evenly distributed from the prescribed syllabus.

Part-I will consist of ten objective type questions carrying 1 mark each. All questions will be compulsory to attempt. The answer of each question should not exceed more than one sentence.

Part-II will consist of twelve short answer type questions carrying 4 marks each. Candidate will attempt any eight questions out of these. A question may have two or more parts. The answer of each question should not be more than one page of the answer sheet.

Part-III will consist of five questions carrying 6 marks each. Candidate will attempt any three questions out of these. The answer of each question should not be more than two pages of the answer sheet.

Or

In any other case, the structure of question paper having 60 marks theory precedes the syllabus of particular subject.

E. STRUCTURE OF QUESTION PAPER FOR ELECTIVE SUBJECTS
(Practical)
For Question Paper carrying 35 marks (practical) each (except those specified at **)

**SUBJECTS HAVING 60 MARKS PRACTICAL ARE:-

<table>
<thead>
<tr>
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<th>SUBJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering &amp; Technology</td>
<td>1. Engg. Drawing and Drafting</td>
<td>a. Engineering Drawing</td>
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<tr>
<td></td>
<td>2. Mechanical Servicing (Genl.)</td>
<td>b. Engineering Drawing</td>
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<tr>
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<td>b. Design and Lay-out</td>
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</tbody>
</table>
**Time: 3 hrs**  
**Practical: 35 Marks**

Distribution of marks will be as follows:

(i) Practical note book/sessional work/visits/project work.  
(ii) Viva Voce  
(iii) Actual Performance

**Major Practical:**

In all, three practical will be asked from the prescribed syllabus. Candidate will be asked to choose any two out of these. The Practical examiner will ask the candidate to perform any one practical out of the two chosen by him.  

**Minor Practical:**

In all, three practical will be asked from the prescribed syllabus. Candidate will be asked to choose any two out of these. The Practical examiner will ask the candidate to perform any one practical out of the two chosen by him.

For question paper carrying 60 marks (practical) each
(Except those specified at **)  
**Time: 3 hrs**  
**Practical: 60 Marks**

Distribution of marks will be as follows:

(i) Practical note book/sessional work/visits/project work.  
(ii) Viva Voce  
(iii) Actual Performance

**Major Practical:**

In all, three practical will be asked from the prescribed syllabus. Candidate will be asked to choose any two out of these. The Practical examiner will ask the candidate to perform any one practical out of the two chosen by him.  

**Minor Practical:**

In all, three practical will be asked from the prescribed syllabus. Candidate will be asked to choose any two out of these. The Practical examiner will ask the candidate to perform any one practical out of the two chosen by him.

**Or**

In any other case, the structure of question paper having 60 marks Practical precedes the syllabus of particular subject.
F. GENERAL INSTRUCTIONS TO THE PAPER SETTERS

(Theory)

1. The paper should be strictly from the prescribed syllabus or according to guidelines given under the structure of question paper.
2. The language should be simple and to the mental level of the students.
3. The standardized form of the technical terminology should be used.
4. The question in the paper should be evenly distributed throughout the syllabus.
5. There will be any objective type question like Yes or No, tick or cross, fill in the blanks, multiple choice etc.
6. Due weightage should be given to numerical problems wherever required.
7. Marks for every part/sub-part should be shown on the question paper itself.

PRACTICAL

1. The question paper will be set on the spot by the practical examiner himself.
2. The practical examiner will set the question paper on the spot based upon the instructions & prescribed syllabus. The examiner must send one copy of the question paper for Board's record. The second copy of the question paper must be kept by the examiner.
3. A group of students should be examined in given time.
4. Separate question paper should be set for each group.

G. ON-THE-JOB TRAINING

**Time: 3 weeks**  
**M. Marks: 30**

**INTRODUCTION:**

On-the-job training is an essential component of effective Vocational Education and Training. The Heads of Vocational Schools have to play a vital role in this regard.

**IDENTIFICATION OF TRAINING CENTRE:**

The Head of the institution will identify the Training Centres in consultation with liaison agencies and local community. Any reputed Industrial Organisation/Workshop/Office/Shop situated in the neighbourhood of the school can be the training centre.

**GROUPING OF STUDENTS:**

After the identification of Training Centres the Head of school will group the students under the guidance of a group incharge, the concerned vocational master. There should not be more than 10 students in a group.
DURATION:

On-the-job training will be for three weeks in all. It will be conducted after the completion of the annual Syllabus. It can be conducted at more than one centre depending upon the facilities available at the training centre/s. The schedule may be framed by the Head of the school in consultation with the competent authority of the training centre/s.

EVALUATION:

The competent authority at the training centre will evaluate the conduct, work, aptitude, gained experience, efficiency etc. of the student and will issue the training certificate on the Performance Sheet.

PREPARATION OF AWARD LIST:

On the basis of the training, certificate marks will be allotted to the student by the group incharge. These marks will be listed in the Award List against the Roll No. of the student issued by the Board. The Award List duly countersigned by the Head of the institution will be sent to the Board.

Training certificates of the students should not be sent to the Board. These may issue to each student after the declaration of their result.

CERTIFICATION:

The marks obtained by the student will be reflected in the Detail marks card issued by the Board. On-the-job training will be counted as a subject and it will be compulsory to pass this subject to pass the examination as a whole.

H. ELECTIVE SUBJECTS
I. AGRICULTURE GROUP
   (i) HORTICULTURE

PAPER-1 Landscaping and Floriculture

Time: 2 hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

SYLLABUS

- Importance, definition, status and scope of landscaping and floriculture.
- History and types of gardens.
- Principles of landscaping.
- Design and layout of gardens for home, school, college, public buildings, modern parks.
- Essential and decorative components and features of gardens-gate, lawn, shrubbery, flower beds, borders, paths, hedges, edges, steps, statues, fountains,
• Study of Indoor gardening, Rock gardening.
• Important Ornamental trees, shrubs, climbers and groundcovers, their selection based on landscape value and use, their planting and maintenance.
• Establishment and maintenance of lawns.
• Cultivation of bedding plants, bulbs and pot plants.
• Cultivation of the following flower crops with respect to soil, climate, varieties, propagation, method and time of planting irrigation, weeding, pest control. Time of flowering, harvesting packing and marketing: Rose, chrysanthemum, gladiolus, marigold, carnation, tuberose, jasmine.
• Study of the flower arrangements, flower shows and exhibition, packing and storage of cut flowers. Study of cacti and succulents.
• Seed production of important seasonal flowers.
• Marketing of indoor plants and cut flower.
• Gardening operation like staking, disbudding and pinching.

PAPER-I Landscaping and Floriculture Practical: 35Marks

PRACTICAL SYLLABUS

• Planting and maintenance of lawn.
• Identification of landscape trees, shrubs/climbers and ground covers.
• Planting shrubbery, hedges and edges.
• Potting and repotting.
• Garden operations- staking, training, pruning, desukering, pinching, disbudding, topiary.
• Landscap plan (i) modern bunglow (ii) Public place (iii) park
• Identification of Seasonal flowers.
• Preparation of nursery; beds and sowing of seeds of seasonal flowers.
• Propagation of rose, chrysanthemum, and marigold.
• Harvesting, cleaning, grading and packaging of cut flowers.
• Preparation of garlands and bouquets.
• Arranging pots and materials for special decorations.
• Visits to flower growers fields, gardens and flower shows and markets.

32
THEORY
SYLLABUS

- Introduction, present status and future prospects of plantation, spice, medicinal and aromatic crops.
- Commercial cultivation of the following with respect to soil, climate, improved varieties, propagation and nursery techniques, lay out and planting, cultural practices, water management, weed control, plant protection, harvesting, processing, products, storage and marketing of the following.
  
  **SPICE CROPS** : Cinnamon, ginger, turmeric, fennel, cumin and coriander.

  **MEDICINAL CROPS** : Dioscorea, periwinkle, sarpagandha, ashwagandha, steroid bearing solanum, isabgol, senna and liquorice, alovera, geloe, tulsi, stevia.

  **AROMATIC CROPS** : Lemon grass, citronella, palmarosa, vetiver (khus), geranium, patchaouli, davana, mints and rosemary.

  **BEE KEEPING** : Importance and scope, bee species and honey bee colony; bee keeping procedures; social behaviour, bee hives and their equipments; apiary management practices; products of bee hive; diseases and enemies of honey bees, pesticidal enemies of bees and economics and marketing of honey.

  **MUSHROOMS** : Their types, environmental requirements, containers, media and its preparation, disinfection, seeding, look after and care, harvesting, dehydration and packing. Preparation and maintenance of culture.

  **VERMICULTURE** : Introduction, Role of Earthworms, Organic Wastes, Advantages of vermiculture, vermicomposting, application of vermicomposting.

PAPER-II
Commercial Crops
Time: 2hrs

THEORY
SYLLABUS

- Processing and curing of ginger and turmeric

**Medicinal and Aromatic Crops**

- Study of important spice, medicinal and aromatic crops.
- Extraction of essential spice oils in plants such as Mertha.
- Preparation of plants of geranium and patchouli through cuttings.
- Study of propagation in aromatic grasses.

**Beekeeping**

- Study of honey bees and their products.
• Study of bee pasturage.
• Site selection and arrangement of apiary.
• Setting up be hive.
• Seasonal management of bee colonies.
• Management of pest and diseases of bee.
• Extraction of honey, processing and marketing.

Mushrooms

• Study of common cultivated mushrooms and their food value.
• Compost preparation for button mushroom.
• Filling of tays/shelves/bage with compost for button mushroom.
• Spawning in button mushroom.
• Casing in button mushroom.
• Cropping and harvesting of button mushroom.
• Substrate preparation for paddy straw mushroom.
• Bed preparation and spawning in paddy straw mushroom.
• Cropping in paddy straw mushroom.
• Post harvest management.
• Management of insect-pests and diseases.

VERMICULTURE

• Identification of Important species of earthworms.
• Selection of suitable species.
• Vermicomposting materials and feed for earthworms.
• Diferent schemes for Vermicomposting.

PAPER-III  Post Harvest Technology and Preservation
Time: 2hrs

THEORY SYLLABUS

• Maturity standards for fruits and vegetables.
• Methods of harvesting, handling, grading and transportation.
• Preparation and Maintenance of Vermicomposting beds.
• Products of cocoons and its survival.
• Application of vermicompost.
• Preparation of vermiwash and its applications.
• Techniques of storage including cold storage of fruits & vegetables.
• Use of growth regulators and wax, emulsions for extending the storage life.
• Importance, scope and present position of preservation industry in India with special reference to Punjab.
• Principles and methods of preservation by low temperature, chemical, additives, salt, sugar, heat and drying.
• Factors affecting spoilage of fruits-role of enzymes and bacteria. Bacterial food poisoning, sulphuring and sulphitation.
• Establishment of processing factory; consideration, machinery, labour, containers, finance.
• Canning of fruits and vegetables: Important materials used, Suitable varieties of fruits and vegetables, selection of material, preparation of materials, syruping, exhausting, sealing, sterilization and cooling.
• Preparation and preservation of fruit juice, squashes, cordial syrup, jam, jelly, marmalade and preserve, chutneys, pickles and sauces.
• Drying and dehydration of important fruits and vegetables.
• Evaluation of quality of preserved/processed products.

PAPER-III  Post Harvest Technology and Preservation  
Time: 3hrs  
PRACTICAL  
Practical: 35 Marks  
SYLLABUS  
• Determination of maturity standards for fruits and vegetables.
• Methods of harvesting, handling, grading and transportation.
• Storage life of fruits and vegetables.
• Preservation of fruits and vegetables by low temperature, chemical additives, salt, sugar, heat and drying.
• Study of spoilage of fruits.
• Visit to a processing factory.
• Preparation and preservation of fruit juices, squashes, cordial syrup, jam, jelly, marmalade and preserve, chutneys, pickles and sauces.
• Drying and dehydration of important fruits and vegetables.
• Canning of fruits and vegetables.

(ii) AGRI-BUSINESS  
PAPER-I  Agricultural Marketing  
Time: 2hrs  
Theory: 25 Marks  
CCE: 30 Marks  
Practical: 35 Marks  
Total: 90 Marks  
THEORY  
SYLLABUS  
• Basic concepts.
• Definition of market—Marketing.
• Differences between market and marketing.
• Differences between trade, commerce, merchandising and marketing.
• Importance of marketing.
• Classification of markets, on the basis of area, on the basis of time, on the basis of goods/commodities.
• Approaches to Study of Marketing—the functional approach, the institutional approach, the commodity approach and behaviour system or decision making approach.

• Marketing functions—Principal marketing functions, assembling, processing and dispersion. Secondary services: grading, packing, transporting, storing, financing, assuming risk and selling.

• Agricultural Marketing systems in India. Defects in the present system of agricultural marketing in India and remedial measures.

• Marketing institutions—Regulated markets, co-operative marketing, state trading, commodity boards, warehousing.

• Agricultural prices—Factors influencing price.

• Management of distribution channels, Market segmentation and marketing mix. Sales promotion tools.

PAPER-I                Agricultural Marketing

Time:3hrs                       Practical: 35 Marks

PRACTICAL SYLLABUS

• Visit to farm holdings to appraise the selling behaviours of farmers.

• Visit to village market to analyse its importance, nature of participants and different transactions.

• Visit to agricultural input distributor to study about his business activities.

• Visit to agricultural input retailer shop to study the business activity.

• Visit to Assistant Director of Agriculture office to know about Fertiliser control order, Pesticide control order.

• Commodity market survey to study different market channels (important five commodities in the locality).

• Study of regulated market, its functions and benefits to accrued farmers.

• Visit to co-operative marketing society to study the genesis, structure, functions and benefits accrued to members.

• Visit to any one commodity board to study its functions.

• Visit to warehousing co-operation to study its functions and services, methods of storage, storage pest control measures.

• Visit to Seed Certificate Office to know about seed act.

• Visit to any one agricultural input firm to study the sales promotion activities.
THEORY

SYLLABUS

Agricultural Finance

- Concept of Agricultural finance, nature, scope and importance of agricultural finance.
- Financial needs of farmers and firms.

Financial Institutes

- Commercial banks, agricultural development branches, history, organization, sources of capital, functions.
- Reserve bank of India-history, organization, functions.
- National Bank for Agricultural and Rural Development (NABARD)- history, organization, functions.
- The Punjab schedule caste Land Development & Finance Corporation.
- The Punjab State Industrial Development Corporation.
- The Punjab Financial Corporation.
- The Punjab Agro Industry Corporation.
- The Department of Agriculture (Pb.)
- The Department of Horticulture (Pb.)

PRACTICAL

SYLLABUS

- Study of basic concepts used in Agricultural Finance-(Capital Finance, credit, debt, indebtedness, asset, liability, over dues outstanding shares, dividend).
- Study and analysis of forms of repayment.
- Visit to selected commercial banks to study organizational, procedure for financing and repayment schedule.
- Visit to rural banks to study the organizational, procedure for financing and repayment schedule.
• Visits to the Head office/ branch of Punjab Schedule caste Land Development & Finance Corporation to study the organization and procedure for financing.
• Visit to the head office/branch of Punjab State Agri co-operation Land Development Bank to study the organisational and procedure for financing.
• Visit to the head office/branch of Punjab State Industrial Development Corporation to study the organizational & procedure for financing.
• Visit to the head office/branch of Punjab Financial Corporation to study the organization & procedure for financing.
• Visit to the head office/branch of Punjab Agro. Industries Corporation to study the agricultural & procedure for financing.

PAPER -III    Agricultural Equipment

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY
SYLLABUS

A Farm Power:
1 Types of Engines: single and multi-cylinder diesel engines, brief operations of different systems i.e. fuel systems, lubrication systems, cooling systems.
2 Tractors of various models and brands. Operations of transmission and hydraulic systems of tractors.
3 Types of electric motors and their uses.

B Tillage Implemets:
1 Primary tillage implements: proper use of hitching of mould board plough and disc plough.
2 Secondary tillage: Uses of levelers, harrows, cultivators.

C Seeding Machinery:
1 Seed drills, types of drills- plain drills and seed-cum-fertiliser drills.
2 Planters: types & uses of planters

D Crop Production and Protection Equipment:
1 Irrigation, types of pumps i.e. centrifugal, submersible pumps and their suitability to different conditions.
2 Sprayers and dusters; types and their uses, different parts of sprayers and dusters.
3 Safety precautions in handling of chemicals and operative techniques.
E Harvesting: Introduction to Reapers, Threshers and Combines and their operational use.

PAPER -III AGRICULTURAL EQUIPMENT

Time: 3 hrs Practical: 35 Marks

PRACTICAL SYLLABUS

1. Collection of data regarding various engines available in the market for irrigation purposes.
2. Collection of data regarding various tractor makers, their models and brand names.
3. A study of fuel, cooling and lubrication systems of a given engine.
4. Demonstration of transmission and hydraulic systems of tractors at a site.
5. Collection of data regarding various electric motor makers, their models and brand names available in the local market.
6. Demonstration of hitching practices of various tillage implements at site.
7. Identification of different parts of sprayers.
8. Identification of different parts of dusters.
9. Demonstration of working of sprayers and dusters.
10. Demonstration of working of planters.
11. Collection of data regarding various makers of sprayers and dusters, their models and brand names.
12. Demonstration of working of various special equipments i.e. sugarcane crusher, maize sheller, chaff cutter, groundnut decorticator and rice sheller at the locally available site.

(iii) REPAIR AND MAINTENANCE OF POWER DRIVEN FARM MACHINERY

PAPER -I Farm Power and Tractors
Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY SYLLABUS

General:

- Availability of indigenous tractors, makes and models and horsepower.
- Role of tractors in form mechanization.
- Familiarisation with the main components, various gauges, instruments and controls of tractors.
• Safety in driving of tractors and road signals.

**Engine :**

• Constructional features of I.C. engines and familiarization with principal parts.
• Principles of operation and salient features of four stroke and two stroke engines.
• Multi-cylinder engines, firing orders and valve arrangements.
• Fuel system: major parts of a fuel system, system of fuel injection, different parts of injection pumps and injectors and their functions.
• Governing system: function of a Governor, Principles of operation and classification.
• Lubrication system, necessity of lubrication, functions of lubricating oils, properties and grades, different lubricating systems; crankcase ventilation.
• Cooling system, its necessity, requirement of an efficient cooling system, types and different parts of a cooling system and their functions.
• Intake and exhaust systems & their necessity, different components of an air intake system and exhaust system & their functions. Supercharger and its functions.
• Electrical system, different components of an electrical system and their functions.
• Engine trouble shooting; familiarisation with possible causes of troubles and their remedies.

**Power Transmission**

• Clutch function, types of clutches, various components and working of single and dual clutch systems; clutch adjustment.
• Gear box; Principles of gearing, types of gear boxes, different components; speed ratio.
• Differential & final drive, principles of operation, functions of a differential lock.
• P.T.O drive, its position and operational control.

**Other Systems :**

• Steering system and front axle ; different components of the system, types of steering gear box on different makes of tractors.
• Brakes; function of a brake system; classification of brakes their working with emphasis on hydraulic brake system.
• Tyres, tubes and wheel ballasting, constructional features of pneumatic tyres, size and ply rating, air inflation techniques; size of rims retreading of tyres, need of ballasting.
Hydraulic & Hitch System:

- Hydraulic & hitch system, their necessity, different components, assemblies & controls of hydraulic system & hitch system and functions. Merits of hydraulic system over mechanical system. Brief description of matching tools & machines.

PAPER -I FARM POWER AND TRACTORS

Time: 3 hrs Practical: 35 Marks

PRACTICAL SYLLABUS

1. Familiarisation with various matching tools and machines used in maintenance & repair of tractors.
2. Familiarisation with different components, gauges & controls of tractors.
5. Identification of different parts of an engine.
6. General precautions and observations while starting running & stoping of engines.
7. Observation of different gauges & controls for proper functioning.
8. Driving practice in forward & reverse.
9. Engine trouble shootings causes & their remedies.
11. Repairing tyre puncture & practice in liquid tyre blasting.
12. Hitching the implements.
13. Practice in trolley reversing.
14. Familiarisation with road signals and driving practice on road.
15. To develop competency in reading part and service catalogue and maintenance of log books & history sheets.
16. Visit to repair & servicing workshop to familiarize with the techniques of crank-stet grinding, honing, pump calibration etc.
PAPER -II   POST HARVEST MACHINERY AND RENEWABLE ENERGY
GADGET

Time: 2hrs                                  Theory: 25 Marks
                      CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY
SYLLABUS

Post Harvest Machinery

- Introduction to post-harvest technology and its importance.
- Definition of different terms like clearing, grading, sorting, drying and dehydration, storage, milling, handling, packaging & transportation, proximate composition, engineering properties etc. used in unit operation in post-harvest.

Cleaning and grading machinery

- Definition of cleaning, grading, dockage, foreign matter, size, shape, specific gravity, terminal velocity, coefficient of friction and angle of repose.
- Types of commonly used cleaners and grader like air screen cleaners, rotary cleaners, vibratory screen cleaners, disc separator, indented cylinder separator, spiral separator, specific gravity separator, magnetic separator, cyclone separator, their uses and suitability to different farm produce.
- Components of cleaners and graders like hopper, sieves, blower, oscillating mechanism etc., their functions, materials of construction and functional requirements.
- Installation of cleaning and grading machinery.
- Adjustment and alignment of feed rate, sieve selection (mesh number of screen), slope of sieves, air flow rate, frequency and amplitude of oscillations for optimum efficiency.
- Common faults and corrective measures.
- Safety and precaution in use of cleaners and graders.

Drying Equipment/Machinery

- Definition of drying and related terms like moisture content, bound moisture, unbound moisture, free moisture, thin layer drying, dry bulb temperature, wet bulb temperature, relative humidity etc. Advantages of drying form produce and safe moisture contents for storage.
- Drying methods-convection drying, conduction drying, vacuum drying and their uses. Commonly used dryers like flat bed type batch dryer, Louisiana State
University (LSU) dryer, rotary dryer, tray dryer, spray dryer, their uses and suitability to different form produce.

- Parts of drives like drying chamber, air distribution system, direct or indirect heating system—their functions, material of construction and functional requirements.
- Installation of drives.
- Adjustment of drying air temperature, air flow rate, grain flow rate etc. for efficient use of dryers.
- Common faults and their rectification.
- Safety and precaution in use of dryers.

**Milling Machinery**

- Definition of milling and terms like cleaning, mixing, pearling, hulling, polishing, dehusking, sorting, size reduction, size, average particle size, screen analysis.
- Types uses and commonly used flour mills, spice mills like burr/plate/attrition mill, hammer mill, ball mill, dal mills like abrasive roller mill and roller mill and rice mills/hullers like engleberg huller, rubber roll sheller, under runner disc huller, centrifugal dehusker and vertical cone whitener.
- Introduction to flour mills like burr mill and roller flour mill, spice mills, dal mills, and rice mills/hullers like traditional rice hullers and modern rice mills.
- Installation of milling machinery.
- Adjustment/alignment of spacing between plates, rpm, screen size, gap between rubber rolls, and spacing between emery rollers/cane and screen etc., for efficient use of mills. Common faults and corrective measures in the mills.
- Safety and precaution in use of milling machinery.
- Components of flour mills, dal mills and rice mills/hullers; their functions, material of construction and functional requirements.

**Sugarcane Crushers**

- Introduction to different types of commonly used cane crushers like smooth roll crusher and serrated or toothed roll crusher.
- Main parts of cane crushers like rollers, gear assembly, feeding assembly, feeding mechanism etc., and their functions and operation of crushers.
- Installation of sugarcane crushers.
- Adjustment/alignment of gap between rollers, spring load and rpm for optimum use of crushers.
- Common faults and corrective measures.
• Safety and precaution in use of cane crushers.

**Chaff Cutters**

• Introduction to different types of commonly used hard and power operated chaff cutters.
• Main parts of chaff cutter like feeding rollers, fly wheel, cutting blades and feeding mechanism and their functions.
• Installation of chaff cutters.
• Adjustment/alignment of feeding rollers, cutting gap; and other systems for their efficient uses.
• Common faults and corrective measures.
• Safety and precautions in use of chaff cutters.

**Maize Shellers and Groundnut Decorticators**

• Introduction to commonly used manual and power operated maize shellers and groundnut decorticators.
• Main parts of maize shellers and groundnut decorticators and their functions and operation.
• Adjustment/alignment of various components of maize shellers and groundnut decorticators for their efficient uses.
• Common faults and their rectification.
• Safety and precaution in use of maize shellers and groundnut decorticators.

**Renewable Energy Gadgets**

• Introduction to renewable energy and its importance.
• Different types of renewable energy gadgets - such as solar, biogas, wind mills and chulhas.

**Solar Gadgets**

• Working principles of solar gadgets.
• Introduction to different solar gadgets such as solar cookers, solar water heaters, solar photovoltaic panels and solar dryers, etc.
• Types of commonly used solar cookers, solar water heaters, solar dryers and photovoltaic panels.
• Components of solar cookers (such as reflector, boxes, insulation etc.), solar water heaters, solar photovoltaic and solar dryers their functions.
• Adjustment/orientation/alignment of solar gadgets for their efficient uses.
• Common faults and corrective measures.
• Safety and precautions in use of solar gadgets
• Repair and routine maintenance of solar gadgets.

Biogas Plants and Appliances

• Working principles of biogas plants and commonly used substance for biogas production.
• Introduction to different types of biogas plants such as KVIC, fixed dome type and appliances viz. burners, lantern, engines and uses.
• Main components of biogas plants (digester, inlet, outlet, gas holder/dome, etc.) and their functions.
• Gas conveyance pipe lines and water draining devices.
• Installation and commissioning of biogas plants and appliances.
• Common faults and corrective measures.
• Repair and routine maintenance of biogas plants.

Wind mills and Matching Devices

• Working principles of Wind mills and advantage of wind energy utilization.
• Introduction to different types of wind mills (horizontal axis, vertical axis) and matching devices (such as pump, aerator, aero-generator) and their suitability.
• Main components of wind mills blades, transmission mechanism, rudder etc. and their matching devices and their functions.
• Adjustment/orientation/alignment different types of wind mills and their efficient workability.
• Common faults and corrective measures.
• Safety and precaution in use of wind mills.
• Installation of wind mills and matching devices.

Smokeless chulhas/improved stoves

• Advantages of using improved chulhas.
• Types of improved chulhas (fixed, portable, single mouth, two mouth, three mouth).
• Main parts of improved chulhas (combustion chamber, chimney, cobble, air supply system) and their functions.
• Adjustment of different components of improved chulhas for their efficient use.
• Common faults and remedial measures.
• Safety and precaution in use of improved chulhas.
• Repair and maintenance of improved chulhas.
PAPER -II       POST HARVEST MACHINERY AND RENEWABLE ENERGY
GADGET

Time : 3 hrs                              Practical: 35 Marks

PRACTICAL
SYLLABUS

• Identification of different parts and components of commonly used cleaners and
graders, their adjustments, operation and functions.
• Identification of different parts and components of drying equipments/
machinery, their adjustment, operation and functions
• Familiarisation and identification of different parts and components of commonly
used flour mills, spice mills, dal mills and rice mills/hullers, function of different
parts and their adjustment for efficient use and operation.
• Familiarisation and identification of different parts of components of commonly
used sugarcane crushers, function of different parts and their adjustment for
efficient operation.
• Familiarisation and identification of different components of commonly used
chaff cutters, function of different parts and their adjustment for efficient use.
• Familiarisation and identification of different components of commonly used
maize shellers, function of different parts and adjustment for efficient use.
• Familiarisation and identification of different parts of components of commonly
available solar cooker, solar water heater, solar photovoltaic and solar dryers,
function of different parts and adjustment for their efficient use.
• Familiarisation and identification of different components of biogas plants and
appliances, function of different parts, routine repair and maintenance of biogas
appliances.
• Familiarisation and identification of different parts and components of
commonly available wind mills and matching devices, their function adjustment
for harnessing of wind energy.
• Familiarisation and identification of different parts and components of smokeless
chulhas, function of different parts and adjustment for their efficient use.

PAPER –III       MANAGEMENT OF FARM POWER AND MACHINERY

Time: 2hrs

THEORY
SYLLABUS

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

CCE: 30 Marks

Total: 90 Marks
Factors in Analysis of Cost of Operation:
- Fixed cost: initial cost, salvage value, useful life, depreciation, interest, taxes and insurance, housing.
- Variable cost: repair and maintenance, fuel and oil consumption, wages.
- Theoretical and actual field capacities, field efficiency.
- Methods of improving field efficiencies.

Purchase and Disposal
- Methods of purchase: Quotation, tender, spot purchase.
- Comparative statement: Technical specifications, costs and charge, terms and conditions of payment and delivery.
- Placement of purchase order: description of stores, part number if any, quantity required, price per unit, insurance, mode of shipment.
- Receipt of stores, verification and inspection: receipt with all documents, verification of quantity and inspection of quality, entry in records, preparing inspection notes, rejection/shorting note.

Storage of Materials, Machines and Supplies
- Criteria for location of stores, layout for stores & racks, types of racks, preservation of stores from white ants, rats, rusting, fire & mechanical damage, care in stacking, types of fire fighting equipment, importance of lighting & verification.

Record Keeping
- Importance of maintaining record, various registers such as stock register, issue register, register of unserviceable items, issue vouchers, bin card, identification tag, history sheet of machines, job card.

Accounts Keeping
- Terms such as profit, debit, credit, asset, liability, capital, familiarisation with cash balance, profit and loss account, balance sheet, voucher, proforma invoice.

Marketing, Sales, and Custom Hiring
- Assessing of the customer need, displaying of merchandise, packaging and billing, after Sales services, securing interviews, conducting demonstration.

Publicity and Advertising
- Importance of Publicity and advertising, media of advertising and comparative cost and advantages and disadvantages, advantages of Publicity and display in fairs, field days, exhibitions and demonstrations.
Consultancy

- Consultancy services and training organizations, essential information in a project report for securing loan and establishing an enterprise.

**PAPER –III MANAGEMENT OF FARM POWER AND MACHINERY**

**Time : 3 hrs**

**Practical: 35 Marks**

**PRACTICAL SYLLABUS**

- Calculating cost per hour/per hectare of tractors, power tillers, engine, and various agricultural implements and machines.
- Filling up quotation and tender forms, preparing comparative statement, filling up of a specimen. Purchase order, familiarization with inspection note, identification tag, rejection shorting note filing up a bin card, visit to a store.
- Laying out a store, fabricating racks; practice in applying rust compounds, familiarization with fire extinguishers, visit to a store.
- Familiarisation with different records, visit to a store.
- Preparing a profit and loss account (refer Appendix on sample project report), Visit to a manufacturer’s account section.
- Preparing a demonstration of an implement or machine, preparing a list of after sale service, familiarize with methods of packaging and billing, visit to a show room and a Farmers’ Fair.
- Visit to an advertising agency, visit to fairs, field days, exhibition and demonstration, preparation of a poster for publicity.
- Visit to a consultancy services and a training organization, familiarization with forms and procedures for securing loans.

**II. BUSINESS AND COMMERCE GROUP**

**(i) OFFICE SECRETARYSHIP**

**Modern Office Practices-II**

**Time: 2hrs**

**Theory: 25 Marks**

**CCE: 30 Marks**

**Practical: 35 Marks**

**Total: 90 Marks**

**THEORY SYLLABUS**

**Unit-I Office Communication**

- Meaning and Importance of Effective Communication.
• Ways of Communication. Verbal (Written, spoken) and non-verbal communication, internal and external communication-Their importance in different setting and their disadvantages.
• Tools of Communication: Letter, Telephone, Extension PBX, Intercom, facsimile, e-mail, video conferencing, etc.,
• Postal Services: Different modes of sending letters, parcels, telegrams, and packets, courier, speed post.
• Introduction to Internet : Concept of Internet, Use of Internet, Browsing the Internet, Procedure of opening e-mail account on Internet, communicating with e-mail

Unit-II Office Manuals and Procedures

• Meaning of office manual.
• Manual in use.
• Information to be included in the manual.
• Meaning of office procedure.
• Developing a procedure.
• Knowledge of various standard symbols used in office procedure.

Unit-III Training in Human Relations

• Relations with the public
• Relations with the superiors/subordinates
• Relations with the fellow employees.

Unit-IV Secretarial work in relation to Meeting and Conferences

• Committee procedure for conducting meetings.
• Notice, Agenda, Quorum, Minutes and Adjustment.
• Noting.
• Resolutions.

PAPER –I Modern Office Practices-II
Time : 3 hrs Practical: 35Marks

PRACTICAL SYLLABUS
1 Communications skills-Resume writing and application for jobs.
2 Log into Internet.
3 Navigation for seeking information.
4. Sending and receiving e-mail; Creating e-mail accounts, creating a message, creating new address book, attaching file(s)/ photo(es) with e-mail, reading and replying e-mail, deleting a message.

**PAPER-II**

**SHORTHAND ENGLISH**

**Time**: 2hrs

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<th><strong>THEORY</strong></th>
<th><strong>CCE</strong>: 30 Marks</th>
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<td><strong>SYLLABUS</strong></td>
<td><strong>Practical</strong>: 35 Marks</td>
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**Revision of shorthand studied in 11th class.**

**Part-I**

1. Prefixes and Suffixes.
2. Terminations and special contractions.
5. General mistakes and their rectification.

**Part-II**

6. Transcription.
7. Phraseography.
9. General knowledge of shorthand in other languages (Hindi/Punjabi).

**PAPER-II**

**SHORTHAND ENGLISH**

**Time**: 3 hrs

<table>
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<th><strong>PRACTICAL</strong></th>
<th><strong>Practical</strong>: 35 Marks</th>
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<tr>
<td><strong>SYLLABUS</strong></td>
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1. Students are to pick up a speed of 80 W.P.M. A passage of 200 words in English will be dictated in 2.30 minutes.

2. After an interval of one minute, another passage of 200 words will be dictated in 2:30 minutes. Students will be required to transcribe both paras within 20 minutes on T/W.

3. Sessional work: A file of at least 100 pages will be prepared by students during the session.

*Same for Hindi as well as Punjabi Medium*
THEORY
SYLLABUS

2. Typing systematically, Typing heading, Typing addresses on envelopes. Typing in margins, typing sub-headings.
4. Tabulation-Importance, methods.
6. Typing-legal and literary documents.

PRACTICAL
SYLLABUS

1. Students are expected to pick up speed of 30 W.P.M. A para of 300 words will be given to be typed in 10 minutes (In English).
2. Typing an office letter on stencil paper within 20 minutes.
3. Typing 4-column statement in 30 minutes.
4. Sessional work. A file of at least 100 pages will be prepared by students during the session.

(ii) ACCOUNTANCY AUDITING

THEORY
SYLLABUS

Part-I

Unit-I Fundamentals of Information Technology

- Concept and Scope of IT
- Elements of computer system: Computer hardware and software
• Computer Organization, CPU, memory, input devices, output devices, storage devices, communication devices, multimedia devices.
• Introduction to operating system.

Part-II

CONCEPTUAL FRAMEWORK OF E-BUSINESS

Unit-2 Introduction to Electronic Commerce

Meaning, features, functions and benefits of e-commerce, e-commerce practices vs. traditional practices, scope and basic models of e-commerce, limitations of e-commerce, precautions for secure e-commerce, proxy services, types of e-commerce, meaning of B2C, B2B, C2C, P2P.

Unit-3 E-Payment

Transaction through internet, requirements of e-payments system, post paid payment system-credit card solutions, cyber cash, internet cheques, instant paid payment system debit card, pre-paid payment system-electronic cash, dig cash, net cash, cyber cash, smart cards.

Unit-4 E-Security

Areas of internet security, security threats, security breach avoidance, defection and recovery. Confidentiality and integrity, electronic signature, access control, authentication, precautions for secure e-commerce

Unit-5 E-Banking

Meaning importance and types of e-banking services, traditional vs. e-banking, process of e-banking, advantages and disadvantages of e-banking, status of e-banking in India.

Unit-6 E-Marketing

Concept of e-marketing, 4Ps of e-marketing, traditional marketing vs. e-marketing, advantages of e-marketing.

PAPER-I FUNDAMENTAL OF E-BUSINESS
Time: 3 hrs Practical: 35 Marks

PRACTICAL SYLLABUS

1. Log into internet.
3. Downloading information from internet.

4. Sending and receiving e-mail.
   (a) Create e-mail account
   (b) Creating a message
   (c) Creating an address book
   (d) Attaching a file with e-mail
   (e) Receiving a message
   (f) Deleting a message

5. Purchasing through the net.

PAPER-II PRINCIPLES OF MANAGEMENT AND ECONOMICS

Time: 3hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY
SYLLABUS
Part-I

Principle of Management

(i) Management; meaning; importance and principles of management.
(ii) Planning: meaning, features and types.
(iii) Organization: meaning and importance.
(iv) Staffing: (a) Recruitment meaning and sources; (b) Selection: meaning and process; (c) Training: meaning and need.
(v) Directing: meaning and importance.
(vi) Controlling: meaning and importance; Steps in the process of control.

Part-II
Economics

(ii) Money: meaning and function of money.
(iii) Banking: Central Bank and Types of Banks; Functions of commercial Banks.
(iv) Public Finance: meaning of public finance, sources of govt, revenue, meaning of direct and indirect taxes and difference between indirect and direct taxes.
THEORY
SYLLABUS

Part-A

Unit I Accounting for Partnership

- Nature of Partnership : Partnership Deed (meaning, importance).
- Final Account of Partnership : Fixed v/s Fluctuating Capital. Division of Profit among partners (excluding guarantee and past adjustments), and Profit and Loss Appropriation Account.

Unit II Reconstitution of Partnership.

- Changes in Profit Sharing Ratio among the existing partners-Sacrificing Ratio and Gaining Ratio.
- Accounting for Revaluation of Assets and Liabilities and distribution of reserves and accumulated profits.
- Admission of a Partner; Effect of Admission of Partner, Change in Profit Sharing Ratio, Accounting Treatment for Goodwill (as per accounting standard 10), Revaluation of Assets and liabilities, Reserve (accumulated Profits) and Adjustment of Capitals.
- Retirement/Death of a Partner: Change in Profit Sharing ratio, accounting treatment of Goodwill, Revaluation of Assets and Liabilities, Adjustment of Accumulated Profits (Reserves), Payment to retiree/deceased partners.

Unit III Dissolution of Partnership Firm.

- Meaning, Settlement of Accounts : Preparation of Realization account and related accounts (excluding piecemeal distribution, sale to a company and insolvency of a partner)

Part-B

Unit IV Accounting Not-For-Profit Organisation.

- Not for profit organization : Meaning and examples.
- Receipts and payments: Meaning and concept of fund based and non-fund based accounting.
- Preparation of Income and Expenditure Account and Balance Sheet from Receipts and payment Account with additional information.

Unit V Accounting for Share and Debenture Capital

- Share Capital : Meaning, Nature and Types
- Accounting for Share Capital : Issue and Allotment of Equity and Preference Shares; Over subscription and under subscription; Issue at par, premium and
at discount; Calls in advance, Calls in arrears, Issue of Shares for consideration other than cash.

- Forfeiture of Shares: Accounting Treatment, Re-issue of Forfeited Shares.
- Presentation of Share and Debenture Capital in company’s Balance Sheet.
- Issue of debenture: Meaning, issue at par premium and discount; issue of debenture for consideration other than cash.
- Redemption of debentures out of capital; redemption methods: lump sum payment, draw by lots, purchase in open market and conversion (excluding cum-interest and ex-interest).

**Unit VI  Classification of Audit**

- General and Specific Audit; Commercial and Non-commercial Audit.
- Private Audit: (Accounts of Sale-Trades, Partnership Firm, Individual) and Govt. Audit.
- Independent Audit (External and Internal).
- Statutory and Non-Statutory Audit, Continuous and periodical Audit. Completed/Annual Audit.

(iii) **OFFICE MANAGEMENT**

**PAPER-I**  **OFFICE PROCEDURE & PRACTICE-II**

**Time: 2hrs**

**Theory: 25 Marks**

- CCE: 30 Marks
- Practical: 35 Marks
- Total: 90 Marks

**THEORY**

**SYLLABUS**

**UNIT-1: Office Machines and Furniture**

Objective of using office machines, advantages, principles of selecting office machines and equipment. Furniture – importance, types, suitability, factors to be considered while purchasing new furniture.

**UNIT-2: Office Forms and Stationery**

Office Forms – meaning, advantages, disadvantages Designing forms – principles, form control. Office stationery – principles of stationery control.

**UNIT-3: Office Manuals and Charts**

Office Manuals – meaning, content, types, steps in preparing office manuals.

**UNIT-4: Office System and Procedures**

Meaning, Importance, advantages and disadvantages, principles, essential characteristics.
UNIT-5: **Concept of Communication**

Meaning, definition, importance, essential features, qualities of good communication, classification – oral and written.

UNIT-6: **Telephone**

Telephone and its use in Business, Telephone Etiquettes; Noting down of telephonic messages, Local calls, through telephone exchange and direct dialling, trunk calls types, procedure of booking and charges.

STD Calls: Types, procedure for STD and charges.


UNIT-7: **Mechanical System**

Teleprinter, Telex, Facsimile Telegraphy, CCTV, (Close Circuit TV) Bells and Buzzers.

UNIT-8: **Elements of Correspondence**

Importance – Types of Business Letters.

Essentials of letter writing.

Layout of a Business Letter.

UNIT-9: **Job Finding and Job Success**

Preparation for job finding, applying and interviews for jobs.

UNIT-10: **Personal Assistant**

Importance, Qualities, Duties (Duties of Personal Assistant, routine office duties, financial duties, domestic and social duties, Duties relating to meetings). Making appointment schedule and maintaining visitors diary.

UNIT-11: **Reception work**

Qualities of a Receptionist, Location of the Receptionist Office, How to receive a visitor, Handling delays.

UNIT-12: **Travel Information**

find out the manager’s plans, how and when to use the travel agency, travelling by air, train, automobile, hotel accommodation, preparing the itinerary and appointment schedule, when you travel with the manager, material and supplies to take along.
UNIT-13: Arrangement of Meetings

meaning, importance, requisites of valid meetings, making prior arrangements, notice, agenda, quorum, minutes, proxy, procedure for discussion in meetings, motions, resolutions, interruptions in debate amendments, formal motions, point of order. making prior arrangements for meetings.

UNIT-14: Report Writing

Meaning, Objectives, Importance, Kinds, Qualities of a good report, How to prepare a report.

PAPER-I: OFFICE PROCEDURE & PRACTICE-II

SYLLABUS

Time: 3 Hrs. PRACTICAL Practical:35 Marks

UNIT-1: Furniture

- Visit an office to see types, quality, arrangement and suitability of furniture and submit a report.

UNIT-2: Forms and Stationery

- Preparation of a stock register of stationery
- Preparation of requisition slips to stationery.

UNIT-3: Office Communication

- Consult T.A. rule book and prepare TA bill of your boss.

UNIT-4: Telephone Handling

- Receiving calls.
- Answering calls.
- Recording messages.
- Placing non-local calls.
- Consulting telephone directory.

UNIT-5: Practice on the following

- PBX/EPABX/Intercom.
- Telephone Recording and Answering sets.
- Teleprinter
- Telex
- Facsimile Telegraph

UNIT-6: Drafting of the following letters

- Reply to trade enquiry.
- Inviting tenders.
- Submission of quotations.
- Sales promotion letters.
- Letter requesting payment.
- Trade references.
- Complaints and adjustments.
- Letter of Introduction and credit.
- Correspondence with banks.
- Letter about recruitment of personnel.
- Application for employment.
- Reference and testimonials.
- Circular and office memorandum.
- Demi official letter.
- Notification

UNIT-7: Job Finding

- Selecting suitable position from situation vacant columns of newspaper.
- Applying
- Preparing for an interview
- Preparing acceptance letter, relieving and joining reports.
- Charge handling over and taking over.

UNIT-8: Assisting Visitors and Co-Workers

- Preparation of an appointment schedule.
- Keeping record of visitors.
- Receiving visitors.
- Giving assistance for observance of office rules.
- Furnishing requested information.
- Supply required material.

UNIT-9: Making Travel Arrangement

- Preparing tour programme
- Railway and air reservation
- Booking hotel accommodation
- Filling forms for tour advance
- Preparation and submission of TA bills.

UNIT-10: Arrangement of Meetings

- Arranging the meeting room
- Preparing the agenda
- Notifying the participants
- Making travel arrangements for participants
- Drafting minutes, and motions.

UNIT-11: Preparing a complete Report

- Preparing final draft
- Stencil cutting
- Cyclostyling
- Assembling papers for various purpose
- Stapling/Punching/use of tags
- Binding
UNIT-1: Carbon Mani folding

Carbon papers and their kinds, assembling, carrying out corrections on carbon copies, use of Eraser, Erasing shield, white correcting fluid etc., squeezing and spreading, carbon economy.

UNIT-2: Stencil Cutting and duplicating

Techniques of stencil cutting, correction of errors on stencil papers, use of correcting fluid, graft methods and use of gum – coated paper method, signatures and lining on stencil paper with the help of styles pen and backing sheet.

Duplicator – kinds of duplicators, taking out copies of duplicators.

UNIT-3: Electric and Electronic Typewriters

Electronic typewriter, electric typewriter, Advantages of Electric typewriter.

Salient features of Electronic typewriters.

UNIT-4: Correspondence

Business

Official

UNIT-5: Manuscripts

Proof correction signs and meaning. Process of typing manuscripts, corrections of drafts.

UNIT-6: Tabulations

Definition and importance, parts of tabulations, procedure for typing tabulation. Typing of foot notes, typing of Balance sheets.

UNIT-7: Syllabification and Combination

Rules for Division of words at line ends. Exceptions, formation of special signs with combination of characters.
UNIT-8: Correspondence Typing

- Typing with proper display
- Typing of business letters
- Typing of official letters

PAPER-II: TYPEWRITING (ENGLISH) -II

SYLLABUS

Time: 3 Hrs. Practical: 35 Marks

UNIT-1: Carbon Mani folding
- Taking out copies with the help of carbon papers.
- Carrying out corrections with squeezing and spreading methods.
- Correction of drafts.

UNIT-2: Stencil Cutting and Duplication
- Stencil cutting
- Carrying out corrections on stencil papers with different methods.
- Cyclostylening.

UNIT-3: Electric & Electronic Typewriters
- Practice on above typewriters.

UNIT-4: Manuscripts
- Typewriting of manuscripts (Typed)
- Typewriting of Manuscripts (Hand written)
- Practices on carrying out corrections of drafts.

UNIT-5: Tabulations
- Typewriting of Tabulations, Balance sheet, Invoices, Footnotes etc.

UNIT-6: Syllabification and Combination
- Typewriting exercises: Breaking of words at the line ends.
- Breaking of words with syllabification rules.
- Typewriting of character not existing on key-board.

UNIT-7: Correspondence
- Typewriting un-arranged, mis-spelt and wrongly typed letters by observing the rules of display.
- Typewriting of business, official and semi-official letters.
- Typewriting of Memorandum, notification, endorsement etc.
PAPER-III: INTRODUCTION TO COMPUTER APPLICATIONS

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

General Awareness: Introduction of different types of computers – history of computer, organization of computer, memory, batch and serial processing of data, application of computers in business.

General information about computers: key boards, types of video-adopters, types of PCs IBMPC system – various sub-systems and units and parts.

Operating System: DOS, RAM, ROM, BIOS, Booting, Directories and Sub-directories. File type and naming of file MS DOS Commands – Internal and external types.

Data Processing System: Data processing cycle, system design, file definition, card layout, coding and result validation.

Database Management: Meaning, limits of data base, structure and files, record, file use of dBASE III Plus, different operational steps, case in dBASE.

Introduction to word Processing: Loading the programme, main menu operation, the opening menu, point control operation, onscreen operations.

Use of Lotus Software: Spread sheet and application – common commands for entering data, menu driven commands, built in function.

Flow Chart: principles and guidelines and advantages.

Basic Programmes: Simple concepts of writing programmes-simple programmes using BASIC.

PAPER-III: INTRODUCTION TO COMPUTER APPLICATIONS

Time: 3 Hrs.

SYLLABUS

1. Formatting, copying, backup, restore command.
3. Exercise in dBASE relating to office management.
4. Exercise in Lotus programme.
5. Exercise in using flow chart.
6. Preparation of elementary programmes having applications in office management.
7. Excise in Word star, typing to develop speed and efficiency.

(iv) PURCHASE AND STORE KEEPING

PAPER-I: PURCHASE AND STORE ACCOUNTING

Time: 2hrs  
Theory: 25 Marks  
CCE:30 Marks  
Practical:35 Marks  
Total:90 Marks

THEORY

SYLLABUS

UNIT - I : GENERAL ACCOUNTING


UNIT-II: PURCHASE RECORDS


UNIT-III: INVENTORY CONTROL

Replenishment of stock, Fixing the different levels, Maximum, Minimum, Re-order, Economic Order Quantity and Danger. ABC Analysis, VED, Bill of Materials, Inventory Carrying Cost and Kardex.

UNIT-IV: STORE ACCOUNTING

Recording of stores – various documents and books used in this connection. Verification of Stores - Its kinds, Perpetual and periodical, use of records in stores accounting.

UNIT-V: MATERIAL COSTING

Ascertainment of cost of materials received and issued, LIFO, FIFO methods, costing of wastage, spoilages, Damages and other losses, Valuation of stock in hand, Reduction in production and selling cost through stores accounting.

PAPER-I PURCHASE AND STORE ACCOUNTING

SYLLABUS

Time: 3 Hrs.  
PRACTICAL  
Practical:35 Marks

1. Preparation of journal and ledger on exercise given by your teacher.
2. Designing and filling-up of different proformas used in purchase accounting.
3. Fixation of different stock levels.
4. Prepare of bill of materials for school after interacting with your teacher.
5. Identifying your school items and prepare ABC analysis chart of the basis.
6. Visits related to organization accompanied by your teacher and prepare a report there.

7. PAPER-II: ELEMENTS OF BUSINESS LAW & CLEARING PROCEDURE

Time: 2hrs
Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY
SYLLABUS

UNIT-I: ELEMENTARY BUSINESS LAW
(Only Basic knowledge of law relating to purchase activities)

1. **CONTRACT ACT:** Essentials of valid contract, Revocation of contract, Contract of agency and bailment.
2. **SALE OF GOODS ACT:** Definition of goods, Conditions and warranties, Rights and Liabilities of sellers and buyers and right of unpaid seller, Mode of delivery, Hire Purchase and instalment purchase.
3. **INSURANCE RULE:** Rules pertaining to Fire, Marine, Transport and Storage Insurance.
4. **CARRIAGE OF GOODS ACT:** Limited to carriages liabilities.
5. **CENTRAL AND STATE SALES TAX:** Portion relating to taxable goods and form of returns.

UNIT-II: IMPORT OF GOODS

Meaning, Regulations and Authorities, Open General License, Basic Procedure of Import, Documents relating to import of goods including letters of credit. Regulations regarding imports and foreign exchange controls/currencies.

UNIT-III: CLEARING PROCEDURE

Cargo Arrival Note, Bill of lading. Endorsement from Bank, Delivery order from the carrier, Filling of bill of entry, custom assignments, warehousing, Clearing, Rate of exchange, Banking charges.

UNIT-IV: DOCUMENTATION IN IMPORTS

Import export code numbers, Import License, advance Licensing, Supplementary Licensing, Passbook scheme, Opening of Letter of Credit, Sight Draft, Advance wire transfer, Bill of lading, Air Way bill, postal receipt, Parcel Way bill, Railway receipt, Transport receipt/ Goods receipt.
UNIT-V: EXCISE CENTRAL AND STATE (Restricted only to general awareness)

Excisable goods/items, elementary excise rules.

PAPER-II: ELEMENTS OF BUSINESS LAW & CLEARING PROCEDURE

PRACTICAL

Time: 3 Hrs.

SYLLABUS Practical: 35 Marks

Filling-up prescribed forms – sales-tax and documents in import.

Maintaining the excise register (available with excise department and printed in excise tariff book).

Visit to a factory where excisable books are being dealt and make yourself familiar with the procedure, prepare a report thereon. Filling-up TR-6 challan for depositing excise duty with the bank.

Prepare a list of excisable and non-excisable goods/taxable and non-taxable goods.

Prepare an issue voucher as instructed by your teacher.

PAPER-III: ELEMENTS OF COMPUTER APPLICATIONS

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

SYLLABUS

COMPUTER FUNDAMENTALS


1. INPUT/OUTPUT DEVICES

2. **DATA STORAGE DEVICES**

3. **OPERATING SYSTEM**
Operating System Concepts - What is operating system – Batch processing – Multi programming – Time sharing – real time – Computer networks -INTERNET

4. **MS-DOS**

5. **MS-WINDOWS**
Introduction to windows – Advantages of Windows – control panel – File Manager – Accessories – Write, Paint brush, Calendar, Calculator, Card file – Overview.

6. **MS-WORD**

7. **MS-EXCEL**

9. **DATABASE CONCEPT**
Introduction to DBMS

10. **PROGRAMMING IN FOXPRO**
1. **INTRODUCTION TO OPERATING SYSTEM**

   Installation of DOS

   Fine tuning MSDOS

   Use of Internal and External Commands of DOS file operation

   Creation of usage of batch files

2. **AUTOEXEC.BAT**

   Mail utilities

   Installation of windows

   Study of different menus available in Windows

3. **INTRODUCTION TO WORD PROCESSING AND SPREADSHEET**

   Create Windows, edit and print a document file, using MSWORD

   Create a document using tables and graphics using MS Word

   Designing spreadsheet and manipulation using different arithmetic functions.

   Printing a spreadsheet with a proper format with headers and footers.

   Generate and print a graph using MS Excel.

   Design simple presentation using colours and fonts.

4. **INTRODUCTION TO FOXPRO PROGRAMMING**

   Creating a database and adding records to it.

   For the given database, execution of different commands

   Programs on sorting and indexing database

   Programs on selecting records from a given database based on simple and compound conditions

   Programs using arrays

   Programs on maintenance of database

   Programs on updating of database

   Programs on screen manipulation

   Programs using subprograms and procedures
5. **COMPUTER APPLICATIONS IN PURCHASE & STORE-KEEPING**

Identifying the type of application in purchase & store-keeping and using the appropriate software mentioned above for the same, for example:

- Typing purchase order using MS-WORD
- Communication and letter writing for enquiry, quotation, bills, orders, tenders using Msword
- Communication through E-Mail
- Arranging the data item wise in the spreadsheet packages Ms-Excel for vertical total, calculating the profit using formula, ratio analysis, graphical analysis
- Storing the data in database using Foxpro
- Managing the Inventory control using Foxpro programming like: Fixing and updating the minimum level, maximum level, recorder level, EQL
- Using the labels and reports in Foxpro for producing report of appropriate data
- Using inventory control application software for managing inventory
- Coding the items and prepare a database of items
- Accounting and billing using Foxpro.

(v) **GENERAL RECEPTIONISTS**

**PAPER – I**

**ELEMENTS OF BOOK-KEEPING AND ACCOUNTANCY**

**Time: 2 hrs.**

**Theory: 25 Marks**
- CCE: 30 Marks
- Practical: 35 Marks
- Total: 90 Marks

**THEORY**

**SYLLABUS**

**UNIT – I: Introduction**


**UNIT – II: Journal**

Journal – Journalising personal, real and nominal accounts with the given vouchers.

**UNIT – III: Ledger**

Ledger – Posting of journal – Balance of personal, real and nominal accounts.
UNIT – IV: **Sub-divisions of Journal**


UNIT – V: **Banking Transactions**


UNIT – VI: **Final Accounts**

Preparation of trial balance – Capital and Revenue expenditure. Final accounts with adjustments.

**PAPER –I ELEMENTS OF BOOK - KEEPING AND ACCOUNTANCY**

**PRACTICAL**

<table>
<thead>
<tr>
<th>Time : 3 Hrs</th>
<th>SYLLABUS</th>
<th>Practical:35 Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT – I</td>
<td>Preparation of different kinds of vouchers and documents which are used for accounting purpose.</td>
<td></td>
</tr>
<tr>
<td>UNIT-III</td>
<td>Opening Saving bank account in a bank – Depositing money – Filling up forms such as pay-in-slip, withdrawal slip, demand draft requisition form etc. Practising to draw and cross cheque.</td>
<td></td>
</tr>
<tr>
<td>UNIT – IV</td>
<td>Preparation of bank reconciliation statement from given practice sets (i.e. pages of cash book and pass book).</td>
<td></td>
</tr>
<tr>
<td>UNIT – V</td>
<td>Visits to business houses and seeing how cash book and other books are maintained therein, preparing a report of the visit. Practising with maintenance of accounts of firm, partnership under the supervision of professionals.</td>
<td></td>
</tr>
</tbody>
</table>
THEORY

SYLLABUS

UNIT – I: Public Relations

Meaning – Need and importance of Public Relations – Public Relations for image build up of an organization.

UNIT – II: Communication

Meaning – Need and importance – Types of communication – Modes of communication – Factors to be considered in selecting mode of communication. New trends in communication – Email – FAC simile (FAX) – Internet – Teleconferencing – Audio Conferencing – Computer Tele Conferencing – Video Conferencing.

UNIT – III: Role of Telephone Exchange


UNIT – IV: Correspondence

Qualities of a good business letter (7 C’s) – Essential parts of business letter – Layout of different types of a business letter - Meaning and importance – Kinds of letter – Form letters – Correspondence related to inquiry, Quotation, order, Cancellation of order, Complaints and Settlement of Claims, Banking operation etc. Correspondence related to Insurance and Settlement of Insurance Claims.
UNIT – I
Students may be asked to list out various modes of communications and its uses on different occasions and practising.

UNIT-II
Through Role – play model – Image build up of the organization in practice.

UNIT – III
Practising with PBX, PBAX, EPBAX, mobile phone, pager etc. – Receiving and recording messages – Prioritising calls according to urgency – Consultation of telephone directory including STD/ISD Codes – Exercise to memories important phone numbers – Mock exercise of receiving and making calls.

UNIT – IV
Practising to draft different types of letter on different occasions

PAPER –III ELEMENTS OF COMPUTER APPLICATIONS

UNIT – I : Computer Fundamentals

UNIT – II: Input/Output Devices
UNIT – III:  Dare Storage Devices


UNIT-IV:  Problem Solving

Introduction to problem solving and techniques (sequential, branching, reputation) – Introduction to algorithm, its characteristics – Flowchart and flowcharting – Advantages and disadvantages of algorithm and flowcharting – Some simple type of problems.

UNIT-V:  Operating System & MS DOS

Operating System Concepts – What is operating system – Batch processing – Multi programming – Time sharing- Real Time – Computer networks – Internet, LAN, WAN.


UNIT-VI:  MS-Windows


UNIT –VII:  MS-WORD


UNIT-VIII:  MS-EXCEL

UNIT-IX : Database Concept

Introduction to DBMS, objectives, advantages, disadvantages, initiate, attributes, data organization – Logical, Physical, data virus – physical, logical conceptual, data models – Hierarchical, relational, network, schema, sub-schema, normalization.

UNIT – X : Programming in FOXPRO


PAPER – III ELEMENTS OF COMPUTER APPLICATIONS

PRACTICAL

Time: 3 Hrs. SYLLABUS Practical:35 Marks

1. Introduction to Operating System

2. Introduction to Word-processing and Spreadsheet
   Create Windows, edit and print a document file, using MS WORD – Create a document using tables and graphics using MS Word – Designing Spreadsheet and manipulation using different arithmetic functions – Printing a Spreadsheet with a proper format with Headers and Footers – Generate and print a graph using MS Excel – Design simple presentation using Colours and Fonts.

3. Introduction to FOXPRO Programming
   Creating a database and adding records to it – For the given database, execution of different commands – Programmes on Sorting and Indexing databased – Programmes on selecting records from a given database on simple and compound conditions – Programs on maintenance of database – Programs on updating of database – Programmes on Screen Manipulation – Programs using sub-programs and procedures – Programmes using multiple files.

4. Computer Applications
   Tour and travel agency information – Room reservation, ticket reservation – Filing and indexing – Stationary control – Pay roll – Work schedule – Accounting and inventory control, etc.
(vi) TRAVEL AND TOURISM TECHNIQUES

PAPER-I

TOURISM MARKETING

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

Introduction

- Meaning and role of tourism marketing,
Difference between selling and marketing; Special
features of tourism marketing; Marketing
concepts, Elements of marketing Product
Promotion, Physical distribution and Price.

Market Segmentation &
Target Marketing

- Basis of segmentation, identifying target market,
types tourism, Profile of tourists.

Positioning of Product

- Establishing a product, creating a position
statement, principle of product positioning,
pricing the product.

Promotion

- Meaning, importance, methods, tourism
communication, advertising: Publicity, VCR,
Coupons, picture postcard; personal selling,
press and media, public relations and
communication.

Marketing Techniques

- Marketing techniques of a Travel Agency;
Marketing of fairs and festivals; marketing of
congress: convention, incentive travel,
workshops, and seminars.

PAPER-I

TOURISM MARKETING

PRACTICAL

Time: 3 Hrs.

SYLLABUS

Practical: 35 Marks

1. Make a survey of tourists at a tourist place to prepare their profile.
2. To arrange site seeing tours to local boys and girls to a tourist place.
3. Arrangement of an exhibition of tourist literature in a local festival and
informing local public about the same.
4. To identify tourist market visiting your area for pilgrimage and recreation.
5. To identify potential buyers of tour and travel of your town who are wiling to
undertake tour for sight seeing.
6. Collection of brochures from tourist office, hotels etc. to understand how promotion of tourist activities is being done.
7. Collection of advertisements from newspapers, magazines and making an analysis of the same.

PAPER-II  COMPUTER APPLICATIONS IN TOURISM

Time: 2 hrs.

THEORY

SYLLABUS

Basic of computers: Parts of computers, operating systems- DOS, UNIX, WINDWOS, Types of languages and packages.

Basic application of computers: Word processing, Spread sheet, Storing and retrieval of information customer data base, promotional mailing, making (Developing) tour packages programmes

Road, transport, airlines, hotel booking and different packages

Travel accounting

Basics of accounting systems, maintenance of ledger, simple final accounts

Familiarity with foreign exchange, credit card transactions.

PAPER-II  COMPUTER APPLICATIONS IN TOURISM

PRACTICAL

Time: 3Hrs.

SYLLABUS

1. Hands-on practical for PC awareness
2. Visit to travel agency, Airlines for familiarity with handling of CRS
3. Typing letters, fax messages using word processor packages and /with mail merging
4. Preparing simple profit and loss account and balance sheet using an accounting package
5. Preparing mailing list of customers
6. Storing and retrieving information of customers creating and using a data base (packages)
THEORY SYLLABUS

Hospitality Industry - Meaning and role, futuristic view of growth; nature and scope, forms and types. Classification and approval of hotel properties and restaurants; components of a hotel-Front office, housekeeping & maintenance, food and beverages services, food and beverages production, security, marketing and sale, HRD, Accounts; Coordination of different departments.

Front Office Operations - Meaning, aims, objectives & role, Layout & design, organization of front office, manpower deployment, coordination with other departments, functions, information, reservation & reception, cash & billing, telephone department, coordination with other departments, guest handling procedure.

House Keeping - Meaning, objectives, nature & principles, organizational structure, manpower division & skills, duties & responsibilities of housekeeping staff, liaisoning with other departments and room cleaning, type of line on and equipment and material used in hotel properties. Nine gems of maintenance department – Tailor, carpenter, mason, electrician, plumber, gardener, laundry, painter, florist.

Food and Beverages - Meaning, nature and objectives, manpower structure – Bearers, service stewards, captains – types; Layout & design of food & beverage service area, Types of catering establishments – Industrial, Commercial, Transportational & institutional; F&B Equipments, Crockery, Cutleries, Variety of menus, Alcoholic and non alcoholic beverages, billing and payment procedure; traits and grooming of F&B service staff, Coordination with other departments.
PAPER-III: ACCOMMODATION AND HOSPITALITY OPERATIONS

PRACTICAL

SYLLABUS

Practical: 35 Marks

1. Visit to various types of accommodation units like Hotels, Resorts, Motels, heritage hotels etc. To understand the working of different departments of the establishments and preparation of a report.
2. Visit to different catering outlets and submit a report on their functioning.
3. Practical exercises & role playing exercises in receiving guests, providing information on booking of rooms and handling mails.
4. Practical exercises in billing and payments in hotels.
5. Visit to a hotel to learn the various methods of cleaning of all types of rooms and public area and prepare report.
6. Exercises in preparing and making the room of a hotel ready for occupancy.
7. Practical exercises in table laying, handling of cutlery, glasses, techniques of serving the foods and beverages for different menus.
8. Practical exercises in the techniques of room service.

(vii) BANKING

PAPER-I ADVANCES AND FOREIGN EXCHANGE

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

Concept of lending- Importance to economy and banks

Type of advance-

a. Fixed/fluctuating
b. Secured/partly secured/unsecured
c. Commercial/priority sector
d. Inventor/documents of title/paper security

Types of borrowers – Individual/firms/Companies

Loan application - importance, laws and types

Type of security – Principal/ collateral, tangible/ intangible.

Mode of charges – Pledge, hypothethical/mortgage/assignment/creation of charges.

Assessment of borrowers – Pre-sanction inspection- singular/joint accounts, concept of guarantor, assessment of needs of borrower, viability of projects – financial and technical.

Proposal – Importance, preparation and sanction
Documentation – need, format, stamp-duty, execution, dating, authentication and time limitation, stock statements – need and periodicity.

Concept of sanction limits- drawing limits, procedure, out of order accounts, over limit business.

Insurance- importance, various types of averages clauses.

Renewal/review of advances- importance, periodicity, procedure and documentation.

Guarantee and indemnity

Detailed discussion on precautions/safe guards in advances against.

- Pledge of goods.
- Hypothecation of goods
- Pledge of shares/securities, units of mutual funds.
- Bank term deposit receipts, insurance policies, NSC etc.
- Priority sector lending – agriculture, SSI and other priority sector.
- Commercial advances
- Documents of title to goods- RR’s, MTR’s, Bill of Lading.

Foreign Exchange:

Meaning and importance of foreign Exchange, various types of Non-Resident Account, Purchase and Sales of Foreign Exchange in different forms i.e. Currency, Travelers cheque, bill etc. Letter of Credit – Concept, various forms of letter of credit and significance in Foreign Exchange transactions.

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PAPER-I ADVANCES AND FOREIGN EXCHANGE

SYLLABUS

Time: 3 Hrs. PRACTICAL Practical:35 Marks

1. Advance: With the help of various types/forms of loan application, security documents specimen forms use in any one of banks for various types of advances, specimen form of various registers/ledger used in advances students be given practical on the following:

- Cash credit against pledge of goods to an individual
- Cash credit against pledge of goods to a partnership firms.
- Cash credit against assignment of book debts to a limited company.
- Cash credit against Hypothecation of goods of an individual.
- Cash credit against hypothecation of goods of partnership.
- Cash credit against hypothecation of goods to limited company.
- Overdraft against shares and securities to an individual.
- Overdraft against shares and securities to a Partnership.
- Overdraft against shares and securities to a Limited Company.
- Demand loan against bank term deposit receipt to an individual.
- Demand loan against bank term deposit receipt to a Partnership.
- Demand loan against bank term deposit receipt to a Limited Company.
- Overdraft against bank TDRs to an individual.
xiv. Overdraft against bank TDRs to a Partnership.

xv. Overdraft against bank TDRs to a Limited Company.

xvi. Demand loan against LIC policy/Govt. documents like NSC, Units etc. to an individual.

xvii. Demand loan against LIC policy/Govt. documents like NSC, Units etc. to a Partnership.

xviii. Demand loan against LIC policy/Govt. documents like NSC, Units etc. to a Limited Company.

xix. Fixed loan against mortgage of property to an individual.

xx. Fixed loan against mortgage of property to a Partnership firm.

xxi. Fixed loan against mortgage of property to a Limited Company.

xxii. Advances under Agriculture: Crop loan to single/Joint individuals.

xxiii. Advances under Agriculture: Medium term to single/Joint individuals.

xxiv. Advances under Agriculture: Long term to single/Joint individuals.

xxv. Advances under SSI sector: to an industry

xxvi. Advances under schedule of: Self employed to an educated unemployed.

xxvii. Advances under schedule of: Professionals to an advocate/chartered accountant

xxviii. Advances under schedule of: Small business to vegetable vendors.

xxix. Advances under schedule of: Educational loan to a graduate undertaking MBA course.

xxx. Advances under schedule of: DRI Scheme to SC/ST candidate, Nehru Rozgar Yojna


Tailor made practical to be given for

i. Pledge account to record storage of goods and delivery of goods showing calculations of drawing limits.

ii. Hypothecation of stock checking of statements and calculation of drawing limits.

iii. Calculation of quarterly product and inventory and application of interest.

iv. Preparation of monthly statement of accounts of a limited company - CC account with branch.

v. Maintenance of insurance register and due dates diary.

vi. Entries on security register and ledger for loans/overdraft/cash credit.

vii. Preparation of proposal for each type of loan/security/borrower.

viii. Exercise on purchasing of a documentary demand bill/purchasing of a documentary essence bills.

ix. Exercise on calculation of due date, charges on payment and/or return of bills.

x. Entries in BP/BD registers and ledgers (drawer wise and drawee wise) where applicable.

2. **Foreign Exchanges:** With the help of all prescribed forms/vouchers/registers/ledgers specimen folio's exercise on-

   a) Collection of an export bill drawn on a drawer in UK.

   b) Collection of a cheque payable by a bank in America.

   c) Remittance of proceeds of a foreign bill received from Japan drawn on Indian Importer.

   d) Remittance of proceeds of a foreign cheque received from France drawn on an Indian.
e) Opening and operation of NRE accounts.
f) Opening of a letter of credit.
g) Exercise on sale/purchase of foreign currency.

PAPER-II                               ANCILLARY SERVICES

Time: 2hrs                               Theory: 25 Marks
                                             CCE:30 Marks
                                             Practical:35 Marks
                                             Total:90 Marks

THEORY

SYLLABUS

Remittance of funds – Demand drafts, Mail Transfers, Telegraphic/Telex/Fax Transfers, Traveller’s cheques, Gift cheques, Stock Invests, Pay orders.

2. Safe deposit lockers/safe custody accounts.
4. Merchant banking services – Consultancy, Raising of funds, underwriting, issue of shares: bonds, debentures, etc.
5. Hire Purchase.
6. Leasing
7. Factoring/forfeiting
8. Guarantees – performance/ financial
9. Housing Finance
10. Sale/ Purchase of shares, Debentures and other securities.
11. Mutual funds – open end close end.
12. Underwriting of shares, bonds and debentures of Industrial Organisations.
13. Trustees/Executor and Administrative services.
14. Tax Consultancy.
15. Credit cards.
16. Rural/Green Cards.
17. Specialised services and at Convenient times.
18. Collection and payment of Pension, excise and custom duty, income tax.
19. Automated Teller Machines – Round the clock banking.

PAPER-II                               ANCILLARY SERVICES

PRACTICAL

Time: 3 Hrs.                               SYLLABUS                               Practical:35 Marks

Note: Establish Dummy Banks/Branches – Practical to be as far as actual work found in a Bank/Branch
1. **Remittance of Funds**

   **DD:** Scrutiny of applications, prescribed voucher, determining exchange payable, scrutiny of counter foil of application forms, ensuring receipt of funds by the banks/branches in case/cheque duly debited and cancelled. Entries in DD issue register, writing/typing of D.D. preparing advice of drawing. Separate exercises of cases DD cancellation, loss of DDs and issue of duplicate DD.

   **MT:** Scrutiny of application forms, voucher preparation, exchange calculation, entries in M.T. registers. Preparation of M.T. documents, ensuring dispatch.

   **Telegraphic/Telephonic/Telex/Fax transforms:** Scrutiny of application forms, preparation of vouchers, Calculation of Exchange, Telegraph/telex/telephone charges, entries in the registers/writing/typing of messages to payee branch.

   **Travellers cheques and Gift cheques:** Scrutiny of applications, calculation of charges, receipt of funds an issue of documents, entries in the respective registers.

   **Inward D.Ds, M.Ts and T.Ts for payment:** Scrutiny of respective document, endorsements, thereon, verification from respective drawing advices/messages, preparation of vouchers for payment, entries in respective registers/ledgers – such as drafts payable register/ledger etc.

   **Stock Invest:** Scrutiny of application form and required deposit account opening form, preparation of vouchers, receipt of cash/cheque, debit entries in deposit register/ledger and stock invest ledgers, preparing stock invest document and delivery separate exercises, on receipt of paid stock invest by other branches. Lifting of lien on deposit account upon receipt, and cancellation of stock invest, treatment on loss of stock invest.

   Scrutiny of cheques/bills received for collection (inward/outwards), entries in relative register, preparation of presentation Memo’s collection schedules, fats enquires, crossing, endorsements, verification, receipt of proceeds remittance of proceeds. Exercise on calculation of due dates, payment of bills, disposal of unpaid bill.

   **Safe deposit vaults:** filling up of specimen signature card, memorandum of agreement, preparation of vouchers and rent receipts for rentals and others charges if any, intimation letters, entries in lockers and key registers, key and locker register and safe deposit account register and SDV account register/ledger, password book, due dates dairy, rent register etc. Exercise on cases relating to loss of key, changing of lockers, delivery of articles in case of deceased hirer.

   **Safe custody accounts:** Filling of accounts opening forms, scrutiny of article/document for safe custody. Making entries in safe custody ledger, calculation of charges, preparation of vouchers, issuing of safe custody
receipt. Maintenance of due date diary. Preparation of intimation letters, notice/letter. Exercise on nomination to be obtained in safe custody/SDV A/c.

**Pension payment:** Scrutiny of P.P.O. into various related registers, obtaining of various declarations/undertaking, payment of pension, calculation of commuted values of pension preparation of scrolls and reporting to link br.

**For other services:** Practical to be arranged for each one of them with a specific case/request from the customer to be attended by a branch preferably after arranging a visit to a nearby bank branch undertaking such services.

**PAPER-III**

**INTRODUCTION TO COMPUTER APPLICATIONS**

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<th>Time: 2hrs</th>
<th>Theory: 25 Marks</th>
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<td>Practical:35 Marks</td>
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<td>Total:90 Marks</td>
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**THEORY**

**SYLLABUS**

**Introduction to different types of computers** – history of computer, organization of computer, memory, batch and serial processing of data, application of computers in business.

**General Information about computers** – key board, types of video-adopter, types of PCs IBMPC system – various sub-system and units and parts.

**Operating System** – DOS, ROM BIOS, Start, Directory, Files type and naming of files.

**MS DOS Commands** – different types.

**Data processing system** – data processing cycle, system design, file definition, card layout, coding and result validation.

**Database Management** – Meaning, limits of data base, structure and files, records, file use of dBASE III Plus - different operational steps, case in d BASE.

**Introduction to word processing** - Loading the program main menu operation, the opening menu, point control operation, on screen operations.

**Use of Lotus Software** – Spread sheet and application – common commands for entering data, menu driven commands, built in function.

**Flow chart** – principle and guideline, advantages.
Basic programs – Simple concepts of writing program – simple programs using BASIC.

PAPER-III        INTRODUCTION TO COMPUTER APPLICATIONS

PRACTICAL

Time: 3 Hrs.               SYLLABUS    Practical:35 Marks

1. Formatting, copying, backup, restore command.
2. Creation of files, records, fields, saving, printing and deletion of file.
3. Exercise in dBASE in banking problems.
4. Exercise in banking problems with Lotus programme.
5. Exercise using flow chart.
6. Preparation of elementary programme having applications in banking like:
   (i) Simple balance sheets.
   (ii) Bi-verity tabular forms
   (iii) Interest calculation
   (iv) Ledger posting etc.

(viii) MARKETING AND SALESMANSHIP

PAPER-I                       PRINCIPLES OF MANAGEMENT

Time: 3hrs                   Theory: 60 Marks
                             CCE:30 Marks
                             Total:90 Marks

THEORY

SYLLABUS

1 Management: as science, as art, as profession, administration and management, levels of management, managerial skills and rules, branches of management.

2 Scientific Management: meaning, features, aims and objectives of scientific management, principles of scientific management, techniques of scientific management.

3 Business environment: meaning of business environment, features of business environment, importance of business environment, components of business environment, economic environment in India, new economic policy, liberalization, Privatisation and Globalisation.

4 Planning: Steps in Planning process, how to make plans effective, type of plans, objectives, Policies, procedures, methods, rules strategies, programmes and budgets.

5 Organisation structure: meaning, developing organization structure, role of organization structure, features of a good organization structure, forms of organizational structure.
6 **Staffing**: selection procedure, Type of tests, advantages and disadvantages of test, interview.

7 **Wage Payment**: Incentive wage system, group incentives and prerequisites of good incentive plan.

8 **Directing**: Motivation; meaning, types, importance, theories of motivation, techniques to increase motivation, leadership; nature, features, qualities of a good leader, importance of leadership management, techniques of effective leadership.

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**PAPER-II**

**MARKETING MANAGEMENT**

**Time: 3hrs.**

**Theory: 60 Marks**  
CCE: 30 Marks  
**Total: 90 Marks**

**THEORY**

**SYLLABUS**

i. **Marketing**: Elements of modern concept of marketing, marketing and selling, marketing management, marketing management philosophies, functions of marketing, role of Marketing

ii. **Business finance**: meaning, meaning of financial management, scope of financial management. Objectives of financial management, functions of a financial manager, financial planning, features of financial planning, importance of financial planning, objectives of financial plan, capital structure, fixed capital, working capital.

iii. **Financial Markets**: Financial markets, capital market, elements of capital market, nature of capital market, functions of capital market, primary market, secondary market, financial institutions, unorganized capital market, money market. Constituents of money markets, functions of money market, distinction between capital market and money market, stock exchange, functions of stock exchange, over the counter exchange of India, objective of SEBI, functions of SEBI.

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**PAPER III**

**SALESMANSHIP**

**Time: 3hrs**

**Theory: 60 Marks**  
CCE: 30 Marks  
**Total: 90 Marks**

**THEORY**

**SYLLABUS**

i. **Salesmanship**: meaning, types of salesman, selection techniques of salesman, training, wage payments of salesman, salesmanship as career.

ii. **Sale promotion**: meaning, objectives, techniques of sales promotion, advantages and disadvantages of sales promotions, role of media in sales promotion, studies of sales promotion in India.

iii. **e-Trading**: meaning, pre requisites of e-trading, depository services, operational aspect of e-trading, traditional trading versus e-trading, advantages of e-trading, status of e-trading, efforts to be done.
iv. **e-Marketing**: meaning, features of e-marketing, 4 Ps of e-marketing, distinction between traditional marketing and e-marketing. Advantages of e-marketing, disadvantages of e-marketing, status of e-marketing.

v. **e-Banking**: meaning, features, sources provided by e-banking, difference between e-banking and traditional banking, process of e-banking, types of e-banking services, advantages of e-banking, disadvantages of e-banking, present status of e-banking.

(ix) **RURAL MARKETING**

**PAPER-I**

**PRINCIPLES OF MANAGEMENT**

**Time:** 3hrs

**Theory:** 60 Marks

**CCE:** 30 Marks

**Total:** 90 Marks

**THEORY**

**SYLLABUS**

i. **Management**: as science, as art, as profession, administration and management, levels of management, managerial skills and rules, branches of management.

ii. **Scientific Management**: meaning, features, aims and objectives of scientific management, principles of scientific management, techniques of scientific management.

iii. **Business environment**: meaning of business environment, features of business environment, importance of business environment, components of business environment, economic environment in India, new economic policy, liberalization, Privatisation and Globalisation.

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v. **Organisation structure**: meaning, developing organization structure, role of organization structure, features of a good organization structure, forms of organizational structure.

vi. **Staffing**: selection procedure, Type of tests, advantages and disadvantages of test, interview.

vii. **Wage Payment**: Incentive wage system, group incentives and prerequisites of good incentive plan.

viii. **Directing**: Motivation; meaning, types, importance, theories of motivation, techniques to increase motivation, leadership; nature, features, qualities of a good leader, importance of leadership management, techniques of effective leadership.
PAPER-II MARKETING MANAGEMENT

Time: 3hrs Theory: 60 Marks
CCE:30 Marks
Total:90 Marks

THEORY

SYLLABUS

i. Marketing: Elements of modern concept of marketing, marketing and selling, marketing management, marketing management philosophies, functions of marketing, role of Marketing.

ii. Business finance: meaning, meaning of financial management, scope of financial management. Objectives of financial management, functions of a financial manager, financial planning, features of financial planning, importance of financial planning, objectives of financial plan, capital structure, fixed capital, working capital.

iii. Financial Markets: Financial markets, capital market, elements of capital market, nature of capital market, functions of capital market, primary market, secondary market, financial institutions, unorganized capital market, money market. Constituents of money markets, functions of money market, distinction between capital market and money market, stock exchange, functions of stock exchange, over the counter exchange of India, objective of SEBI, functions of SEBI.

PAPER III SALESMANSHIP

Time: 3hrs Theory: 60 Marks
CCE:30 Marks
Total:90 Marks

THEORY

SYLLABUS

i. Salesmanship: meaning, types of salesman, selection techniques of salesman, training, wage payments of salesman, salesmanship as career.

ii. Sale promotion: meaning, objection, techniques of sales promotion, advantages and disadvantages of sales promotions, role of media in sales promotion, studies of sales promotion in India.

iii. e-Trading: meaning, pre requisites of e-trading, depository services, operational aspect of e-trading, traditional trading versus e-trading, advantages of e-trading, status of e-trading, efforts to be done.

iv. e-Marketing: meaning, features of e-marketing, 4 Ps of e-marketing, distinction between traditional marketing and e-marketing. Advantages of e-marketing, disadvantages of e-marketing, status of e-marketing.

v. e-Banking: meaning, features, sources provided by e-banking, difference between e-banking and traditional banking, process of e-banking, types of e-banking services, advantages of e-banking, disadvantages of e-banking, present status of e-banking.
vi. Formation of self help Groups; Training, support from financial corporation exhibition of products.

(x) TRANSPORT SERVICES

PAPER I INFRASTRUCTURE AND MODES OF TRANSPORT

Time: 3hrs  
Theory: 60 Marks  
CCE:30 Marks  
Total:90 Marks

THEORY

SYLLABUS

Infrastructure of roads: City roads, four lanes, express high ways, BOT system, Road Tax, Toll Tax, subway, flyovers. Slip roads, round about safety measures, plantation by road sides, petrol and Gas stations, facilities at petrol stations including eating joints.

Modes of Transport: Public transport systems, private transport systems, urban city bus service, Rural mini-bus service, AC buses, Volvo buses. Route demarcation, profitable routes, not-profitable routes, facilities available to passengers during travelling. Bus terminus Authority. Facilities available at bus Terminus in district level and interstate bus terminus.

PAPER II TRANSPORT MANAGEMENT

Time: 3hrs  
Theory: 60 Marks  
CCE:30 Marks  
Total:90 Marks

THEORY

SYLLABUS

2. Road Safety measures: Environmental Hazards and the preventive measures.
4. Online banking, tour and tracking.
THEORY

SYLLABUS

1. Fundamentals of internet
   Concept of internet, use of internet, requirements of internet, internet domain, internet
   server, establishing connectivity on the internet, Types of internet providers, Constituents of
   internet protocol browsing of the internet tools and service of internet, procedure of opening e-mail account on internet.

2. Applications of ICT in Transport Industry
   Developing websites: Website, Web pages, Components of Website, Online
   booking, Status of ICT applications in transport industry in India.

E-Payment:

Transaction through internet, requirements of E-Payments System, post-paid
payment system – credit cards solutions, cyber cash, internet cheques, instant paid
payment system – debit card, prepaid payment system- electronic cash, digi cash, net
cash, cyber cash, smart cards.

E-Security:

Areas of internet security, security threats, security breach avoidance, defection and
recovery. Confidentiality and integrity, electronic signature, access control,
authentication, precautions for security e-commerce.

PAPER III

ICT IN TRANSPORT INDUSTRY

Time: 3 Hrs.  
Practical:35 Marks

PRACTICAL

SYLLABUS

Internet and its application: Log into internet, Navigation for seeking information,
downloading information from internet.

Sending and receiving e-mail:

(a) Creating e-mail account

(b) Creating a message
(c) Creating an address book
(d) Attaching a file with e-mail
(e) Receiving a message
(f) Deleting a message

(xi) BASIC FINANCIAL SERVICES

PAPER I

ACCOUNTING FOR BUSINESS

Time: 3hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

1. Preparation of Trial balance, Bank reconciliation statement. Rectification of errors, Depreciation and Bills of exchange
2. Financial statements (without adjustment), Financial statement (with adjustments), accounting for not for profit organization. Accounting for partnership. Partnership Deed, final accounts of Partnership, division of profit, fixed and fluctuating capital etc.

PAPER II

INTRODUCTION TO FINANCIAL MARKET

Time: 3hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

1. Remittance of funds. Demand draft, mail transfer, stock invest and pay orders, collection of cheques (inward/outward), safe deposit lockers, standing instructions, investment advice. Merchant banking services- consultancy, raising of funds, underwriting, issue of shares, bonds and debentures, hire purchase.
2. Leasing, Guarantees, Housing finance, sale and purchase of shares, Debentures and other securities, mutual funds, underwriting of shares, bonds and debentures of industrial organization, credit cards, Rural cards collection and payment of pension, Automatic teller machines.
THEORY

SYLLABUS

1. **Introduction to internet:**


**E-Banking:**

Meaning, importance and types of e-banking services, traditional vs. e-banking, process of e-banking, advantages and disadvantages of e-banking, status of e-banking in India.

**E-Security:**

Areas of internet security, security threats, security breach avoidance, defection and recovery. Confidentiality and integrity, electronic signature, access control, authentication, precautions for secure e-commerce.

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PAPER III

COMPUTER APPLICATIONS IN FINANCIAL MARKETING

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

SYLLABUS

PRACTICAL

Internet and its application: Log into internet, Navigation for seeking information, downloading information from internet.

1. **Sending and receiving e-mail:**

   (a) Creating e-mail account
   (b) Creating a message
   (c) Creating an address book
   (d) Attaching a file with e-mail
   (e) Receiving a message
   (f) Deleting a message
2. Purchasing through the internet

3. Online banking – Operating and ATM.

(xii) INSURANCE

PAPER I  PRINCIPLES AND PRACTICES OF INSURANCE

Time: 3hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

1. Risks, Motor Insurance Policy and covers. Comprehensive policy, third party act policy, extra benefits cover and additional parts and benefits cover policies. Motor insurance claims: entitlement of claims, conditions of indemnity, settlement of claims, no claims discount, motor accident claims Tribunal.

Insurance of Persons: Personal Accident, Janta Personal Accident, Gramin Personal Accident Policy, Accident Policy for school going children group, personal accident air travel, insurance policies and health insurance scheme.


PAPER II  INSURANCE LEGISLATION

Time: 3hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

Accounts of insurance companies, statutory books, subsidiary books, final accounts and life insurance business items of debit side of revenue account of life insurance. Items of credit side of revenue account of life insurance. Explanation of items included in balance sheet.

Accounts of general insurance companies, debit side and credit side items balance sheet Insurance Contract, essential elements of a valid insurance contract,
essential of insurance contract, warrants in insurance contract, warranties under marine insurance, kinds of insurance contracts.

**PAPER III**
**INSURANCE SALESMANSHIP**

**Time: 3hrs**

**Theory: 60 Marks**
**CCE: 30 Marks**
**Total: 90 Marks**

**THEORY**

**SYLLABUS**

1. National Insurance Company
2. The New India Insurance Company
3. The United India Insurance Company
   Their Policies, Structure, Premium and claims
4. Birla sun life Insurance company
5. ICICI Prudential Life Insurance Company
   Their Policies, Structure premium and claims

**(xiii) TAXATION PRACTICES**

**PAPER: I**
**ELEMENTS OF BOOKS-KEEPING**

**Time: 3hrs**

**Theory: 60 Marks**
**CCE: 30 Marks**
**Total: 90 Marks**

**THEORY**

**SYLLABUS**

a. Preparation of Trial balance, Bank reconciliation statement, Rectification of errors, Depreciation and Bills of exchange.

b. Financial statements (without adjustment), Financial statement (with adjustments), accounting for not for profit organization. Accounting for partnership, Partnership Deed, final accounts of Partnership, division of profit, fixed and fluctuating capital etc.
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vii **Wage Payment**: Incentive wage system, group incentives and prerequisites of good incentive plan.

viii **Directing**: Motivation; meaning, types, importance, theories of motivation, techniques to increase motivation, leadership; nature, features, qualities of a good leader, importance of leadership management, techniques of effective leadership.
PAPER III: FUNDAMENTALS OF INCOME TAX

Time: 3hrs. Theory: 60 Marks
CCE:30 Marks
Total:90 Marks

THEORY
SYLLABUS

Computation of Tax Liability:
Schedule of rates of tax, computation of Tax liability. Double taxation relief. Special provision relating to avoidance of Tax.

Assessments:
Assessment of agricultural income, assessment of individual, assessment of Hindu undivided Family, Assessment of firm.

Administration of ACT:

(xiv) RURAL INFORMATICS MANAGEMENT

PAPER I PRINCIPLES OF MANAGEMENT

Time: 3hrs. Theory: 60 Marks
CCE:30 Marks
Total:90 Marks

THEORY
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**PAPER II: ICT AND E-COMMERCE**

**Time: 2hrs.**

**Theory: 25 Marks**
- CCE:30 Marks
- Practical:35 Marks
- Total:90 Marks

**THEORY**

**SYLLABUS**

**Unit-I Internet Technologies:**

Introduction and history of the Internet; TCP/IP protocol suite and architecture, IP datagram and routing; TCP and UDP, application layer and its protocols such as http, ftp, telnet; structure of Internet protocols, client server protocols, web-based protocols; network technologies, network structure, routing; relevant applications and technologies including Java, HTML and XML; business application of the Internet.

**Unit-II Internet tools:**

e-mail – anatomy of e-mail, opening e-mail account, reading, sending, deleting e-mail address – finding e-mail address – adding signature – attaching files, opening attachments – managing e-mail account, - web mail, outlook express.

**Unit-III Networking & Communication:**

Concepts such as primary/secondary, polling/selection, peer-to-peer type, priority/non priority; layered protocols and OSI model; standard institutions and their communication standards such as IEEE LAN standard, gigabit speed LANs, Wireless LANs; communication protocols used in WANs; client-
PAPER III

E- GOVERNANCE

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

Unit I: E-Governance Infrastructure:

Digital System Infrastructure, Legal Infrastructure Institutional infrastructure, Human infrastructure (Capacity building/Training programmes to equip government staff at all levels), Technological Infrastructure (software and hardware required for e-governance implementation).

Unit II: Security Concern and Legal Frameworks for e-Governance:

E-Government systems security: Challenges and approach to e-government security, security concern in e-commerce, security for server computers, communication channel security, security for client computers. The existing laws in the country with specific references to the e-transactions and the cyber crimes.
Unit III: E-governance for public utilities:

Emergence of new e-sectors such as e-Health, e-Water & e-Tourism, ICT for democracy & development (e-Municipality, e-Democracy, e-Voting), e-literacy and illiteracy.


Unit IV: Status and future of e-Governance:

Monitoring and evaluation of e-government projects, IT workforce, IT clusters & technology park as incubators of innovation, concepts in bridging the digital divide.

Current status and future prospects e-Government systems in India and Punjab

PAPER III: E-GOVERNANCE PRACTICAL

Time: 3 Hrs SYLLABUS Practical:35 Marks

1. Prepare a project report on any two govt. departments which provide services through internet. The project report should include information like profile of the department, services provided by the department, how it deals with grievances of the clients, etc.
2. Find some recent example of security threats involving federal, state, or local government entitles. Logging into websites through which the government provides services electronically/through internet. Navigating for information and availing services.

For example:

Indian Railways and Roadways:
Checking schedules, fares, distance between two places/stations, booking, confirmation of tickets, etc.

Punjab State Electricity Board/BSNL etc:
Checking bill/usage. Payment of bills, etc.

Indian Postal service:
Checking track of your registered post. PIN numbers, Investment schemes, etc.

Income Tax Dept:
Downloading various rules, forms, e-filing of return, payment of tax, etc.

Punjab School Education Board:
(xv) EXPORT IMPORT PRACTICE AND DOCUMENTATION

PAPER I PRINCIPLES OF MANAGEMENT

Time: 3hrs Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

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THEORY
SYLLABUS

Unit-I Internet Technologies:
Introduction and history of the Internet; TCP/IP protocol suite and architecture, IP datagram and routing; TCP and UDP, application layer and its protocols such as http, ftp, telnet; structure of Internet protocols, client server protocols, web-based protocols; network technologies, network structure, routing; relevant applications and technologies including Java, HTML and XML; business application of the Internet.

Unit-II Internet tools:
e-mail – anatomy of e-mail, opening e-mail account, reading, sending, deleting e-mail address – finding e-mail address – adding signature – attaching files, opening attachments – managing e-mail account, - web mail, outlook express.

Unit-III Networking & Communication:
Concepts such as primary/secondary, polling/selection, peer-to-peer type, priority/non priority; layered protocols and OSI model; standard institutions and their communication standards such as IEEE LAN standard, gigabit speed LANs, Wireless LANs; communication protocols used in WANs; client-server computing; LAN operating systems; web servers, mail servers, authentication servers.

Unit-IV
Advertisement through internet, Social networking sites and e-commerce: Facebook, twitter, Orkut, Myspace, etc., Mobile messaging for example Way2sms, SMS junction etc; Blogging, E-group.
PAPER II            INFORMATION TECHNOLOGY AND E-COMMERCE

PRACTICAL

Time: 3 Hrs Syllabus Practical: 35 Marks

E-mail: Opening account, communications through e-mail, managing e-mail account.

Opening account on Social networking sites (Facebook, Twitter, orkut, etc.) and interaction thereon, Blogging, Forming and managing e-group.

PAPER III            IMPORT MANAGEMENT

Time: 3hrs Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

Import- meaning of Indian import. Foreign trade policy 2009-14, potential items of import. Potential items of import from USA, UK and Gulf Countries. Setting up an appropriate business organisation choosing suitable mode of operation, naming the business.

Select the product and making effective Business correspondence, selecting overseas markets, selecting buyers, selecting channels of distribution, for negotiating with buyer. Processing an import order, entering into import contract, import pricing and costing.

Registration with Regional Authorities of Director General of Foreign Trade, Registration with import Promotion Council, Registration with Value Added Tax Authorities, Registration with Central excise Authorises, obtaining permanent Account Number (PAN), Import of Samples, gifts, sports goods and repaired goods etc. obtaining an import license.

(xvi) COOPERATION

PAPER I            ELEMENTS OF BOOK KEEPING

Time: 3hrs Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

2. Financial statements (without adjustment), Financial statement (with adjustments), accounting for not for profit organization. Accounting for partnership. Partnership Deed, final accounts of Partnership, division of profit, fixed and fluctuating capital etc.

PAPER II PRINCIPLES OF MANAGEMENT

Time: 3hrs

Theory: 60 Marks
CCE: 30 Marks
Total: 90 Marks

THEORY

SYLLABUS

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viii Directing: Motivation; meaning, types, importance, theories of motivation, techniques to increase motivation, leadership; nature, features, qualities of a good leader, importance of leadership management, techniques of effective leadership.
THEORY
SYLLABUS

Cooperative Agricultural Marketing:
Cooperative marketing in India, Structure and organization of cooperative marketing, Marketing of Agricultural produce, National Agricultural cooperative, Marketing Federation (NAFED), linking of credit with Marketing, Drawbacks of Agricultural Marketing cooperation, problems of Agricultural marketing Cooperatives.

Cooperative storage of Agricultural Produce:
Introduction, policy on cooperative storage and warehousing, Role of National cooperative Development corporation, cold storage, Consumer cooperative societies: National Cooperative consumer’s, federation (NCCF), State Consumer Cooperative Federation (SCCF) District Consumer Cooperative Wholesale Stores (DCCWS), Primary Consumer Cooperative Stores (PCCSS), Objectives of Consumers
Cooperatives, Management of Consumer, Management of consumer cooperative, Govt. Support, features of consumer cooperatives, its problem, Suggestions for improvement.

Cooperative Housing:
Types of Housing Cooperatives, organizational pattern, Resource Mobilisation, National Cooperative Housing Federation of India, Cooperative Housing in Rural Areas. Problems Faced by the Housing Cooperatives, suggestions.

Diary Cooperatives:
THEORY
SYLLABUS

1. Food Processing - Definition of terms, unit operation, types of unit operation, small & large scale processing.
2. Processing by heat- Pasteurization and sterilization, processing of vegetable and fruit by heat.
3. Canning-General outlines of canning unit operations, i.e. receiving, selecting, weighing, sorting, preparing, blanching, filling, exhausting, seaming, sterilizing, cooling, packing, labelling, warehousing & dispatching.
4. Processing and canning of various seasonal fruits such as apples, pears, mangoes, papaya and vegetables like beans, tomatoes, carrots, potatoes, and peas.
5. Spoilage of canned fruits and vegetables, causes and their control.
6. By-products-utilization of fruit and vegetable waste like lemon, orange, guava, mangoes, banana, grapes, tomatoes, peas and spinach.

FOOD PROCESSING
PRACTICAL

1. Washing, Sterilizing, disinfecting bottles and cans.
2. Pasteurization and sterilization of fruit and vegetable juices in bottles.
3. Visit to Canning/Bottling unit to observe application of seam checking gauge, micrometer, pressure gauge, vacuum gauge, cut out analysis of can etc.
5. Utilization of by products in preparation of lemon peel pickle, orange peel marmalade and citrus peel candy.

All practicals to be recorded in file along with procedures, analysis and samples.
PLANT MANAGEMENT

Paper-II

Time: 2hrs.                                    Theory: 25 Marks
                                                CCE:30 Marks
                                                Practical:35 Marks
                                                Total:90 Marks

THEORY

SYLLABUS

1. Selection of site, factory layout plan, water supply, drainage, labour, equipments forward and backward linkage.
2. Water types, significance of chemical and bacteriological qualities and management of water. Impact of hard water on equipment, food and containers, chlorination of water and its importance in food processing.
3. Detergents and cleaning agents-types and selection of clearing agents for food industry.
4. Hygiene and sanitation-Hygienic standards for plant and staff, disinfection in a food processing unit an Waste disposal of plant.
5. Control of pests and rodents in a food factory.
6. Study of equipments & their maintenance.
8. Project report writing.

PLANT MANAGEMENT

PRACTICAL

Time : 3 hrs.                                    Practical: 35 Marks

1. Visit to food factories and report writing on plant lay-out.
2. A project report on setting up of a food factory.
3. A report on sanitary standards of a food factory.
4. Planning lay out of factory, making charts for lay-out for a cannery.
5. Determination of hardness of water.
6. Practical training to carryout measures for pest control.
7. Cleaning and maintenance of equipments.
8. Procedure and filling-up of required documents i.e. loan forms, licenses, electric connections, FPO returns, sales tax returns etc.

All practicals to be recorded in file along with procedures, analysis and samples.
FOOD PACKAGING

Paper-III

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

1. Need and functions of packaging. Modes and economics in packaging of foods.
2. Types of traditional and modern packaging materials such as O.T.S. cans, bottles, P.V.C. L.D.P.E., H.D.P.E., laminators, retort pouch, PET Bottles, Tetra packs and permeability for oxygen and moisture.
4. Skin packs, blister packs-their utility in food packing, importance and selection.
5. Crushing material for packing food, wood shearing, paper shearing, aerosils, thermocols and others.
7. Wooden containers, their replacements with changing situations.
8. Use of strips, seals and similar material (veils) for sealing boxes for local and export markets.

FOOD PACKAGING

PRACTICAL

Paper-III

Time: 3 hrs.

Practical: 35 Marks

1. Observing the packing of foods in food industry.
3. Preparation of a scrap book with samples of different packing materials.
4. Suitability of butter paper, wax paper, cellophane and other papers.
5. Measurements of closure caps, wad and their identifications.
6. Exhibition of food products at production centres.

All practical to be recorded in file along with procedures, analysis and samples.
(ii) COMMERCIAL GARMENT DESIGNING AND MAKING

DRESS MAKING

Paper-I

Time: 2hrs.                                      Theory: 25 Marks

CCE:30 Marks
Practical:35 Marks
Total:90 Marks

THEORY

SYLLABUS

1. Fashion
   a) Origin-costumes from medieval to modern period (Sultanate period, Mughal period, Pre-British & British period).
   b) Fashion-Definition and related terminology-style, hi-style, classic, fads, chic etc.
   c) Factors favouring and retarding fashion.
   d) Fashion cycle.
   e) Role of fashion and fashion designer in the garment industry.
2. Silhouette-Types knowledge of current silhouettes.
3. Special dress designs for children and adults with special emphasis on (a) sleeves and cuffs (b) collars (c) pockets (d) yokes.
4. Fitting-Method of taking trial, finding out the defects in fitting and suggesting remedies for the defects.
5. Study of traditional embroideries-Phulkari, Kashida, Chicken-kari, Kantha and Dasuti.

DRESS MAKING

PRACTICAL

Time : 3 hrs.                                      Practical:35

Marks

1. Designing, drafting, layout, cutting, stitching and finishing of the following garments:
   (a) Bush Shirt          (d) Shirt
   (b) Kurta              (e) Shirt top
   (c) Pyjama             (f) Nighty

2. Fitting - Fitting trials, finding defects and rectifying the same.
3. Ironing folding and packing of finished garments.
4. Using innovative traditional embroidery stitches and techniques on the garments designed and stitched.
   Design file - Stepwise illustration exploring the design plan, drafting, layout, paper patterns and other embellishments.
   Embroidery file showing samples of different embroideries and other embellishments prevalent.
All practical to be recorded in file along with procedures, analysis and samples.

COMMERCIAL CLOTHING

Paper-II
Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY
SYLLABUS

1. Calculation of standard body measurements from chest/bust and height measurement.
2. Grading its importance and method.
3. Knowledge and use of special equipments for button hole making, buttoning, overlocking, embroidery, picoh, eyelet, embroidery stitches and button covering.
4. Estimation of (a) fabric (b) length of lay (c) raw material and accessories according to design, sizes, order size and other criteria.
5. Study of processes and stages of commercial (bulk) production (laying, marking, cutting, ticketing, assembling and distribution of components, stitching, assembling of garments, finishing of raw edges, checking, laundering, ironing, folding and packing).
6. Finishing and quality control (checking at various stages).
7. Sale promotion techniques like exhibitions, displays (window and interior), advertisements, fashion shows, discount sales, sample portfolio.
8. Readymade garments-their importance, selection and evaluation for (a) Appearance (b) Workmanship (c) Fabric (d) Cost.

COMMERCIAL CLOTHING
PRACTICAL

Paper-II
Time: 3 hrs.

Practical: 35 Marks

1. Drafting of Men's shirt & Trouser.
2. Drafting of Formal ladies suit.
3. Drafting of Formal Baby Frock.
4. Designing of Home textiles products-Quilt cover, Pillow cover, cushion cover, Bag, Tray mat, Dinning tale mat, Table Runner etc.
5. Adjustment of pattern according to various body shapes e.g. full bust, flat bust, steeping shoulders etc.
6. Computerised/manual grading of pattern one size up and one size below (for children, women and men).
7. Costing of the finished garment.
8. Taking orders from the market for two garments each for men, women or children, and one from home textile products.

9. Exercises in estimation of (a) fabric (b) length of lay (c) raw material and accessories according to design, size, order size and other criteria.

10. Planning & organization of exhibitions, display, fashion shows, etc.

11. Visit to commercial Unit to observe stages of commercial production of garments. All practicals to be recorded in file along with procedures, analysis and samples.

UNIT MANAGEMENT

Paper-III

Time: 2hrs.

Theory: 25 Marks
CCE:30 Marks
Practical:35 Marks
Total:90 Marks

THEORY

SYLLABUS

1. Unit establishment selection of site for factory building/shop personnel requirement, equipment requirements, raw materials procurement and complete budgetary requirements.

2. Lay-out plans for efficient and smooth working of units.
   (a) Effective and maximum utilization of space available.
   (b) Emphasis on safety measures.
   (c) Care and maintenance of equipment and machines.
   (d) Effective storage of raw material.
   (e) Knowledge regarding the working of a garment manufacturer/export industry and the job responsibility of the persons employed at different levels.
   (f) Knowledge and management of records prevalent in the garment industry.

UNIT MANAGEMENT

Paper-III

Time: 3 hrs.

Making a file with the following information.

1. Lay-out plans for factory/shops etc.

2. Lay-out plans for interior for the same.

3. Using various cleaning agents and techniques for maintenance of various types of equipments in the unit.

4. Visit to different related industries and reporting regarding lay-out, equipments, safety, storage and personnel etc.

All practical to be recorded in file along with procedures, analysis and samples.
(iii) TEXTILE DESIGNING

TEXTILE TESTING AND FINISHING

Paper-I

Time: 2hrs.

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

3. Introduction to dry and wet cleaning their importance and uses.
4. Detailed study of various types of machines used for dry cleaning and washing of different textiles.
5. Dry cleaning of different textiles.
6. Cleaning of carpets, galicha, sofa sets and wall hangings.
7. Folding and packing of the finished articles.

TEXTILE TESTING AND FINISHING

PRACTICAL

Paper-I

Time: 3 hrs.

Practical: 35 Marks

1. Detailed study of textiles fibres (by Physical and Chemicals Methods) to identify the dye applicable to the given fibre.
2. Qualitative and quantitative analysis of different blends-terry-cot, terry-wool, terry-viscose, cots-wool, cotton-cashmilon.
3. Practice of dry cleaning woolen garments.
4. Practice of wet cleaning.
5. Practice of testing shrinkage of cotton.
6. Colour fastness testing with grey scale.

All practical to be recorded in file along with procedures, analysis and samples.
THEORY

SYLLABUS

1. Classification of Printing styles - Direct, Discharge and Resist styles.
   Direct Style-Block and Screen Printing.
   Discharge Style-Oxidation and Reduction Printing
   Resist Style-Batik, Tie & Dye and Chemical dsResist Printing.
4. Different types of printing machinery-Flat Bed, Rotary and Roller Printing Machine-their operations, techniques, advantages and disadvantages.
5. Making of screens by direct and photographic method and printing with screen on various textiles.
6. After treatment given to printed textile-Drying, steaming, ageing & washing.
7. Introduction to computer aided designing.

PRACTICAL

2. Practice of printing cotton fabric with various Tie and Dye Techniques.
4. Practice of Screen Making.
5. Practice of printing a blended fabric-blended, terry-cot, cots-wool, with pigment colours with screen printing using different colours.
6. One article each to be worked out with a combination of two or more techniques e.g. Tie and Dye & Block-printing; Batik and fabric printing; Spray and Screen Printing.
7. Introduction to computer aided designing.
All practical to be recorded in file along with procedures, analysis and samples.

**TEXTILE DYEING**

**THEORY**

**Paper-III**

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**THEORY**

**Syllabus**

1) Scouring and bleaching of viscose, acelate rayon, nylon, terrylene and acrylic (cashmilon).
2) Dyeing of polyester with disperse dyes using conventional carrier and high temperature/High pressure method.
3) Properties and applications of basic dyes on cashmilon.
4) Dyeing of nylon with acid dyes and direct dyes.
5) Application of direct dyes on viscose.

**TEXTILE DYEING**

**PRACTICAL**

**Paper-III**

| Time : 3 hrs. | Practical:35 Marks |

1) Practice of scouring and bleaching of Acrylic, viscose and terrycot.
2) Practice of dyeing of polyester with Disperse dyes using carrier method.
3) Practice of dyeing cashmilon with Basic dyes.
4) Practice of dyeing nylon with Acid and Direct dyes.
5) Practice of dyeing Terry-cot.
6) Practice of matching shades with direct dyes.

All practical to be recorded in file along with procedures, analysis and samples.
TEXTILE CRAFT (WEAVING)

FABRIC STRUCTURE AND DESIGNING

Paper-I

Time: 2hrs.

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

1) An introduction to compound and complex weaves-Broken twill, Mixed twill, Transposed twill, Fancy twill, Satin and Sateen, Mockleno, Bedford-cord, Corduroy and Huck-a-back, Swivel, Double, cloths.
2) Weaving defects and their remedies.
3) Cloth analysis-Recognition of warp and weft, Picks/inch, ends/inc. Pattern of colour scheme, weight of warp, weight of weft and quality of cloth.
4) Introduction to Computer Aided Designing.
5) Colour-Theory of colour, Qualities of colours, Colour wheel, Colour schemes, Psychological impact of colours and factors affecting choice of colours.

FABRIC STRUCTURE AND DESIGNING

PRACTICAL

Paper-I

Time: 3 hrs.

Practical: 35 Marks

1) Preparation of warp, drafting, denting and drawing for plain, twill, mockleno, Bedford-cord and huck-a-back weaves on the powerloom.
2) Analysis of cotton, silk and worsted cloth samples with different weaves and patterns.
3) Removal of cloth defects on the loom.
4) Introduction to computer aided designing.
5) Colour-Wheel, tints and tones, combinations and schemes.
6) Sketching of floral and geometrical motifs.

All practicals to be recorded in file along with procedures, analysis and samples. Visit to Museums, Art galleries, Craft Meals and report writing of the craft apprised.
TEXTILE TESTING AND DYEING

Paper-II

Time: 2hrs

Theory: 25 Marks
CCE:30 Marks
Practical:35 Marks
Total:90 Marks

THEORY

SYLLABUS

1) Physical testing for Count of yarn, twist of yarn, yarn ply, types of yarn, tensile strength of yarn, shrinkage of cloth, crease resistance, strength of cloth and abrasion test.

2) Chemical testing for damage to cellulose and animal fibres, colour fastness to washing, Sunlight, rubbing, bleaching and Crocking.

3) Quantitative and qualitative analysis of blends - Terricot, terrywool, viscot and cotswool.

4) Preparation of material before dyeing i.e. scouring, boiling, washing, bleaching.

5) Dyeing process on cotton, wool, silk and synthetic (Polyster) fibres using Direct dyes, Acid dyes, Basic dyes, Reactive dyes, Vat dyes, Indigosol dyes, Mordant dyes, Azoic dyes and Disperse dyes according to their dyeing suitabilities.

6) Dyeing of silk and wool by Chrome and Procion dyes. Dyeing of polyester by disperse dyes.

TEXTILE TESTING AND DYEING

PRACTICAL

Time : 3 hrs.

Practical:35 Marks

1) To find the yarn count of given piece of cloth by Besseley balance and by physical balance.

2) To find the crease resistance angle of a given sample

3) To find the shrinkage percentage of a given sample

4) To find percentage of different fibres from a given sample

5) Preliminary treatment to cotton & woollen cloth or yarn before dyeing.

6) Practice of sample dyeing on cotton yarn/fabric with direct, vat, Azoic and reactive dyes.

7) Practice of sample dyeing on woollen yarns/Fabric with acid and reactive dyes.

8) Practice of sample dyeing on silk and wool with chrome and Procion dyes.

9) Practice of sample dyeing on polyester with disperse dyes

All practical to be recorded in file along with procedures, analysis and samples.
THEORY
SYLLABUS

1) Types of powerlooms-Air jet, water jet, Dornier, Automatic, Shuttleless and Computerized looms.

2) Parts of powerloom and their functioning.

3) a) Introduction to different types of dobbies - Knowles' positive dobbey, Negative dobbey, Single chain, Double chain and Hetter sley.

b) Introduction to different types of Jacquards-Single Cylinder, Single Lift Jacquard, Double Cylinder, Double lift Jacquard.

4) Different motions of the powerlooms
   a) Primary - shedding, pickling & beating up.
   b) Secondary - taking up and letting off
   c) Auxiliary - warp stop motion, weft fork motion, loose reed motion, fast reed motion.

5) Checking of powerlooms before operation and general precautions.

6) Maintenance of powerlooms.

7) Making of lattice and pegging according to the design of the cloth to be woven on a dobbie powerloom.

8) a) Sketching of design on graph paper, card punching and lacing to make a chain for the jacquard.

   b) Introduction to Piano Cards Cutting Machine.

POWERLOOM MECHANICS & OPERATIONS
PRACTICAL

Paper-III

Time : 3 hrs. Practical:35 Marks

1) Identification of different parts of powerloom.

2) To prepare lattice as per given design or sample.

3) To prepare chain for the jacquard as peer given design.

4) Practice of weaving of cloth on plain, dobbie and jacquard loom.

All practicals to be recorded in file along with procedures, analysis and samples. Visit to reputed power loom industry, on the job experience and report writing for the same.
(v) KNITTING TECHNOLOGY
TEXTILE CALCULATIONS AND GARMENT MAKING

Paper-I

Time: 2hrs

Theory: 25 Marks
CCE:30 Marks
Practical:35 Marks
Total:90 Marks

THEORY
SYLLABUS

1) Definition of count.
2) Method of finding count in Indirect System.
3) Method of finding weight in Indirect System.
4) Method of finding length in Indirect System.
5) Method of finding the count in Direct System.
6) Method of finding length in Direct System.
7) Method of finding weight in Direct System.
8) Conversion from
   (i) Indirect to Direct system.
   (ii) Direct to Indirect system.
9) Brief explanation of machines used for sewing knitted garments. (Over lock, Flat lock, Sewing machine etc.)
10) Different types of garments made from knitted fabrics.
11) Different sizes charts of Garments.

TEXTILE CALCULATIONS AND GARMENT MAKING
PRACTICAL

Paper-I

Time: 3 hrs.

Practical:35 Marks

1) Adjustment of the knives of the over lock machine.
2) Identification & functioning of different parts of over lock machine.
3) Adjustment of the needle of over lock machine.
4) Adjustment of the loops of the over lock machine.
5) Method of calculation cost per piece in knitting industry.
6) Drafting of Pull-over, Slipover, Cardigan and undergarments (Vests and Under-wears).
7) Cutting and making of V-neck slip-over.
8) Cutting and making of pull-over.
9) Cutting and making of half-sleeve vest.
10) Board pressing of knitted garments.
11) Mending, pressing, labelling, folding and packing of finished product.
All practical are to be included in file along with procedures.

CIRCULAR KNITTING

Paper-II

Time: 2hrs.

THEORY

SYLLABUS

1) Different types of welts.
2) Effects of good winding in knitting.
3) Different types of knots used in Knitting Industry.
4) Different types of sinkers and their different parts with diagram.
5) Knitting movements of Latch Needle with holding down sinker.
6) Knitting movements of Latch Needle with Loop forming sinker.
7) Cam set of simple circular Knitting Machine.
8) Explain Jacquard in knitting.
9) Explanation Pattern Wheel Mechanism with diagram.

CIRCULAR KNITTING

PRACTICAL

Paper-II

Time : 3 hrs.

(1) Identification of cams from a cam-system of a circular knitting machine.
(2) Formation of welt on a circular knitting machine.
(3) Dissembling & assembling of cam set/system.
(4) Jobbing-on & Running on operations.
(5) Setting of stitch-length for stitch/loop setting.
(6) Transferring of loop stitch from one needle to another needle.
(7) Adjustment of centre and timing of dial and cylinder.
(8) Threading of yarn from bobbin stand/creel to yarn feeder and guide.
(9) Calculation of the designing area of two/four pattern wheel circular machine.
(10) Drafting of design on graph paper.
(11) Filling of Bits in pattern wheels according to design.
(12) Setting of pattern wheels with cylinder and knitting a designed fabric.
All practical are to be recorded in file along with procedures.

FASHIONED KNITWEAR

Paper-III

Time: 2hrs

THEORY

SYLLABUS

1. Identification and functions of different parts of hand flat jacquard knitting machine.
2. Explaining starting sequence of hand flat jacquard knitting machine.
3. Producing a plain knitted fabric on hand flat jacquard knitting machine.
4. Producing a 1×1 & 2×2 rib on hand flat jacquard knitting machine.
5. Explaining with diagram the loop-formation of Latch-Needle on hand flat jacquard knitting machine.
6. Explaining with diagram the tuck formation of Latch-Needle on hand flat jacquard knitting machine.
7. Explaining with diagram the cam set of Hand Flat Jacquard Knitting Machine.
   (i) Knitting of fashion garments
   (ii) Narrowing
   (iii) Widening

FASHIONED KNITWEAR

PRACTICAL

Paper-III

Time: 3 hrs.

1. Identification & functions of different parts of Hand Flat Jacquard Knitting Machine.
2. Dissembling and assembling of the parts of Hand Flat Jacquard Knitting Machine.
3. Jobbing-on operation, Running-on operation and winding off operation.
4. Starting sequence of the machine.
5. Plain Knitting 1x 1 rib and 2 x 2 rib on hand flat machine.
6. Adjustment of Stitch-cam for stitch setting.
7. Adjustment of Brushes & Yarn Guides.
All practical to be recorded in file along with procedures, analysis and samples.

IV ENGINEERING & TECHNOLOGY GROUP
(i) MAINTENANCE AND REPAIR OF ELECTRICAL DOMESTIC APPLIANCES

Paper I. ELEMENTS OF ELECTRICAL TECHNOLOGY

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

1. D.C. Motors; Types of motors - series, shunt and compound. Constructions, working principles and applications of different types of motors (fractional horse power). Starting and starters for D.C. Motors, Speed Control and Speed revers method of D.C. Motor, Common faults, their causes, testing and repair (no derivation).

2. Diodes: Types of Diodes, working principles and characteristics of Diodes, specifications and ratings, Diode as rectifier.

3. Transformer: Types of Transformer-step up and step down transformer, voltage and current transformer, autotransformer: Constructions, working principles, rating and applications of different types of transformer. Rewinding of transformers. Introduction to a welding transformer. Study of star connection and delta connection simple derivation related to above contents.

4. Single phase A.C. Motor: Types of A.C. Motors-Induction Motor (Split phase and repulsion start), Capacitor Motor, Shaded Pole Motor, Universal Motor, Constructions, working principles, special characteristics, and applications of different types of fractional horse power motors. Starting and starters for different motors. Rotation, reversal and speed control of A.C. Motors. Installation of A.C. Motors and testing. Common faults-their causes, testing and repairs.

ELEMENTS OF ELECTRICAL TECHNOLOGY

Time: 3 hrs. PRACTICAL Practical: 35 Marks

1) To test and repair a defective cycle dynamo.
2) Measurement of resistance of series, shunt field and armature and identification of terminals by multimeter.
3) Measurement of insulation resistance of armature and field.
4) Testing, fault finding and repair of a D.C. motor.
5) Overhauling of a D.C. motor.
6) Dismantling, study and reassembling of a D.C. motor starters.
7) To study D.C. series motor, its running, speed control, reversing rotation, measurement of current, voltage and speed.
8) To study D.C. shunt motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
9) To study D.C. compound motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
10) To study D.C. universal motor, its running, speed control, and reversing rotation, measurement of current, voltage and speed.
11) Identification of semi conductor diodes.
12) Characteristics of diode.
13) Study of a half-wave rectifier circuit with and without filter. Using CRO
14) Study of a full-wave rectifier circuit with centre tap transformer with and without filter. Using CRO
15) Study of a bridge rectifier circuit with and without filter. Using CRO
16) Study of (i) Voltage transformer (ii) Current transformer and (iii) Auto-transformer.
17) Dismantling, study and reassembling of an A.C. motor.
18) Overhauling of an A.C. Motor.
19) Dismantling, study and reassembling of an A.C. motor starters.
21) Connecting, starting, running and reversing of an induction motor.
22) Connecting, starting, running and reversing of an capacitor motor.
23) Connecting, starting, running and reversing of a shaded pole motor.

Paper-II ELECTRICAL DOMESTIC APPLIANCES

Time: 2hrs.

THEORY SYLLABUS

1. **Electric Room Heater:**
   Construction and working principle of Blower type room heater, common defects, their causes, testing and repair.

2. **Electric Fans:**
   Types of fans - Ceiling fan, Pedestal fan, Fresh-air fan, Table fan, Bracket fan, Exhaust fan. Constructions, working principles, special characteristics and applications of electric fans. Common faults, their causes, testing and repairs; Installation of Bracket fan and Exhaust fan.
3. **Electric Mixer:**
Constructions, working principles, special characteristics and applications of Electric Mixer, Common faults, their causes, testing and repairs, Repair, servicing, maintenance and overhauling of Electric Mixer.

4. **Electric Washing Machines:**
Constructions, working principles, special features and applications of different types of washing machines. Common faults, their causes, testing and repairs. Repair, servicing, maintenance and overhauling of washing machines.

5. **Hair Dryer:**
Construction and working principles of Hair Dryer, Common faults their causes, testing and repair.

6. **Room Cooler:**
Construction and working details of Room Cooler, Common faults their causes, testing and repair. Installation of Room Cooler.

7. **Vacuum Cleaner:**
Construction and working principles of Vacuum Cleaner, Common faults, causes, testing and repair.

8. **A.C. Voltage Stabilizer (manual):**
Construction, working principles of Stabilizer, Common faults, causes, testing and repair.

9. **Electric Hand Drill:**
Construction and working principles of electric Hand Drill, Common faults, causes, testing and repair.

10. **Battery Charger.**
Construction, working, common faults, causes, testing and repair, specifications of a battery charger.

**DOMESTIC APPLIANCES**

**Paper-II**

*Time : 3 hrs. PRACTICAL Practical:35 Marks*

1. Testing, fault finding, repair and overhauling Blower type, Room Heater and its maintenance.
2. Testing, fault finding, repair and overhauling Electric Fans.
5. Testing, fault finding, repair and overhauling Hair Dryer.
6. Testing, fault finding, repair and overhauling Room Cooler.
7. Testing, fault finding, repair and overhauling Vacuum Cleaner.
8. Testing, fault finding, repair and overhauling Voltage Stabilizer. (Manual)
THEORY
SYLLABUS

1. Assembly shop:


2. Testing Laboratory:

Tools and instruments required for testing laboratory—their working and use. Planning, layout and setting of a testing laboratory. Methods of testing continuity, open circuit, short circuit, earth fault in open winding and closed winding. Methods of measuring resistance, insulation resistance, voltage, current, power consumption, temperature and speed. Safety precautions and measures in testing laboratory. Upkeeping of testing laboratory.

3. Repair-Shop:


4. Winding Shop:


5. Estimating, Costing and Billing:


6. Load, estimation and test report:

Specifications of various electrical accessories and appliances. Load calculations of an electrical installation and preparation of test report as per norms. Estimation of a bimonthly electricity bill.
MATERIALS & WORKSHOP PRACTICE

Paper-III

Time : 3 hrs.  PRACTICAL  Practical:35 Marks

1. Drawing layout of (i) Assembly shop (ii) Testing Laboratory (iii) Repair shop and (iv) Winding shop.
2. Drawing (i) lap-winding and (ii) Wave winding for armature-winding.
3. Formation of field coil winding.
5. Practice for making a card-board bobbin/former.
7. Rotor winding of motor used in electric mixer.
10. Study of a given project report.
11. Preparation of a test report.
12. Study of an electricity bill issued by electricity deptt.

(ii) REPAIR AND MAINTENANCE OF RADIO & TELEVISION

Paper-I  T.V. TRANSMISSION AND RECEIPTION

Time: 2hrs  Theory: 25 Marks
      CCE:30 Marks
      Practical:35 Marks
      Total:90 Marks

THEORY

SYLLABUS

1. TV Transmission and Pulse circuits.
   * Camera scanning standards and synchronization. Composite video signals.
   * Transmitters : Principle, Characteristic, block diagram (sound and picture), Channel band width, Principle of amplitude and frequency modulation, advantages and disadvantages.
   * Pulse circuits- multivibrators, blocking oscillators, differentiating and integrating circuits.

2. TV Reception
   * Block diagram of Monochrome TV Receiver, working Principles of different sections like Tuner, video section, sound section, Sync Section, Deflection circuits, AGC, AFC, EHT and Picture Tube. Power supply and their types like SCR and SMPS.
   * Block diagram of colour TV Like PAL/SECAM/NTSC system. Coloured picture tubes and their types.
3. **TV Antenna**
   * Principle, folded dipole, director and reflector, feeder cables, balun, booster amplifier, Installation and testing UHF and VHF converters.


**T.V. TRANSMISSION AND RECEPTION**

Time: 3 hrs. 

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<td>1. Study and demonstration of integrator and differentiator circuits on CRO.</td>
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<td>2. Study and demonstration of limiter circuit on CRO.</td>
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<td>3. Study, demonstration and use of multivibrators on a CRO.</td>
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<td>4. Study, use and demonstration of a saw tooth generator on a CRO.</td>
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<td>5. Checking of SCR Power supply.</td>
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<td>6. Checking of SMPS Power supply.</td>
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<td>7. Study of T.V. Receiver-Monochrome and colour.</td>
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<td>8.(a) Familiarization of consumer and technician controls with safety precautions.</td>
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<td>(b) Identification of different sections and components there in.</td>
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<td>(c) Tracing of various stages.</td>
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<td>(d) Demonstration of circuit diagrams in stages.</td>
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<td>(e) Voltage measurement in various stages.</td>
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<td>(f) Study of input and output wave forms of various stages on a CRO.</td>
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<td>(g) EHT voltage testing.</td>
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<tr>
<td>(h) Alignment of RF, IF and SIF sections.</td>
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**Paper-II**

**TEST & MEASURING INSTRUMENTS**

Time: 2hrs

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<th>Theory: 25 Marks</th>
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<tr>
<td>CCE:30 Marks</td>
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<td>Practical:35 Marks</td>
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<td>Total:90 Marks</td>
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**THEORY**

**SYLLABUS**

1. **Test Signal Generators:**
   Specifications, Operator Controls, use and applications of the following instruments:
   - Tone generator
   - AM and FM, RF signal generator
   - Colour bar Generator.
   - Pattern Generator.
Signal injectors, sweep generators, Wobbuloscopes

2. **Test and Alignment:**

   Power supply adjustments, channel selection and turning. Adjustment for geometric distortion like centring, height, width, linearity, pincushion, convergence etc. Alignment of video IF, Tuner, AGC and AFC. Adjustments, colour sensitivity. Deflection circuits, focus adjustments. Delay line adjustments for colour. Other adjustments as necessary.

3. **FM Receiver Section:**

   Various alignment and adjustment of sound IF section.

**TEST AND MEASURING INSTRUMENTS**

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<thead>
<tr>
<th>Time : 3 hrs.</th>
<th>PRACTICAL</th>
<th>Practical:35 Marks</th>
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<tbody>
<tr>
<td>1. Demonstration of composite video-signal on a CRO.</td>
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<td>2. Demonstration and use of Monochrome/colour pattern generator.</td>
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<td>3. Familiarization and use of Sweep generator.</td>
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<td>4. Demonstration of sound Section of TV Receiver.</td>
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<tr>
<td>(a) Identification of parts and sections.</td>
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<td>(b) Tracing of various stages.</td>
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<td>(c) Preparation of circuit diagrams in stages.</td>
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<td>(d) Voltage and waveform measurement of various stages.</td>
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**Paper-III**

**TV SERVICING**

**Time: 2hrs**

**Theory: 25 Marks**

CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

**THEORY**

**SYLLABUS**

1. **Fault Analysis Techniques:**
   - Signal injection method: Signal levels and wave shapes at the input and output of different stages
   - Systematic approach to fault finding
   - Tools and equipments required
   - Replacement guidelines using data books service manuals etc.

2. **Case Studies**

Different types of faults, their causes, impact on reception and rectification. Faults in following stages: Tunes, video IF and Sound IF CKTS, AGC, AFC, Deflection Ckts. EHT circuits. Chroma section and power supply section.
3. **Composite Fault Finding and Repair:**
   - Discrete and IC oriented circuits of different stages. Exercises on simple and complex fault condition.

4. **Repair Organisations**
   - Job cards, service cards, History sheets, stock keeping, Test benches, Field servicing, Job Scheduling.

**T.V. SERVICING**

**Time : 3 hrs.**

**PRACTICAL**

**Practical:35 Marks**

1. Fault analysis and rectification: Colour TV receiver.
   (a) Simulation of faults and their rectification in various stages.
      (i) Individual Sections
      (ii) Composite Sections
   (b) Simulation of fault for geometrical distortions and rectification.
   (c) Grey scale tracking adjustments
   (d) Adjustment of colour killer
   (e) Adjustment of focus.
   (f) Adjustment of chroma AGC
   (g) Testing of degaussing coil.

2. Assembly, installation and testing of TV antenna and Boosters.

**(iii) ENGINEERING DRAWING AND DRAFTING**

**Paper-I ENGINEERING DRAWING**

**Time: 3hrs**

**Practical: 60 Marks**

**CCE:30 Marks**

**Total:90 Marks**

**PRACTICAL**

**SYLLABUS**

**Structure of Question Paper**

The question paper will consist of five parts.

1. Drawing instruments & their uses 10 marks
2. Line lettering & dimensions 10 marks
3. Projection of planes & solids 20 marks
4. Sessional work: Student will show at least 15 articles (5 from each topic) which have been designed by him during the whole year.

5. Project work

SYLLABUS

1. Pictorial Drawing:
   (a) Limitation of orthographic projections. Difference between:
      (i) Axonometric and oblique drawing.
      (ii) Isometric and diametrical projection.
   (b) Procedure for drawing isometric drawing/projection of square, rectangle, circle, arc and irregular curves and simple solid objects like cube, prism, pyramid, cylinder, cone and frustum of cone and pyramid.
   (c) Procedure for drawing isometric drawing/projection from the orthographic projections of simple blocks.
   (d) Procedure for drawing perspective drawing of cube and prism.

2. Symbols and Conventions:
   Symbolic representation of surface roughness, machining, production method, roughness grade, sampling length, direction of layout etc. Symbolic representation of pipe fittings and valves. Welding symbols.

3. Tolerances:
   Need of fits, limits and tolerances. Basic size, deviations, tolerances, allowances, deviation fit, interference fit and transition fit, hole basis and shaft basis system. Procedure for indicating above fits on drawing.

4. Production Drawing:
   (i) Explanation of information provided in drawing such as scale, finish, tolerance, processes, material list etc.
   (ii) Information needed for carpentry, metal fitting, electrical and diesel engine shops.
   (iii) Layout of following shops
      (a) Carpentry
      (b) Metal fitting
      (c) Electrical (Household wiring)
      (d) Diesel engine.

5. Brick Masonry:

6. Project work
   Layout of building, working out material quantity calculation.

Note: Minimum 25 sheets must be prepared based on above concept.
THEORY

SYLLABUS

1. Surveying-Division of surveying, instruments used for taking measurements, Units of measured, Basic principles of surveying precision of surveying.


3. Levelling - Introduction, Principles of levelling, level & its different types, levelling staff. Terms used in levelling, adjustments of the level, finding the difference of level of two points level book and reduction of levels, errors in levelling and their prevention. Rise and fall method and height of collimation method.

4. Plane Table Surveying - Introduction, advantages, disadvantages of plane table surveying. Drawing Sheet paper, setting up of plane table, General Instructions while plane table surveying. Two point & Three point problem, Errors in plane Tabling, Testing & adjusting the plane table, alidade.

5. Contouring - Contour & Contouring, contour Intervals, Horizontal Equivalent, characteristics of contour, methods of contouring. Examples of contouring, Drawing & Contour lines, Tracing the Contour Gradient for alignment of (Roads, Railways, canals etc.) use of contour maps.

WORKSHOP PRACTICE

Time : 3 hrs.

PRACTICAL

1. Folding and unfolding of chain.

2. Ranging a line

3. Chaining a line

4. Setting of Dumpy level

5. To find the difference in elevation between far points.

6. Setting of plane Table
7. Solution of two and three Point problem.

8. Drawing of contour sheets.

Minimum 25 sheets to be prepared related to above concepts.

Paper-III                      REPRODUCTION OF BLUE PRINTS

Time: 2hrs                      Theory: 25 Marks
                                  CCE:30 Marks
                                  Practical:35 Marks
                                  Total:90 Marks

THEORY

SYLLABUS

1. Graphs and charts:

   Advantages of graphical representation. General rules to be followed while
   preparing a graph. Procedure for preparing the charts: Bar chart, percentage bar
   chart, pie chart and pictograph. Procedure for preparing recti-linear graph and
   identification of semi logarithmic and logarithmic graphs.

2. Tracing:

   Usage of making instruments. Tracing paper/Tracing cloth usage and quality
   graph per set.

3. Blue-Printing:

   Description and working of blue printing machine and materials.

4. Ammonia-Printing:

   Chemicals used in ammonia printing. Description of ammonia printing machine.

5. Zeroxing/Photostating:

   Description of zeroxing machine. Materials and chemicals used in zeroxing.
   Procedure of zeroxing, enlargement and reduction.

6. Pentagraph:

   Description and its application.

7. Planimeter:
Use of planimeter for calculating areas of irregular plane figures.

8. **House wiring**:


**REPRODUCTION OF BLUE PRINTS**

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<th>Time : 3 hrs.</th>
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<td><strong>Drawing of charts (1 sheet)</strong></td>
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Ammonia printing of at least 100 sheets from above tracings enlargement/reduction of at least 25% of tracing on zerox machine of at least 500 sheets. Drawing of nomographs (minimum 5 sheets).
(iv) MECHANICAL SERVICING (GENL.)

Fitting and Welding

Paper-I

Time: 2hrs                                Theory: 25 Marks
      CCE:30 Marks
      Practical:35 Marks
      Total:90 Marks

THEORY

SYLLABUS

FITTING :

(i) HAND TOOLS

Hammers, pliers, Spanners, torque & other wrenches, Punches, Files, tapes and
dies, screw drivers. hacksaw, try squares, marking tools, V-Block, Surface plate,
scriber, steel scale, marking gauge etc.

(ii) MECHANICAL MEASUREMENTS

Linear Measuring instruments, callipers, Vernior calliper, Micrometer, depth and
height gauge, Angular Measuring instruments, level protector, Combination Set
gauge, Field gauge, wire gauge, thread gauge, radius gauge, dial gauge.

(iii) LIMITS, FITS AND TOLERENCES

Need for limit systems, types of fits, viz. clearance fits, transition fits, interference
fits elaborating the above with examples, Limit gauges and their applications, Limits
and tolerances, and correlation of allowance with the type of fit.

Part-B

WELDING :

(i) PRINCIPLES AND APPLICATION :

Principles and applications of welding, braizing and soldering, classification of welding.
(ii) **OXY-ACETYLENE WELDING**:

Principle of gas welding, gas welding equipment. Low pressure and High pressure gas welding. Flame, parts of flame, Different types of flames and their uses, gas cutting. Fluxes their composition and application.

(iii) **ELECTRIC ARC WELDING**:


(iv) **SPECIAL WELDING TECHNIQUES**:

Electric resistance welding principle, description and working of spot welding machine.

(v) **Simple introduction Mig-Tig.**

**FITTING AND WELDING**

*Time : 3 hrs.*

**PRACTICAL**

**Practical: 35 Marks**

1. To practice on cutting, chipping, Filling and use of measuring instruments.
2. To prepare on M.S. rectangular flat with use of file.
3. To do Fitting on male and Female pieces.
4. To make Cube/rectangular solids from round bar/stock.
5. To make hexagonal nut & bolt.
6. To carry out drilling, reaming, tapping and disc operations.
7. To familiarise with oxy acetylene welding equipment and accessories and practice on producing different flames for welding & cutting.
8. To make a lap joint by arc welding.
9. To make a butt joint by arc welding.
10. To make a T. Joint by arc welding.
11. To make a sheet metal funnel and soldering of joints with a soldering iron.
12. Repair of sheet metal stool by gas welding.
Repair of Bench by arc welding.

13. Repair of any commodity by gas as well as arc welding.

**Paper-II**

**MACHINE TOOL OPERATION**

**Time: 2hrs**

**Theory: 25 Marks**

**CCE: 30 Marks**

**Practical: 35 Marks**

**Total: 90 Marks**

**THEORY**

**SYLLABUS**

1. **DRILLING MACHINE:**

   Classification, specification and general description of drilling machines - Types of operations such as spot facing, counter boring, counter sinking, tapping and reaming - types of drills, tap and reamers.

2. **MILLING MACHINES:**

   Types, construction and specifications of milling machines - Types of milling cutters and their profile - job and tool holding devices - methods of indexing such as simple, compound, differential and angular indexing - milling operations viz. face milling, gang milling, spiral milling, gear milling - cutting speed and feed for milling - selection of milling cutters.

3. **SHAPING MACHINE**

   Working principle - essential features - mechanisms to control stroke length - automatic feed mechanism - specifications, capability and working range.

4. **POWER HACKSAW MACHINE:**

   Description and working of machine - selection of blades for cutting different materials.
5. **GRINDING MACHINES:**

Types of grinding operations like cylindrical, internal and external surface grinding, magnetic and self centring chucks- types, shape and selection of grinding wheels-grinding wheels balancing and dressing - use of universal tool and cutter grinder.

6. **LUBRICANTS:**

Necessity of lubrication - types of lubricants, solid, semi-solid and liquid lubricants - properties of a good lubricant - designation of lubricating oils according to BIS - Application of different grades of lubricating oils with examples - coolants and cutting fluids.

7. **TRANSMISSION OF POWER**

Concept of power transmission - types of drives - belt and gear drives - types of belt drives - classification of gear trains, simple and compound gear trains - velocity ratio - calculation of driver and driven speeds - gear ratio - angular and peripheral speed - power.

8. **SIMPLE MACHINES:**

Definition of terms such as load, effort, velocity ratio (V.R.), mechanical advantage (M.A.), mechanical efficiency - types of levers, pulleys, fixed and movable pulleys - simple machines like simple wheel and axle, simple screw jack, worm and worm wheel, single purchase crab-industrial applications of the above machines.

9. **MACHINESHOP LAYOUT & MAINTENANCE OF MACHINES**

Layout of Machine shop & Maintenance of different types machines, General Instructions for machine-shop, purpose and importance of maintenance. Reconditioning and overhaling of machines.

**MACHINE TOOL OPERATION**

**Time : 3 hrs.**

**PRACTICAL**

**Practical:** 35 Marks

I. Drilling countersinking on drilling Machine.

II. To perform saw milling.

III. To perform Face Milling.
IV. To perform form Milling.
V. Preparing a square piece on a shaper
VI. Cutting a V-groove in square thick iron sheet piece on the shaper
VII. Grinding of twist drills
VIII. Drilling boring and reaming on Drilling Machine.
IX. Prepare a metal sheet according to given drawing.

ENGINEERING DRAWING

Paper-III

Time: 3hrs

Practical: 60 Marks
CCE: 30 Marks
Total: 90 Marks

PRACTICAL

SYLLABUS

Structure of Question Paper

The question paper will consists of four parts.

1. **Drawing instruments & their uses.**
   
   Line lettering and dimensions, Free hand isometric view from given diagram of Screw threads. 10 marks.

2. **Projections of planes and solids** 20 marks

3. **Development of surfaces and interpenetration of solids.**

   Or

   **Assembly Drawing** 20 marks

4. **Sessional work**: Student will show at least 10 articles which have been designed by him during the whole year. 10 marks

SYLLABUS

1. **ISOMETRIC DRAWINGS**

   Concept of true length and isometric length - conversion of orthographic views into isometric view of simple elements such as V-block, stepped block, hexagonal, bolt and nut- freehand isometric sketches of simple mechanical element.
2. SECTIONING

Concept of sectioning, cutting plane lines - simple example of sectioning such as a hollow shaft pulley and shaft, flange roping, simple journal bearing bracket.

3. SCREW THREADS

Introduction of various screw elements such as pitch load, depth, nominal diameter, care diameter. Single and multi start - left and right - internal and external threads with suitable examples - convention representation of thread portions. General thread profiles such as vee, including pipes and coupling, square, knuckle.

4. DEVELOPMENT OF SURFACES AND INTERPENETRATION OF SOLIDS

Concept of solids such as cylinder, prism and pyramid-development of surfaces of these solids. Interpenetration of cylinders of equal and different diameters with their axis intersecting at right angle.

5. ASSEMBLY DRAWING

Concept of assembly and dissembling - Assembly drawing of simple elements such as pulley and shaft, flange coupling, knuckle joint, screw & Cotter joint.

6. RIVTS AND RIVTS JOINTS

Lap joint, Butt joint (single rivts, Double rivts).

(V) FURNITURE MAKING AND DESIGNING

Furniture Furnishing & Finishing Materials

Paper-I

Time: 2hrs

Theory: 25 Marks
CCE:30 Marks
Practical:35 Marks
Total:90 Marks

THEORY

SYLLABUS
(a) **Fixing and Fastening:**

Different types of nails, dowels, screws, nut-bolts, washers, catches, locks, latches and hinges: their characteristics, uses, cost, selection and care in furniture making.

(b) **Ancillary Materials:**

Decorative laminates, glass, aluminium alloy structures, plastics, cast iron and mild steel items and uses, cost, selection and care in furniture making.

(c) **Adhesives:**

Animal glue, casein-glue, synthetic resin, putties, natural latex adhesives, their characteristics and uses and industrial adhesives.

(d) **Upholstery:**

(i) Various types of tapestries involving cotton, silk, synthetic, woollen, rexine, leather: their uses, cost, selection and care in furniture making.

(ii) Cushioning materials: springs, jute, cotton, foams, rubber, polyfill fibre, their uses, cost, selection, care in furniture making.

**FURNITURE FURNISHING AND FINISHING MATERIALS**

**Time: 3 hrs.**

**PRACTICAL**

Practical: 35 Marks

1. Exercises in jointing with the help of nails and screws.

   Exercises in jointing with the help of adhesives.

3. Exercises of fixing decorative laminates on plain, curved surfaces and on edges.

4. Practice in cushioning and fixing tapestries on the furniture items already prepared.

5. Exercises of upholstery - prepare a file with latest samples and their cost.
THEORY

SYLLABUS

(a) **Power drills:** working of a power drill, different types of bits and their selection, care and maintenance, drilling techniques and precautions involved in drilling.

(b) **Circular Saw:** Different types of blades, their selection, adjusting and setting. Working details, sawing techniques and precautions involved, special purpose saw used in cutting rotates, tapers and moulding.

(c) **Band Saw:** Constructional details, saw blades & their specifications.

(d) **Planers:** Working principles & constructional details, and uses.

(e) **Sanding machine:** Types, functioning, selection, use, care and maintenance.

(f) Wood turning Lathe-details, basic tools used in turning, working principle, care and maintenance, precautions while handling.

(g) Introduction & working of five in one compact Machine.

TOOLS & PROCESSES

**Time : 3 hrs.**

(a) Practice on wood working lathe for preparing cylindrical objects of different diameter, recessing and contouring.

(b) (i) Preparation of Dovetail joint and glued joint.

(ii) Preparation of Exposed wedge joint.

(c) Preparation & polishing of the following:

1. Chair without arms
2. Table with drawers
3. Box type settee
4. Black Board

5. Notice Board with glass panels.

(d) Preparation of following wooden furniture item using aluminium alloy and mild steel structures:

(i) Chair with/without arms.

(ii) Study table

(iii) Bench

(iv) Desk

(e) Repair of old furniture/school furniture, replacement of parts and polishing.

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Paper-III      FURNITURE DESIGN

Time: 2hrs                                    Theory: 25 Marks
                                       CCE:30 Marks
                                       Practical:35 Marks
                                       Total:90 Marks

THEORY

SYLLABUS

(a) Designing and detailing of the following type of furniture:

(i) Movable furniture

(ii) Upholstered furniture

(iii) Built in furniture and fixtures

(iv) Ornamental furniture

(v) Mirrors & pedestal lamps

(b) Estimating:

(i) Principles of estimating for all types of furniture items, direct/indirect costs, overheads.

(ii) Preparing materials estimates for different types of furniture.
(iii) Working out labour required for a given job.

(iv) Preparation of cost estimates for new and old work.

**FURNITURE DESIGN**

**Time : 3 hrs.**

**PRACTICAL**

Practical:35 Marks

(a) At least 15 sheets regarding furniture design should be prepared.

(b) Preparation of furniture album with the help of sales literature, newspaper cuttings and allied materials.

(c) Local visits to local carpenter workshops/showroom. (at least 4 visits).

**VI) MECHANICAL SERVICING (AUTO)**

**Paper-I**

**WORKSHOP TECHNOLOGY**

**Time: 2hrs**

Theory: 25 Marks

CCE:30 Marks

Practical:35 Marks

Total:90 Marks

**THEORY**

**Syllabus**

**LATHE :** Introduction to Lathe and its classification and Constructional features of centre lathe. Attachments and accessories of lathe. Introduction to CNC (Computer Numerically Control.) Lathe machine.

**WELDING :** Basic principle of gas and arc welding. Difference between gas and arc welding, arc welding transformer set, arc and gas welding equipments, Introduction to electrodes, flux, welding joints, soldering and brazing.

**GRINDING :** Constructional features of grinder, bench and its working.

**WORKSHOP TECHNOLOGY**

**Time : 3 hrs.**

**PRACTICAL**

Practical:35 Marks

1. Use of tools, equipments used in a welding shop.

2. To learn the various safety measures used in welding shop.
3. To learn the current setting of the transformer according to the thickness of the job and selection of welding rod accordingly, electric arc welding practice.

4. To learn starting and stopping of flames of gas welding.

5. To learn to get the correct character of flames and to form the bead with gas welding.

6. To exercise centring of given job on central Lathe machine.

7. To do two exercises each in plain turning, taper turning, thread cutting, drilling, boring, knurling, chamfering and parting off.

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**Paper-II**

**GARAGE PRACTICE AND MANAGEMENT**

**Time: 2hrs**

**Theory: 25 Marks**

**CCE: 30 Marks**

**Practical: 35 Marks**

**Total: 90 Marks**

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**THEORY**

**SYLLABUS**

**AUTO SERVICING**

- Study of Vehicle maintenance and repair.
- Study of vehicle maintenance and maintenance schedule.
- General service procedure for four wheelers. Servicing of engine, clutches gearbox, propeller shaft, final drive and wheels.
- Study of faults of -
  - Engine-does not turn over, does not start, runs but misses, locks power, over heats, noisy operation, stalls and back-fires.
  - Excess fuel consumption, smoky exhaust, excess oil consumption, etc.
  - Clutch-slips while engaged, grabs or chatters, drags, noisy, incorrect pedal play.
  - Gear Box- noisy, hard gear shifting, slip in gears.
  - Universal Joint-worm-out cross, less bearing life.
  - Propeller shaft defects.
  - Differential - continuous noise growing while rounding a curve.
  - Wheels-Tyre ware types, tyre cracks etc.
  - Chassis & Body - Hard & rough ride, vehicle' sway, sagging spring, distortions in frame and body.
• Steering & front suspension - Hard steering, wheel wandering, wheel pulling, front wheel shimmy, wheel tramp, excess steering play etc.
• Brake-hard brake, padel goes to floor, dragging and noisy brake.
• Road Testing Procedure.
• Check wheel balancing, toe-in, toe-out, camber angle adjustment, Brake/Clutch adjustment.

Management


   (a) Safety ensured by building aspects.
   (b) Safety ensured by machinery and equipments.
   (c) Safety ensured based on the human attitude.

3. Book Keeping
   (a) Registers to be maintained.
   (b) Method of accounting transactions.
   (c) Profit and loss account.

4. Elements of costing.
   (a) Direct labour cost.
   (b) Material cost.
   (c) Overhead cost.

5. Basic inventory control and store keeping.
   (a) Concept of maximum stock, safety stock, lead time and economic reorder quantity, ABC analysis.
   (b) Duties of store keeper.
   (c) Method of keeping store.
6. Elements of shop act regarding working hours, holidays; definition of worker.

7. **Insurance**: Purpose and provision of third party insurance.

8. **Salesmanship**
   (a) Duties of Salesman
   (b) Personal qualities of salesman
   (c) Advertising and publicity.
   (d) As per new motor vehicle act.

9. **Motor Vehicle rules As per New Motor Vehicle Act.**
   (a) Light duty vehicle.
   (b) Heavy duty vehicle.
   (c) Stage carriage.
   (d) Public carrier.
   (e) Private carrier.
   (f) Invalid carriage.

10. **Rules Relating to**:
   (a) Size of letters and background colour of number plates of different types of vehicles.
   (b) Location of lights and masking.
   (c) Minimum space required for passenger, gang way, floor to ceiling, front and overhang.
   (d) Safety aspect in terms of condition of tyre, brakes, steering, exhaust.
   (e) Traffic signs found installed on the road.
   (f) Signalling by driver and what it communicates to other road users.
   (g) Prescribed forms for driving licence, registration, permit, fitness certificate.
   (h) Offences and penalties of driving vehicle without
(i) Driving Licence.

(ii) Registration.

(iii) Permit.

(iv) Fitness Certificate.

(i) Euro/Bharat pollution control norms.

**GARAGE PRACTICE AND MANAGEMENT**

**Time : 3 hrs.**  
**PRACTICAL**  
**Practical:35 Marks**

1. Servicing of the fuel filter.

2. Servicing of fuel injection pump.


4. Air Bleeding from fuel supply system.

5. To study and sketch the pneumatically operated governor mechanism of fuel injection pump of a multi cylinder pump.

6. To study and sketch the mechanical governor mechanism of a multi cylinder fuel injection pump.

7. Checking & adjusting of ignition timing.

8. To study and carryout the fuel injection pump timing.

9. To dismantle a single cylinder diesel engine, clean components, inspect report on the condition of parts, suggest remedial measures, repair, reassemble and test.

10. To dismantle a multi cylinder diesel engine of a 4 wheeler, clean components, inspect report on the condition of parts, suggest remedial measures, repair, reassemble and test.

11. Checking of cylinder bore.

12. Fitting of bearings, bushes and shells.

13. Engine Tuning.

14. To obtain all the prescribed forms by Directorate of Transport and fill up details for obtaining.
(a) Driving licence.
(b) Fitness certificate.
(c) Permit etc.

15. To study and draw neat sketches of different road signals and signs.

16. To inflate tyres with specified pressure and tighten all wheel nuts.

17. To prepare a costing and estimate statement for a repair.

18. Visit to nearby automobile services.

19. To carry out road test and check exhaust for emission of carbon monoxide.

**Paper-III    AUTOMOBILE SUSPENSION & CONTROLS**

**Time: 2hrs**

**Theory: 25 Marks**

CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

**THEORY**

**SYLLABUS**


II. **Suspension**: Function of suspension system. Desirable characteristics of suspension system. Types of springs & shock absorbers used and their details. Spring mountings, Torsien bar, Rear axies. Suspension and their types. Independent suspension system used on front wheels. Trouble shooting of suspension system and its adjustments.

III. **Front Axle and Steering**: Constructional features of front axle. Front assembly. Steering wheel and column. Steering geometry. Ackerman linkage, Camber, castor, king pin inclination, Toe-in, Toe-out on corners.

Trouble shooting of steering and front axle units and their adjustments.

IV. **Brakes**: Functions of brakes. Layout of brake system, stopping, stopping distance. Types of brakes-mechanical and hydraulic, parking brake.
Constructional details of mechanical and hydraulic brake system. Brake drum, brake shoe and lining material, Simple master cylinder and wheel cylinder. Trouble shooting of brakes and their adjustments, bleeding of brakes.

V. Wheels and Tyres : Types of wheel discs and rims and their constructional features, tyre pressure, spoked wheels, and casted wheels. Types of tyres and their constructional features. Tyre specifications, tyre rotation, causes of tyre wear, tyre retreating, trouble shooting of tyres and their maintenance.

VI. Electrical System : Objectives, lighting circuits, layout and its function, lamps, functions Head Light, Tail Light, and colour coding of cables, connectors, switches, wind screen wiper, horn, gauges (fuel level and temperature).

AUTOMOBILE SUSPENSION & CONTROLS

Time : 3 hrs.  
PRACTICAL  
Practical:35 Marks

1. To dismantle the front wheel, handle bar assembly of a two wheeler, clean inspect report on the condition of components, repair, reassemble, adjust and lubricate.

2. To dismantle the components of rigid front axle beam of a four wheeler, clean inspect report on the condition, repair, reassemble and lubricate the parts.

3. To dismount the steering gear and column assembly from a four wheeler, dismantle, clean, inspect report on the condition, repair, reassemble, refit and adjust.

4. To dismount the independent front suspension of a four wheeler, dismantle, clean, inspect report on the condition, repair, refit, adjust.

5. To dismount the leaf spring suspension of rear axle, dismantle, clean inspect report on the condition, repair, refit and lubricate.

6. To dismount the telescopic shock absorber of front wheel of two wheeler, clean, inspect report on the condition and repair and refit.

7. To dismount the wheel assembly from a two wheeler, dismantle, clean, inspect report on the condition of wheel, rims, tyre, tube, rectify defects of tube, refit and remount.

8. To dismount the wheel assembly from a four wheeler, dismantle, clean, inspect report on the condition of wheel, rims, tyre, tube, rectify defects of tube, refit and remount.

9. To dismantle the disc type brakes, clean inspect and assemble and remount.

11. Trouble shooting of lighting system.


13. Driving practice and road testing.

(VII) COMPUTER TECHNIQUES

Paper-I. OBJECT ORIENTED PROGRAMMING IN C++

Time: 2hrs

Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

Syllabus

OOPS : Software Quality factors (Robustness, correctness, portability etc.), External and Internal quality factor, Modularity, Reusability, Genericity and Overloading, Object, Oriented philosophy, Top down design method, Object Oriented design.

C++ Language Features : History, Structure of a C++ program, function prototyping, C++ operators, Variable declaration. Default argument functions, inline functions, inline v/s macros; const declaration, const v/s #define, Variable references; Function overloading, Default argument functions; external "C" declaration, Reference v/s pointer, Memory allocation and deallocation using new and delete operators; IO streams, cout, cin and cerr object; Comparision of cout and cin with print() and scan().

C++ Class concept : Data members and member functions (manager, accessory and setter functions). Access specifier : public, private and protected; Reference, static, const and pointer variables as data member, Magic pointer (this), Operator overloading; Default member functions: constructor, destructor, assignment operator and copy constructor; Constant and static member functions, Interface and implementation; Object the instances of the classes, Object creation, accessing data members using objects; Classes v/s objects; Array of objects and constant objects; Class objects as members of other classes, initialization v/s assignment; User defined constructor, Friend functions and friend classes; Empty class, Overloading of new and delete operators etc.; Account, complex, string example etc. would be discussed; Type conversion; Primitive to primitive,
typecasting operators, Primitive to user defined: constructor, User defined to primitive conversion operator; User defined to user defined: constructor and conversion operators.

**Inheritance**: Base and derived classes; What goes into derived class, Types of derivation: public, private and protected; Function overriding, Overriding v/s overloading; Inheritance v/s containment ('is a' and 'has a relationship'); Types of inheritance: single, multilevel, multiple, repeated; Standard conversion between base and derived, Virtual derivations.

**Polymorphism**: Virtual functions, virtual table (Shape class etc.); Polymorphism, Static and dynamic binding, runtime overheads; Pure virtual functions, Abstract Base Class, Interface, Virtual destructor; Multiple and Repeated inheritance, Role of virtual base class, int. Vector, protected int vector, range in vector etc.

**C++ File I/O**: ios stream input - istreasm class, stream output - ostream class; Built-in mainpulator functions: endl, dehex, oct, ws, ends, flush, setw, setfill; User defined manipulator, File input if stream class, file output of stream class; opening and closing files: open() and close(); Reading and writing to and from the file read() and write(); eof(), file pointers and their manipulator; seekg(), seekp(), tellg(); Streambuf class and filebuf class.

**Templates**: Function Templates, Template functions; Class Templates and Template classes, Overloading v/s Templates; Stack, Vector Templates etc.

**Exception Handling**: Exception handling v/s traditional error handling; Exception classes; try, throw, catch keyboards.

**Namespaces**: Namespace concept, Declaring and using them in applications, Namespace alias etc.

**Cast Operators**: const cast, static cast, dynamic cast and reinterpret cast.

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**OBJECT ORIENTED PROGRAMMING IN C++**

**Time**: 3 hrs.  
**PRACTICAL**  
Practical:35 Marks

Each student may perform at least 5 to 10 programs based on the following topic:

1. Simple programs based on C++ variable, constant.
2. Programs using built in (library) functions, user, defined functions, operators, if, nested-if, switch and various loops.

3. Programs on Inline functions and prototypes, overloading of functions, classes, nesting of functions.

4. Programs on constructor.

5. Programs with C++ Class.

6. Programs using arrays and arrays of objects.

7. Programs on operator overloading.

8. Programs on string manipulation using operators.

9. Programs on inheritance.

10. Programs on pointers, virtual function and polymorphism.

11. Programs on point (setting a pointer) to objects, classes and functions.


13. Programs on file operation in C++.

**Paper-II**

**DESK TOP PUBLISHING**

**Time: 2hrs**

**Theory: 25 Marks**

**CCE: 30 Marks**

**Practical: 35 Marks**

**Total: 90 Marks**

**THEORY**

**SYLLABUS**

**DTP FUNDAMENTALS AND BASICS OF PAGEMAKER**

**Introduction to DTP**: What is Desk Top Publishing; Introduction to different DTP software; Uses of DTP and Print documents; Advantages and disadvantages of DTP over word processing; Hardware and software requirements for DTP; Installation of DTP software and fonts.

**Basics of Pagemaker**: Document Planning, Page Layout, Margin, Tabs, Rulers, Header, Footer, Fonts, Styling, Frames, Master Page concept, WYS/WYG etc; Use of file, edit, page, frame, font, graphics and option menu.
Corel Draw: Installation of Corel Draw and minimum configuration requirements; Managing files, Using the drawing tools; Manipulating the objects; Moving the objects, Reshaping objects; Previewing your drawing, filling and outfitting the objects, shaping objects, changing object position; Surfing through opening interface for all tools and menu. Working with text, editing text, modifying special effects, fonts and choosing artistic and paragraph text, Color, modeling system, creating custom colors; customizing color palettes; Using the Corel Clipboard - Working with objects, Zooming, Dragging and other features. Creating special effects - Object perspective, Envelopes, Blending objects, Extrusion; Corel Photo Point; Corel chart; Corel movie; Use of contour and lens effects; Cropping and bitmaps.

POWER POINT AND PHOTOSHOP

Ms-Power Point: Introduction working with Power Point; Creating a new presentation; Saving and closing a presentation. Opening and existing presentation; Inserting and deleting text, Moving and copying text, Formatting text, changing text attribute styles; Changing bullet characteristics, Aligning, Line setting, Paragraph setting; Changing slide color scheme; Using masters; Slide, Title, Handout, Notes, Editing text-viewing a presentation in different view, Adding and deleting slide, Selecting text, More about presentation; Drawing objects like lines, arcs, rectangles, ellipses; Drawing freeform shapes; Using auto shape feature in Power Point; Rotating objects, Modifying colors and lines; Adding headers and footers; Inserting Ms-Excel worksheet, Printing presentation components.

Adobe Photoshop: Installation of Photoshop, configuration and requirements, Managing files, forms, line, space, texture, color, typography, layouts etc. Still life layouts, color layouts, poster design, Image scanning, Resolution, size file and formats of images, gray scale and color option, file conversion reducing the memory space.

MS ACCESS:

Database Management: Database examples, Records, Field, Field types.

Getting Started: Starting Access, Creating a database, Creating a table, Using a table, Viewing records Record numbers. Displaying all records. Closing the database.

Creating A Database: Planning the structure, Creating the structure, Modifying the structure, Delete Insert and rearrange fields in a table.
**Entering & Deleting Data** : Appending records, Saving the database. Editing records, Moving to the ends, Deleting records. Using Datasheet.

**Form** : Creating a form, View the records in a form. Add and save the records with a form, Print, Save and close a form. Customizing a form. Working with controls.

**Querying A Database** : Creating a Query, Modifying a Query, Joining Tables, Creating relationship between tables using criteria, Sorting records.

**Reports** : Creating, printing and saving reports.

**Index** : Viewing and editing Indexes, Creating Multiple Field Indexes.

**Database Structure** : Fields, Records, Records data types, Relational database, management systems, Field structures and relations.

**Relational Database Management** : Input masks, Query structures, Reports structures.

**Creating Relational Databases** : Table structure modification, Relationship types, Setting Relationships between Tables, Viewing and Editing existing Relationships, One to many relationship, Data entry Referential Integrity.

**SQL** : Using SQL in Microsoft Access, Using SQL to View and Modify Queries, Creating Table with Access SQL. Writing Select Queries in SQL, Using the SQL Aggregate Function: SELECT, FROM, WHERE, ORDER BY, AS, GROUP BY, HAVING clause.

**Relational Queries** : Creating query, sub query, Adding to query view, Mathematical expressions, Field captions.

**Relational Reports** : Creating, Linking tables.

**DESK TOP PUBLISHING**

**Time** : 3 hrs.  
**PRACTICAL**  
**Practical**:35 Marks

1. **PAGEMAKER**

   1. Create a document using table and graphic using MS-WORD.

   2. Installation of Pagemaker.

   3. Create style sheets.

   4. Preparation of one page/two columns.
5. Generate the same page layout of today's Newspaper on your computer screen.

6. Generate at least four page brochure of a company with its logo on each page.

7. Use of header, footer, foot notes in designing of page layout.

8. Development of multi chapter publication with contents, index, graphics and tables.


II. CORELDRAW

1. Learning and Practicing CorelDraw.

2. Creating an artistic sketch in CorelDraw.

3. Linking and integrating the CorelDraw files in Web Pages.

III. POWERPOINT

1. Design simple presentation using colors and fonts.

2. Design presentation advance features using animation and 3-D features.

IV. PHOTOSHOP

1. Installation practice of Photoshop.

2. Learning and Practicing Abode Photoshop.

3. Creating and optimizing pictures and images in Photoshop.

4. Saving the pictures in various file formats.

5. File conversion and reducing the memory space.


7. Linking and Integrating the Photoshop files in Web Pages.

V. MS ACCESS

1. Starting and Quiting.

2. Practicing using the Microsoft Access help facilities.

3. Practicing opening viewing and closing the various objects in the Database.

4. Creating, naming and saving a new blank Database.

5. Create, naming and saving tables in the Database.
VI. SQL

1. Using the select Query window, select tables Practice joining and deleting the join lines between different tables.

2. Create relationship between different tables.

3. Create and run the different Queries on tables.

4. Practice sorting the records in your tables into specific orders.

5. Create Queries to retrieve the Data as required.

Paper-III ADVANCED MATHEMATICS AND COMPUTER

COMMERCIAL APPLICATIONS

Time: 3hrs

THEORY

SYLLABUS

PART-A

1. Matrices and Determinants, Simultaneous linear Equations.

2. Differentiation.

3. Integration.


PART-B

1. INTRODUCTION TO DATA PROCESSING

Introduction to DBMS and RDBMS : Limitation of the file processing system. Advantages and Disadvantages of DBMS, Introduction to Data Models-Physical Data Models, Object based Data Model.

(i) ERD (Entity Relationship diagram) (ii) Normalisation (1NF, 2NF, 3NF) Record Based Data Models. Relational HDB (Hierarchical Database Model), NDB (Network Database Model), E.F. Codd’s Rules, Different types of Key attributes.
II. SYSTEM ANALYSIS AND DESIGN

Introduction, Need for system analysis and design, Steps and techniques of system analysis, Role of system analyst; System development life cycle, Data flow diagram, Documentation.

III. FINANCIAL ACCOUNTING PACKAGE

Introduction to accounting, Objectives, Use of TALLY package and its operations. Security measures, Company creation, Accounting heads, Voucher entry; Balance Sheet; Display, Trial Balance.

(VIII) MANUFACTURING OF SPORTS GOODS

Paper I. WOOD BASED SPORTS GOODS

Time: 2hrs                                      Theory: 25 Marks
                                                CCE:30 Marks
                                                Practical:35 Marks
                                                Total:90 Marks

THEORY

SYLLABUS

1. Raw Materials used for Carom Board, Cricket Bat, Shuttle Cock, Wickets and Bails (For Semi-goods).

2. Various types of finishing materials used in sports goods industry.

3. Economy measures to be taken in wood based sports industry.

4. Procedure for calculating the cost-price of a finished product.

5. Export and Import of sports goods, detail study of specialities related to the Sports Industry (wood).

6. Drawing, designing & standard specifications of the following.

   1. Carom Board
   2. Wickets and Bails
   3. Cricket Bat
   4. Shuttle Cock
WOOD BASED SPORTS GOODS

Time: 3 hrs.  PRACTICAL  Practical: 35 Marks

1. Identification & usage of tools.

2. Practice in finishing the semi-finished product.

3. Practice in making joints and application of adhesives.

4. Making and calculating the cost of the following sports items.

   1. Carom Board
   2. Shuttle Cock
   3. Cricket Bat

Paper-II  LEATHER AND SYNTHETIC BASED SPORTS GOODS

Time: 2hrs  Theory: 25 Marks

CCE: 30 Marks

Practical: 35 Marks

Total: 90 Marks

THEORY

SYLLABUS

1. Raw Materials used for making Basket Ball, Rugby Ball, Cricket Ball/Hockey Ball.

2. Various types of finishing materials used in sports goods industry.

3. Economy measures to be observed in leather and synthetic based sports industry.

4. Procedure for calculating the cost-price of a finished product.

5. Reasons of making things in sports good industry from synthetic leather than leather.

6. Why we take precautions to make best goods from Leather.

7. Export and Import of leather sports goods and detail study specially related to these goods.

8. Drawing, designing & standard specifications of the following:

   1. Basket ball  32 panels
2. Rugby ball 4 panels

3. Cricket/Hockey ball 4/2 panels

LEATHER AND SYNTHETIC BASED SPORTS GOODS

Time: 3 hrs. PRACTICAL Practical: 35 Marks

1. Identification and usage of tools.

2. Practice in finishing the semi-finished product.

3. Making and calculating the cost of the following sports items:
   1. Basket ball
   2. Rugby ball
   3. Cricket/Hockey ball
   4. Repairing of football, volleyball, basketball and rugby ball.

Paper-III TEXTILE BASED SPORTS GOODS

Time: 2hrs Theory: 25 Marks
CCE: 30 Marks
Practical: 35 Marks
Total: 90 Marks

THEORY

SYLLABUS

1. Identification and introduction to various types of threads & padding material used in sports goods industry.

2. Raw Material used in Textile Based Sports Industry for all types of Guards, Nets, Sports Cap; Leather Grips.

3. Economy measures to be observed in textile based sports goods industry.

4. Procedure for calculating the cost price of finished product.

5. Scope, Production and Modernisation of sports industry in India with special reference to Punjab.

7. Drawing, designing and standard specifications of the following:
   (i) All types of leg guards, shin guard, arm guard, chest guard, face mask, elbow guards, head guards, abdominal guard, boxing head guard, punching kit.
   (ii) All types of nets.
   (iii) Sports cap.
   (iv) Leather grips.

**TEXTILE BASED SPORTS GOODS**

**Time : 3 hrs.**

<table>
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<tr>
<th>PRACTICAL</th>
<th>Practical:35 Marks</th>
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1. Practice in cutting patterns.

2. Practice in cutting components.

3. Making and calculating the cost of the following sports items:
   (i) Cricket leg guards.
   (ii) Hockey leg guards.
   (iii) Abdominal guards.
   (iv) Badminton net.
   (v) Volleyball net.

**IX) MANUFACTURING OF LEATHER GOODS**

**Paper-I. PATTERN CUTTING AND DESIGNING**

**Time: 2hrs**

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<td>CCE:30 Marks</td>
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<td>Practical:35 Marks</td>
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<td>Total:90 Marks</td>
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</table>

**THEORY**

**SYLLABUS**
1. Drawing and designing of patterns e.g. portfolio brief cases, hand bags, hand
gloves, watch straps, apron.

2. Various materials required for pattern cutting in cottage industry & small
industry, thir utility and importance.

3. Various types of machinery used in pattern cutting i.e. Pattern Shears, Pattern
Vice, Grading Pantograph, its care and maintenance.

4. Various types of packing material for finished product.

5. Wastage—its proportion, limit and utilization.

6. Computer based Drawing and Designing pattern.

**PATTERN CUTTING AND DESIGNING**

**Time : 3 hrs.**

**PRACTICAL**

1. Practice in cutting components.

2. Making and calculating the cost of the following: portfolio, hand bags, hand
gloves, watch straps.

3. Preparation and practice of ladies purse, chess board, seat cover, hand bags,
watch straps and key cases from waste material.


**Paper-II. NOVELTY LEATHER ITEMS**

**Time: 2hrs**

**Theory: 25 Marks**

**CCE:30 Marks**

**Practical:35 Marks**

**Total:90 Marks**

**THEORY**

**SYLLABUS**

1. Introduction and scope of leather industry with special reference to leather
footwear, leather-wears and leather based sports goods.

2. Synthetic raw materials used in leather goods trade, their availability, suitability,
characteristics and comparison with leather.

3. Various types of auxiliaries and grinderies used in leather goods industry.
4. Proper care, maintenance and precautions regarding raw material, finished leather product in the workshop.

5. Sequence of operations while making the following: portfolio, hand bags, hand gloves, watch straps, apron.

6. Finishing of leather goods, its processes, defects and remedies.

**NOVELTY LEATHER ITEMS**

**Time : 3 hrs.**

**PRACTICAL**

1. Identification of various types of auxiliaries.

2. Identification of various types of threads and adhesives.

3. Identification of various types of synthetic raw materials.


5. Preparation and practice of portfolios.


7. Preparation and practice of dressing case.


**Paper-III INDUSTRIAL LEATHER GOODS**

**Time: 2hrs**

**Theory: 25 Marks**

**CCE:30 Marks**

**Practical:35 Marks**

**Total:90 Marks**

**THEORY**

**SYLLABUS**

1. Introduction and importance of industrial leather goods.

2. Various types of raw material required for the manufacturing of industrial leather goods.

3. Various auxiliaries and grinderies used in industrial leather goods.

4. Sequence of operations involved while making the following : cycle saddle top, industrial gloves, leather belting, leather aprons, safety mines shoes.
5. Cost calculations of the above finished goods.

INDUSTRIAL LEATHER GOODS

Time : 3 hrs.  PRACTICAL  Practical:35 Marks

1. Identification and selection of raw material used in industrial leather goods.

2. Preparation and practice of various types of laces.

3. Pattern cutting and practice of cycle, scooter, moped, motor cycle seat covers, leather aprons, industrial gloves.

4. Preparation and practice of cycle, scooter, moped, motorcycle seat covers leather aprons, industrial gloves.

V. HUMANITIES AND OTHERS GROUP

COMMERCIAL ART

Paper-I. COMMERCIAL ART AND DRAWING

Time: 5hrs  Practical: 60 Marks

CCE:30 Marks

Total:90 Marks

PRACTICAL

SYLLABUS

Structure of Question Paper

The question paper will consist of 3 parts.

No. 1  (25 marks)

This part will be based upon unit I of the syllabus. Two questions will be asked and the student will do any one of these. The distribution of marks will be as follows:

Composition  10 marks

Expression  10 marks

Finishing  5 marks
No. 2  

(25 marks)

This part will be based upon unit II of the syllabus. Two questions will be asked and the student will do any one of these.

Distribution of marks will be as follows:

Composition  10 marks
Expression  10 marks
Finishing  5 marks

No. 3  

(10 marks)

This part relates to sessional work. Student will show at least 10 articles relating to Drawing any lay-out which have been designed by him during the whole academic year.

SYLLABUS

Unit I  

Marks : 25

1. Drawing from life full figure Monochrome/Colours.

Or

2. Drawing from Nature/Memory Land Scape, Monochrome/Colours

Unit II  

Marks : 25

3. Book illustration for specific purpose in pen and ink or half tone work.

Or

4. Designs of letter heads with black and while ink/colours.

Unit III  Sessional Work  

Marks : 10

Atleast fifteen articles should be prepared by the candidates.

The Practical Examiner will award the marks.
Syllabus

Structure of Question Paper

The question paper will consist of 3 parts.

No. 1  
Marks: 25

This part will be based upon unit I of the syllabus. Two questions will be asked and the student will do any one of these. The distribution of marks will be as follows:

Composition  10 marks  
Expression   10 marks  
Finishing    5 marks

Unit 2  
Marks: 25

This part will be based upon Unit II of the syllabus. Two questions will be asked and the student will attempt any one. Distribution of marks will be as follows:

Composition  10 marks  
Expression   10 marks  
Finishing    5 marks

No. 3  
Marks: 10

This part relates to sessional work. Student will show at least 10 articles relating to Drawing and lay-out which have been designed by him during the whole academic year.

SYLLABUS

Unit I  
Marks: 25

1. Preparation of Textile designing such as Sari-Border, Curtain and All over pattern etc.

Or

2. Preparation of various types of posters.
Unit II  

3. Preparation of lay-out with given component such as Insignia and Trade mark designs.

Or


Unit III  Sessional Work  

Atleast fifteen articles should be prepared by the candidates.

The Practical Examiner will award the marks.

Paper-III.  TECHNICAL THEORY OF COMMERCIAL ART

Time: 3hrs  

Theory: 60 Marks  

CCE:30 Marks  

Total:90 Marks

SYLLABUS

Structure of Question Paper

In all, twenty seven questions will be set from the prescribed syllabus. The question paper will comprise of three parts (Part-I, Part-II and Part-III). The questions will be evenly distributed from the prescribed syllabus.

Part-I will consist of ten objective type questions carrying 1 mark each. All questions will be compulsory to attempt. The answer of each question should not exceed more than one sentence.

Part-II will consist of twelve short answer type questions carrying 4 marks each. Candidate will attempt any eight questions out of these. A question may have two or more parts. The answer of each question should not be more than one page of the answer sheet.

Part-III will consist of five questions carrying 6 marks each. Candidate will attempt any three questions out of these. The answer of each question should not be more than two pages of the answer sheet.

SYLLABUS

1. Early Indian cave paintings, their techniques and style of illustrations.

2. Ajanta paintings and their techniques Subject Matter and characteristics of illustrations.

3. Designs of Indus Valley Seals and their artistic value.


5. Pala Manuscripts illustrations.
6. Mughal Manuscripts illustrations and their techniques, subject matter and characteristics.

7. Pahari Manuscripts illustration and their techniques, subject matter and characteristics.

8. Theory of colours and various types of colours.

9. Principles of designs and various types of designs.

10. Mauryan period animal designs on pillars.