## A. SCHEME OF STUDIES
## 12th CLASS EXAMINATION
## (SENIOR SECONDARY CERTIFICATE EXAMINATION-II)
## (VOCATIONAL STREAM)
## ADMISSION YEAR 2019-20.... ONWARD

**Subjects for Studies**

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

| Sr. No. | Subject | Marks | | | |
|---|---|---|---|---|---|
| | | Th. | Pr | CCE | Total |
| 1. | General English | 65 | - | 10 | 75 |
| 2. | General Punjabi<br>Or<br>Punjab History and Culture | 65 | - | 10 | 75 |
| 3.* | Environmental Education | 45 | - | 5 | 50 |
| 4.* | Computer Science | 50 | 40 | 10 | 100 |
| 5.* | General Foundation Course (GFC) | 45 | - | 5 | 50 |

**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):

| | Marks | Grading |
|---|---|---|
| 1. | 90% and above | 'A+' |
| 2. | 75% & above but less than 90% | 'A' |
| 3. | 60% & above but less than 75% | 'B' |
| 4. | 45% & above but less than 60% | 'C' |
| 5. | 33% & above but less than 45% | 'D' |
| 6. | Less than 33% | 'E' |

**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 90 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

**Broad distribution of marks and periods per week.**

| | **Marks** | | | | | **Periods** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Th.** | **P.** | **CCE** | **OJT.** | **Total** | **Th.** | **P.** | **Total** | **OJT.** |
| Elective Subject - I | 30 | 50 | 10 | 10 | 100 | 2 | 8 | 10 | 3 weeks |
| Elective Subject - II | 30 | 50 | 10 | 10 | 100 | 2 | 8 | 10 | |
| Elective Subject - III | 30 | 50 | 10 | 10 | 100 | 2 | 8 | 10 | |

**Note:** 1. Six period are for Library Studies/Extra Curricular Activities/Optional/ Tutorials/ Assignments.

2. On-the-job training (O.J.T) is under discussion with DGSE office .

3. In any subject if there is only one paper either of theory or of practical, the total marks for that subject will be 90 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: 3hrs** **Theory: 45 Marks**
**CCE: 5 Marks**
**Total: 50 Marks**

### Structure of Question Paper

In all, Twenty three 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 fourteen 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 four questions carrying 5 marks each. Candidate will attempt any two 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.

**2. Availing Incentives, Support and Procedural Requirement.**

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**

Purchasing and planning materials, Issue and accounting of stores & materials. Flow and control of materials, quality control and control of operations. Discussion on planning & scheduling with a small case example.

**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

**Note: Compulsory Subjects under Vocational stream & Academic stream at senior secondary level are the same. Kindly refer to the syllabi & structure of question paper of these subjects uploaded under Academic Stream.**

### 1. GENERAL ENGLISH

**Time: 3hrs** **Theory: 65 Marks**
**CCE: 10 Marks**
**Total: 75 Marks**

**SYLLABUS AND THE STRUCTURE OF QUESTION PAPER**

**Part-I (Objective type questions) 8 marks**

1. It will consist of 8 objective type questions carrying one mark each.
Objective type questions may include questions with one word to one sentence answer **or** fill in the blank **or** true/false **or** multiple choice type questions.

a. Lessons meant for inte11nsive study 3×1=3

b. Lessons meant for extensive study 3×1=3

c. Grammar 2×1=2

**Part-II (Reading) 10 marks**

2. Unseen passage for Comprehension. (passage of 150-200 words) followed by two M.C.Q, 2 single line comprehension questions, one question on fill in the blank (two), one question on match the words(two).

1+1+1+1+1+1 = 6 marks

3. Comprehension question on a given stanza from poetry (4 questions including a question on name of the poet/poem, Rhyme scheme / Simile / Metaphor / Personification/ Alliteration/ Imagery etc).(1 out of two given stanzas to be attempted) 4 marks

**Part-III (Writing) 14 marks**

4. Précis writing (passage of about 150 words) 5 marks

5. Letter writing (only official/ business & to the Editors/ Applications (one out of two)( Letter or Application) 6 marks

6. Explaining Newspaper Headlines (15-20 words)/ E-mail writing

3 marks

**Part-IV (Grammar) 8 marks**

7. Grammar items:
a. Determiners
b. Use of Non-finites (Infinitives, Gerunds, Participles)
c. Transformation of Sentences
d. Voice
e. Narration 2+2+2+1+1=8 Marks

**Part-V (Literature) 25 marks**

8. Central idea (1out of 2.) 3 marks
9 Three( out of four) short answer questions of about 40 to 50 words from intensive study. 3×2=6
10. Two (out of three) short answer questions of about 40 to 50 words from extensive study. 2×2=4
11. Long answer questions on theme, incident, content, character etc. from intensive study 100 to 120 words) ( with internal choice). 6 marks
12. Long answer type (100 - 120 words) question from extensive study on Character/incident/theme etc (with internal choice). 6 marks

**SYLLABUS**

**Section A (Lessons for Intensive study)**

1. Hassan's Attendance Problem Sudha Murthy
2. The March King Katherine Little Bakeless
3. Thinking Out of the Box: Lateral Thinking (Adapted from the article from Internet)
4. Robots and People Isaac Asimov
5. On Giving Advice Joseph Addison
6. On Saying 'Please' A. G. Gardiner
7. The Story of My Life Helen Keller
8. Two Gentlemen of Verona A. J. Cronin
9. In Celebration of Being Alive Dr. Christian Barnard
10. Gadari Babas in Kalapani Jail Dr. Harish Puri

**Section B (Poetry)**

1. Prayer of the Woods Anonymous
2. On Friendship Khalil Gibran
3. The Echoing Green William Blake
4. Once upon a Time Gabriel Okara
5. Cheerfulness Taught by Reason Elizabeth Barret Browning
6. Father Returning Home Dilip Chitre
7. The Road Not Taken Robert Frost
8. On His Blindness John Milton

**Section C (Lessons for Extensive study)**

1. The School for Sympathy E. V. Lucas
2. A Chamelon Anton Chekhov
3. Bholi K. A. Abbas
4. The Gold Frame R. K. Luxman
5. The Barber's Trade Union Mulk Raj Anand
6. The Bull beneath the Earth K. S. Virk

**Section D (Grammar and Composition)**
**Grammar**
1. Determiners
2. Use of Non-finites (Infinitives, Gerunds, Participles)
3. Transformation of Sentences.
4. Voice
5. Narration

**Composition**
1. Précis writing
2. Letter writing (Official/Business/To Editors)
3. Applications
4. Explaining Newspaper Headlines
5. E-Mail writing.

**The book prescribed & published by the Punjab School Education Board.**
**1. (General English XII) A Rainbow of English**
**2. English Grammar and Composition for XI and XII**
**Note: All the lessons in the above book are included in the syllabus. No part has been deleted.**
**Questions can be set from the entire prescribed syllabus. It is not mandatory that all the questions asked by the Paper setter are from the back exercises only.**

## CLASS-XII

## 2. ਪੰਜਾਬੀ–ਲਾਜ਼ਮੀ

## ਪਾਠ–ਕ੍ਰਮ ਅਤੇ ਅੰਕ–ਵੰਡ

**ਸਮਾਂ: 3 ਘੰਟੇ** **ਲਿਖਤੀ ਪੇਪਰ: 65 ਅੰਕ**

**ਆਂਤਰਿਕ ਮੁਲਾਂਕਣ: 10 ਅੰਕ**

**ਕੁੱਲ: 75 ਅੰਕ**

| ਲੜੀ ਨੰ: | ਪਾਠ–ਕ੍ਰਮ | ਅੰਕ |
|---|---|---|
| 1. | ਪੰਜਾਬੀ ਸੱਭਿਆਚਾਰ ਦੀ ਜਾਣ–ਪਛਾਣ | 26 |
| 2. | ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਲਿਖਣ ਦਾ ਹੁਨਰ:– ਕਾਰ–ਵਿਹਾਰ ਦੇ ਪੱਤਰ, ਸੰਖੇਪ–ਰਚਨਾ | 10 |
| 3. | ਵਿਆਕਰਨ :–ਅਖਾਉਤਾਂ ਕੋਸ਼ –ਤਰਤੀਬ ਅਤੇ ਵਾਕ–ਰੂਪਾਂਤਰਨ | 16 |
| 4. | ਪੰਜਾਬੀ–ਸਾਹਿਤ :– ਕਵਿਤਾਵਾਂ ਅਤੇ ਕਹਾਣੀਆਂ | 13 |
| | ਕੁੱਲ ਅੰਕ | 65 |

### ਪ੍ਰਸ਼ਨ–ਪੱਤਰ ਦੀ ਰੂਪ ਰੇਖਾ

ਪਰੀਖਿਆ ਪੱਖੋਂ ਅਧਿਆਪਕਾਂ, ਵਿਦਿਆਰਥੀਆਂ, ਪੇਪਰ ਸੈੱਟਰਾਂ ਅਤੇ ਪਰੀਖਿਅਕਾਂ ਲਈ ਵਿਸ਼ੇਸ਼ ਹਿਦਾਇਤਾਂ

**ਪ੍ਰਸ਼ਨ ਨੰ:1** ਸਮੁੱਚੇ ਪਾਠ–ਕ੍ਰਮ ਦੇ ਆਧਾਰ 'ਤੇ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲ਼ੇ ਦਸ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ 1 ਅੰਕ ਦਾ ਹੋਵੇਗਾ। ਅੰਕਾਂ ਦੀ ਵੰਡ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗੀ:

(ੳ) **ਪੰਜਾਬੀ ਸੱਭਿਆਚਾਰ ਦੀ ਜਾਣ ਪਛਾਣ**:– ਲੇਖਕ ਦੀ ਰਚਨਾ/ ਰਚਨਾ ਦਾ ਲੇਖਕ, ਗ਼ਲਤ/ਠੀਕ, ਬਹੁ–ਚੋਣ,ਖ਼ਾਲੀ ਥਾਂਵਾਂ, ਇੱਕ ਦੋ ਸ਼ਬਦਾਂ ਦੇ ਉੱਤਰ ਵਾਲ਼ੇ 6 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ । 6 ਅੰਕ

(ਅ) **ਕਵਿਤਾਵਾਂ**:– (ਕਵਿਤਾ ਦਾ ਕਵੀ/ ਕਵੀ ਦੀ ਰਚਨਾ) 1 ਅੰਕ

(ਏ) **ਕਹਾਣੀਆਂ**:– (ਪਾਤਰਾਂ ਬਾਰੇ) 1 ਅੰਕ

(ਸ) **ਅਖਾਉਤਾਂ** :– (2 ਅਧੂਰੀਆਂ ਅਖਾਉਤਾਂ ਪੂਰੀਆਂ ਕਰਨੀਆਂ) 1+ 1 =2 ਅੰਕ

6+ 1 + 1+ 2 = 10 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 2** ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ –12, ਸੱਭਿਆਚਾਰ ਭਾਗ ਦੇ ਪਾਠਾਂ ਦੇ ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ ਅੱਠ ਪ੍ਰਸ਼ਨ ਪੁੱਛ ਕੇ ਕਿਸੇ ਪੰਜ ਦਾ ਉੱਤਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 4×5=20 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 3** ਕਾਰ–ਵਿਹਾਰ ਦੇ ਪੱਤਰ ਲਈ ਦੋ ਵਿਸ਼ੇ ਦੇ ਕੇ ਕਿਸੇ ਇੱਕ ਬਾਰੇ ਪੱਤਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।

2+ 3+1=6 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 4** ਸੰਖੇਪ–ਰਚਨਾ ਕਰਨ ਲਈ ਪਾਠ–ਪੁਸਤਕ ਵਿੱਚੋਂ ਇੱਕ ਪੈਰਾ ਦਿੱਤਾ ਜਾਵੇਗਾ। ਲਗ–ਪਗ ਇੱਕ ਤਿਹਾਈ ਸ਼ਬਦਾਂ ਵਿੱਚ ਸੰਖੇਪ ਰਚਨਾ ਕਰਨੀ ਹੋਵੇਗੀ ਅਤੇ ਸਿਰਲੇਖ ਵੀ ਲਿਖਣਾ ਹੋਵੇਗਾ। ਸਿਰਲੇਖ ਦਾ ਇੱਕ ਅੰਕ ਅਤੇ ਸੰਖੇਪ ਰਚਨਾ ਦੇ ਤਿੰਨ ਅੰਕ ਹੋਣਗੇ। 1+3=4 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 5** ਪਾਠ–ਪੁਸਤਕ ਅਤੇ ਪਾਠ– ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਦੇ ਕੇ ਕਿਸੇ ਇੱਕ ਨੂੰ ਕੋਸ਼–ਤਰਤੀਬ ਅਨੁਸਾਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 3 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ. 6** ਪਾਠ–ਪੁਸਤਕ ਅਤੇ ਪਾਠ– ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ ਕੋਈ ਪੰਜ ਵਾਕ ਦੇ ਕੇ ਕਿਸੇ ਤਿੰਨ ਦਾ ਵਾਕ–ਰੂਪਾਂਤਰਨ ਕਰਨ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 1×3=3 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 7** ਪਾਠ–ਪੁਸਤਕ ਵਿੱਚੋਂ ਕੋਈ ਸੱਤ ਅਖਾਉਤਾਂ ਦੇ ਕੇ ਚਾਰ ਨੂੰ ਵਾਕਾਂ ਵਿੱਚ ਵਰਤਣ ਜਾਂ ਉਹਨਾਂ ਦੀਆਂ ਵਰਤੋਂ ਸਥਿਤੀਆਂ ਦੱਸਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 2×4=8 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 8** ਪਾਠ–ਪੁਸਤਕ ਵਿੱਚੋਂ ਤਿੰਨ ਕਵਿਤਾਵਾਂ ਦੇ ਕੇ ਕਿਸੇ ਇੱਕ ਦਾ ਕੇਂਦਰੀ ਭਾਵ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 4 ਅੰਕ

**ਪ੍ਰਸ਼ਨ ਨੰ: 9** ਪਾਠ–ਪੁਸਤਕਾਂ ਵਿੱਚੋਂ ਦੋ ਕਹਾਣੀਆਂ ਦੇ ਕੇ ਕਿਸੇ ਇੱਕ ਦਾ ਸਾਰ ਆਪਣੇ ਸ਼ਬਦਾਂ ਵਿੱਚ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ। 7 ਅੰਕ

**ਨਿਰਧਾਰਿਤ ਪਾਠ–ਪੁਸਤਕ ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ–12**

**ਪ੍ਰਕਾਸ਼ਕ– ਪੰਜਾਬ ਸਕੂਲ ਸਿੱਖਿਆ ਬੋਰਡ**

**CLASS-XII**

**3. PUNJAB HISTORY AND CULTURE**

**Time: 3 Hrs** **Theory: 65 Marks**
**CCE: 10 Marks**
**Total: 75 Marks**

**STRUCTURE OF QUESTION PAPER**

1. All questions are compulsory.

   The question paper will comprise of four sections A, B, C and D of 18 questions in total. The question paper will carry:

**A. Objective Type Questions:** This type will include Question No. 1 to 7 carrying 1 mark each with one word answer/ fill in the blank/ true or false/ multiple choice type questions. **1 × 7 = 7 Marks**

**B. Short Answer Type Questions:** This type will include 6 questions from Question No. 8 to 13 carrying 3 marks each. Answer to each question should be in about 30- 35 words. **3 × 6 = 18 Marks**

**C. Long answer Type Questions:** This type will include 5 question from Question No. 14 to 18 will carry 5 marks each with 100% internal choice. Answer to each question should be in about 80-100 words.

**5 × 5 = 25 Marks**

**D. Map Question:** There will be one section of map carrying 15 marks (10 marks for 5 places and 5 marks each for explanation)

**Note:- For blind candidates alternative questions will be given in lieu of question no. 19 (map).**

**Note:- All units of the syllabus should be given adequate representation in the question paper.**

| **Syllabus** | **A Objective Type Questions 1 mark** | **B Short Answer Type Questions 3 marks** | **C Long Answer Type Questions 5 marks** | **D Map question** | **Total** |
|---|---|---|---|---|---|
| Part-1 Units I-XI | 04 | 03 | 03 | 100% Internal choice 5 Places ×2 =10 marks Explanation5×1=5 marks | 10 |
| Part-2 Unit XII-XXII | 03 | 03 | 02 | | 08 |
| No. of Questions | 07 | 06 | 05 | 1 | 19 |
| **Total Marks** | **07** | **18** | **25** | **15** | **65** |

**SYALLBUS**

**PART -A**

1. The Great Mughals and their legacy to the Punjab.
2. Shri Guru Nanak Dev Ji.
3. Successors of Shri Guru Nanak Dev Ji.
4. Banda Singh Bahadur and his Martyrdom.
5. Sikhs became the Masters of the Punjab.

**PART-B**

1. The Punjab under Maharaja Ranjit Singh.
2. The British occupation of the Punjab.
3. Some Famous Legends of the Punjab:-

a. Puran Bhagat b. Heer Ranjha
c. Sohni Mahiwal

4. Classical Literature of the Medieval period.

**PART-C**
**MAP QUESTION TOPICS**

1. Banda Singh Bahadur
2. Shri Guru Gobind Singh
3. Maharaja Ranjit Singh
4. First Anglo-Sikh War
5. Second Anglo Sikh war

## 4. ENVIRONMENT EDUCATION

**Time: 2 Hrs** **Theory: 45 Marks**
**CCE: 05 Marks**
**Total: 50 Marks**

### STRUCTURE OF QUESTION PAPER (THEORY)

1. There will be one theory paper comprising of 17 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 one line or few words only.
3. Question No. 6-10 are short answer type questions carrying 2 marks each. Answer to each queation will be in 20-30 words.
4. Question No. 11-15 are long/medium answer type questions carrying 4 marks each. Answer to each question will be 50-60 words.
5. Question NO.16 and 17 long answer type question carrying 5 marks. Answer to this question will be in 80 -100 words.
6. In Question no: 16 and 17, there will be 100% internal choice.
7. There will be no objective type question such as yes/ No/ Tick/cross, fill in 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

| **Unit** | **1 Mark questions** | **2 Mark questions** | **4 Mark questions** | **5 Mark questions** |
|---|---|---|---|---|
| Unit-1 Biodiversity | 1 | 1 | 1 | 1 or 1 |
| Unit-II Environmental Management | 1 | 1 | 1 | |
| Unit-III Sustainable Development | 1 | 1 | 1 | - |
| Unit-IV Sustainable Agriculture | 1 | 1 | 1 | 1 or 1 |
| Unit-V Environmental 1 Actions | 1 | 1 | 1 | |
| **Total Marks** | **5 marks** | **10 marks** | **20 marks** | **10 marks** |

## INSTRUCTIONS FOR PAPER SETTER

1. There will be 17 questions in theory paper.
2. Questions No. 1-5 are of 1 mark each and there should be one question from each unit.
3. Question 6-10 are of 2 marks each and there should be one question from each unit.
4. Question 11-15 are of 4 marks each and there should be one question from each unit.
5. Question 16 will be of 5 marks and to be set from unit I and choice question should be set from unit II.
6. Question 17 will be of 5 marks and to be set from unit IV and choice Question should be set from unit V.

## 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-a-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.
- Problem of stubble and its management ( study material upload on website)

**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 polices, appropriate technologies, comprehensive review and revision mechanism, human approach.
- Development of skilled manpower.
- Role of individual and community.
- Role of nationa 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 controlagrochemicals.
- Impact of agrochemicals on environment.
- Elements of sustainable agriculture-mixed farming, mixed cropping, crop rotation, biological and economic consideration, use of biofertilizers and bio pesticides, biological pest control, integrated pest management.
- Application of biotechnology in crop improvement.
- Management of agricultural produces- storage, preservation, transportation and processing.

**Unit-V Environmental Actions**

- Meeting basic human need, 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.
- Drugs-ill effects(Part-II) Consequences of use of different dugs, The narcotic drugs and psychotropic substances Act-1985 offences as penalties.(study material uploaded on website)

**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. Teacher 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 spacies listed for region by collecting information through different sources and observation and to assesss the reasons for its diminishing number.Suggest ways and means to protect the species.
- To conduct a survery 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 afforestion and planting of trees as trees are most valuable in terms of their cultural, economic importance and medicial 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 of 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 diposal, types of animal breed and their feed, types of shelter and health care,method of reservation and processing of products and animal wastes and their disposal. To suggest an action plan for modifiying the prevailing practices so as to make them environment friendly and sustainable.

## 5. ਕੰਪਿਊਟਰ ਸਾਇੰਸ

ਸਮਾਂ: 3 ਘੰਟੇ

ਲਿਖਤੀ : 5● ਅੰਕ
ਸੀ.ਸੀ.ਈ. : 1● ਅੰਕ
ਪ੍ਰਯੋਗੀ : 4● ਅੰਕ
**ਕੁੱਲ: 1●● ਅੰਕ**

## ਅਗਵਾਈ ਲੀਹਾਂ (ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ)

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਤਿੰਨ ਭਾਗਾਂ (ਭਾਗ ੳ, ਭਾਗ ਅ, ਭਾਗ ਏ) ਵਿੱਚ ਵੰਡਿਆ ਹੋਵੇਗਾ।

2. ਭਾਗ ੳ ਆਬਜੈਕਟਿਵ ਟਾਇਪ ਹੋਵੇਗਾ ਜਿਸ ਵਿੱਚ 1 ਤੋਂ 6 ਤੱਕ 1-1 ਅੰਕ ਦੇ 6 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।

3. ਭਾਗ ਅ ਵਿੱਚ ਪ੍ਰਸ਼ਨਨੰ 7 ਤੋਂ 12 ਤੱਕ 2-2 ਅੰਕ ਦੇ 6 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।

4. ਭਾਗ ਏ ਵਿੱਚ ਪ੍ਰਸ਼ਨਨੰ 13 ਤੋਂ 17 ਤੱਕ 4-4 ਅੰਕ ਦੇ 5 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।

5. ਭਾਗ ਸ ਵਿੱਚ ਪ੍ਰਸ਼ਨ ਨੰ 18 ਤੋਂ 19 ਤੱਕ 6-6 ਅੰਕ ਦੇ 2 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।

5. ਭਾਗ ੳ ਅਤੇ ਭਾਗ ਅ ਦੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜਰੂਰੀ ਹੋਣਗੇ। ਭਾਗ ਅ ਅਤੇ ਏ ਵਿੱਚ ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਦੋ ਜਾਂ ਦੋ ਤੋ ਵੱਧ ਭਾਗ ਵੀ ਹੋ ਸਕਦੇ ਹਨ। ਭਾਗ ਏ ਦੇ ਕਿਸੇ ਵੀ 2 ਪ੍ਰਸ਼ਨਾ ਵਿੱਚ ਅੰਦਰੂਨੀ ਛੋਟ ਹੋਵੇਗੀ।

| **ਲੜੀ ਨੰ** | **ਅਧਿਆਇ ਦਾ ਨਾਂ** | **ਕੁੱਲ ਅੰਕ** | **1 ਅੰਕਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ** | **2 ਅੰਕਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ** | **4 ਅੰਕਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ** | 6 ਅੰਕਾਂ ਵਾਲੇ **ਪ੍ਰਸ਼ਨ** |
|---|---|---|---|---|---|---|
| 1. | ਗਿਆਰ੍ਹਵੀਂ ਕਲਾਸ ਦੀ ਦੁਹਰਾਈ | 3 | 1 | 1 | | |
| 2. | ਸਟਰਿੰਗ ਫੰਕਸ਼ਨ ਦੀ ਵਰਤੋਂ | 6 | - | 1 | 1 | |
| 3. | ਯੂਜ਼ਰ ਡਿਫਾਇੰਨਡ ਫੰਕਸ਼ਨਜ਼ | 7 | 1 | 1 | 1 | |
| 4. | ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-1 | 7 | 1 | 1 | 1 | |
| 5. | ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-2 | 5 | 1 | | 1 | |
| 6. | ਨੈੱਟਵਰਕਿੰਗ ਸੰਕਲਪ | 9 | 1 | 1 | - | 1 |
| 7. | ਲਾਈਬ੍ਰੇਰੀ ਫੰਕਸ਼ਨਜ਼ | 6 | - | 1 | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7. | ਈ-ਗਵਰਨੈਂਸ | 7 | 1 | – | – | 1 |
| ਕੁੱਲ ਜੋੜ | | 5● | 6 | 12 | 2● | 12 |

## ਪਾਠ ਕ੍ਰਮ (ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ)

**ਗਿਆਰ੍ਹਵੀਂ ਕਲਾਸ ਦੀ ਦੁਹਰਾਈ**

- ਸੀ ਭਾਸ਼ਾ ਵਿੱਚ ਪ੍ਰੋਗਰਾਮਿੰਗ ਲਈ ਭੂਮਿਕਾ
- ਕਮਪਾਇਲਰ ਨਿਰਦੇਸ਼
- ਐਰੇ ਯ-ਐਰੇ ਵਿੱਚ ਡਾਟਾ ਭਰਨਾ, ਐਰੇ ਦੇ ਮੁੱਲਾਂ ਦੀ ਪਹੁੰਚ ਕਰਨੀ, ਦੋ ਡਾਇਮੈਂਸ਼ਨਲ ਐਰੇ ਦੀ ਡਿਕਲੇਅਰੇਸ਼ਨ
- ਨੈਟਵਰਕਿੰਗ ਸੰਕਲਪ

**1. ਸਟਰਿੰਗ ਫੰਕਸ਼ਨ ਦੀ ਵਰਤੋਂ**

- ਭੂਮਿਕਾ
- ਡਿਕਲੇਰੇਸ਼ਨ ਅਤੇ ਸਟਰਿੰਗ ਵੇਰੀਏਬਲ
- ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਦੀ ਪ੍ਰਿੰਟਿੰਗ ਪ੍ਰਦਰਸ਼ਿਤ ਕਰਨੀ
- ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਯ ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ, ਸਟਰਿੰਗ ਲਿਖਣਾ, ਮੋਨੀਟਰ ਤੋਂ ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ
- ਸਧਾਰਣ ਇਨਪੁੱਟ ਆਊਟਪੁੱਟ
- ਸਟਰਿੰਗ ਉਪਰੇਸ਼ਨ ਯ ਸਟਰਕਟ ਫੰਕਸ਼ਨ (strcat () function)
- ਸਟਰਕਮਪ ਫੰਕਸ਼ਨ (strcmp () function)
- ਸਟਰਲਵਰ ਫੰਕਸ਼ਨ (strlwr () function)
- ਸਟਰਰੀਵ ਫੰਕਸ਼ਨ (strrev () function)
- ਸਟਰਅਪਰ ਫੰਕਸ਼ਨ (strupr () function)

**ਪ੍ਰੋਗਰਾਮ ਪਰਿਭਾਸ਼ਾ-1**

ਇਕ ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਫੰਕਸ਼ਨਜ਼ ਦੀ ਵਰਤੋਂ ਬਿਨਾਂ ਦੋ ਸਟਰਿੰਗ ਨੂੰ ਕਨਕੇਟੀਨੇਟ (ਫਰਅਫ.ਵਕਅ.ਵਕ) ਕਰਨ ਲਈ ਅਤੇ ਇੱਕ ਨਵੀਂ ਸਟਰਿੰਗ ਬਣਾਉਣ ਲਈ।

**ਪ੍ਰੋਗਰਾਮ ਪਰਿਭਾਸ਼ਾ-2**

ਇਕ ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਫੰਕਸ਼ਨਜ਼ ਦੀ ਵਰਤੋਂ ਦੇ ਬਿਨਾਂ ਦੋ ਸਟਰਿੰਗਜ਼ ਦੀ ਤੁਲਨਾ ਲਈ।

**ਪ੍ਰੋਗਰਾਮ ਪਰਿਭਾਸ਼ਾ-3**

ਇਕ ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਦੀ ਵਰਤੋਂ ਬਿਨਾਂ ਦਿੱਤੇ ਗਏ ਟੈਕਸਟ ਨੂੰ ਉਲਟਾਉਣ ਲਈ।

**2. ਯੂਜਰ ਡਿਫਾਇੰਡ ਫੰਕਸ਼ਨਜ਼**

- ਭੂਮਿਕਾ
- ਬਿਲਟ ਇੰਨ ਫੰਕਸ਼ਨ ਲਾਇਬਰੇਰੀ ਫੰਕਸ਼ਨ ਯੂਜਰ ਡੀਫਾਈਨ ਫੰਕਸ਼ਨਜ਼, ਫੰਕਸ਼ਨਜ਼ ਦੀ ਜ਼ਰੂਰਤ
- ਆਰਗੂਮੈਂਟ ਅਤੇ ਪੈਰਾਮੀਟਰ
- ਕੋਡ ਲਾਈਨ
- ਮਲਟੀਫੰਕਜ਼ਨ ਪ੍ਰੋਗਰਾਮ
- ਫੰਕਸ਼ਨ ਦੀ ਬਣਤਰ
- ਰਿਟਰਨ ਮੁੱਲ ਅਤੇ ਉਹਨਾਂ ਦੇ ਟਾਈਪਸ, ਸਿੰਪਲ ਰਿਟਰਨ
- ਫੰਕਸ਼ਨ ਨੂੰ ਕਾਲ ਕਰਨਾ
- ਫੰਕਸ਼ਨ ਨਾਲ ਆਰਗੂਮੈਂਟ, ਬਗੈਰ ਰਿਟਰਨ ਮੁੱਲ
- ਸਟੋਰੇਜ ਸ਼੍ਰੇਣੀਆਂ
- ਸਟੈਟਿਕ ਵੇਰੀਏਬਲ
- ਐਕਸਟਰਨਲ ਵੇਰੀਏਬਲ
- ਫੰਕਸ਼ਨ ਬਗੈਰ ਆਰਗੂਮੈਂਟ, ਰਿਟਰਨ ਮੁੱਲ ਨਾਲ

**3. ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ -1**

- ਭੂਮਿਕਾ
- ਫਾਈਲ ਦੀਆਂ ਕਿਸਮਾਂ ਯ ਆਡੀਓ ਫਾਈਲ, ਵੀਡੀਓ ਫਾਈਲ, ਪਿਕਚਰ ਫਾਈਲ
- ਕੋਲੈਕਸ਼ਨਜ਼, ਪ੍ਰੋਜੈਕਟ ਅਤੇ ਮੂਵੀਜ਼ ਨੂੰ ਜਾਨਣਾ
- ਸੋਰਸ ਫਾਈਲ
- ਵੀਡੀਓ ਕੈਪਚਰ ਡੀਵਾਈਸਜ਼
- ਆਡੀਓ ਕੈਪਚਰ ਡੀਵਾਈਸਜ਼
- ਕੈਪਚਰ ਡੀਵਾਈਸ ਦੀ ਸੂਚੀ ਯ ਵੈਬ ਕੈਮਰਾ, ਐਨਾਲਾਗ ਕੈਮਰਾ ਜਾਂ ਵੀ. ਸੀ. ਆਰ. (V.C.R) ਦਾ ਐਨਾਲਾਗ ਕੈਪਚਰ (capture) ਕਾਰਡ ਨਾਲ ਜੋੜ
- ਡਿਜੀਟਲ ਵੀਡੀਓ ਕੈਮਰਾ ਜਾਂ ਵੀ.ਸੀ. ਆਰ ਦਾ IEEE 1394 ਪੋਰਟ ਨਾਲ ਜੋੜ, ਮਾਈਕਰੋਫੋਨ ਦਾ ਸਾਉਂਡ ਕਾਰਡ ਜਾਂ ਯੂ. ਐਸ. ਬੀ ਪੋਰਟ ਨਾਲ ਜੋੜ
- ਵਿੰਡੋਜ਼ ਮੂਵੀ ਮੇਕਰ ਇੰਨਟਰਫੇਸ ਯ ਮੀਨੂੰ ਬਾਰ ਅਤੇ ਟੂਲ-ਬਾਰ, ਪੇਨਜ਼, ਸਟੋਰੀ-ਬੋਰਡ ਜਾਂ ਟਾਈਮ ਲਾਈਨ ਪੇਨਜ਼, ਕੋਲੈਕਸ਼ਨ ਪੇਨ, ਕਾਨਟੈਂਟਸ ਪੇਨ, ਡੀਟੇਲਜ਼, ਥੰਬ ਨੇਲ, ਮੋਨੀਟਰ
- ਸਟੋਰੀਬੋਰਡ : ਸਟੋਰੀ ਬੋਰਡ ਦੀ ਵਰਤੋਂ, ਸਟੋਰੀ ਬੋਰਡ ਦਾ ਨਿਰਮਾਣ
- ਵਿੰਡੋਜ਼ ਮੂਵੀਮੇਕਰ ਦੀ ਵਰਤੋਂ : ਮੂਵੀ ਟਾਸਕ ਪੇਨ, ਵੀਡੀਓ ਕੈਪਚਰ, ਐਡਿਟ ਵੀਡੀਓ, ਫਿਨਿਸ਼ਵੀਡੀਓ
- ਕੋਲੈਕਸ਼ਨ, ਸਪਲਿਟ ਬਟਨ, ਸਕਰੀਨ ਸ਼ਾਟ ਬਟਨ, ਵੀਡੀਓ ਟਰੈਕ, ਆਡੀਓ ਟਰੈਕ, ਟਾਈਟਲ ਟਰੈਕ
- ਹੈਂਡਜ ਆਨ ਵਿੰਡੋਜ਼ ਮੂਵੀਮੇਕਰ (hands on windows movie maker) : ਨਿਊ ਪ੍ਰੋਜੈਕਟ ਖੋਲ੍ਹਣਾ, ਆਪਣੇ, ਕੰਪਿਊਟਰ ਤੋਂ ਵੀਡੀਓ ਇਮਪੋਰਟ ਕਰਨਾ,ਪਿਕਚਰ ਇੰਪੋਰਟ ਕਰਨਾ

- ਵੀਡੀਓ ਸਕਰੀਨ / ਮੋਨੀਟਰ ਯ ਕਲਿਪ ਨੂੰ ਦੇਖਣਾ, ਨਿਊ ਕੋਲੈਕਸ਼ਨ ਬਣਾਉਣਾ, ਆਡੀਓ ਜਾਂ ਵੀਡੀਓ ਨੂੰ ਦੋ ਭਾਗਾਂ ਵਿੱਚ ਵੰਡਣਾ, ਸਪਲਿਟ ਕੀਤੀ ਹੋਈ ਆਡੀਓ ਜਾਂ ਵੀਡੀਓ ਨੂੰ ਜੋੜਨਾ, ਕਲਿਪ ਨੂੰ ਕੋਲੈਕਸ਼ਨ ਵਿੱਚ ਕਾਪੀ ਕਰਨਾ, ਇਕ ਵੀਡੀਓ ਤੋਂ ਮੋਨੀਟਰ ਰਾਹੀਂ ਪਿਕਚਰ ਲੈਣੀ

**4. ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-2**

- ਭੂਮਿਕਾ
- ਟਾਈਮ-ਲਾਈਨ ਵਿਊ
- ਸਟੋਰੀ ਬੋਰਡ ਵਿੱਚ ਵੀਡੀਓ ਕਲਿੱਪ ਜੋੜਨਾ
- ਸਟੋਰੀ ਬੋਰਡ ਵਿੱਚ ਦੁਬਾਰਾ ਤੋਂ ਤਰਤੀਬ ਵਾਰ ਕਰਨਾ, ਟਾਈਮ ਲਾਈਨ ਦਾ ਪ੍ਰਯੋਗ ਕਰਦੇ ਹੋਏ ਕਲਿਪਸ ਤੋੜਨਾ, ਇਕ ਵੀਡੀਓ ਨੂੰ ਤੋੜਨਾ
- ਕਲਿਪਸ ਦੀ ਟਰੀਮਿੰਗ ਯ ਕਲਿਪਸ ਦੀ ਛਟਾਈ ਕਰਨਾ, ਇਕ ਕਲਿਪ ਦੀ ਟਰਿਮ ਜਾਂ ਛਾਂਟੀ ਕਰਨਾ, ਟਰਿਮ ਪੁਆਇੰਟ ਨੂੰ ਸਾਫ਼ ਕਰਨਾ, ਟੁੱਟੇ ਹੋਏ ਵੀਡੀਓ ਕਲਿਪਸ ਨੂੰ ਆਪਸ ਵਿੱਚ ਜੋੜਨਾ, ਮੂਵੀ ਨੂੰ ਐਡਿਟ ਕਰਨਾ, ਵੀਡੀਓ ਟਰਾਂਜਿਸ਼ਨ, ਵੀਡੀਓ ਇਫੈਕਟਸ, ਟਾਈਟਲ ਅਤੇ ਕਰੈਡਿਟਸ, ਵੀਡੀਓ ਟਰਾਂਜਿਸ਼ਨ ਨੂੰ ਲਾਗੂ ਕਰਨਾ, ਵੀਡਿਓ ਇਨਫੈਕਟਸ ਜੋੜਨਾ, ਟਾਈਟਲ ਤੇ ਕਰੈਡਿਟ, ਪ੍ਰੀ-ਵਿਊ ਮੂਵੀ ਟਾਈਟਲ, ਆਡੀਓ ਐਡ ਕਰਨਾ, ਆਡੀਓ ਨੂੰ ਪਿਕਚਰ ਨਾਲ ਅਲਾਈਨ ਕਰਨਾ, ਆਡੀਓ ਕਲਿਪ ਦਾ ਟਾਈਮ ਲਾਈਨ ਵਿਊ, ਐਡਟਿੰਗ ਆਡੀਓ, ਵੀਡੀਓ ਦਾ ਆਡੀਓ ਘੱਟ ਜਾਂ ਵੱਧ ਕਰਨਾ ।

**5. ਨੈਟਵਰਕਿੰਗ ਸੰਕਲਪ**

- ਭੂਮਿਕਾ
- ਨੈੱਟਵਰਕਰ ਕੀ ਹੁੰਦਾ ਹੈ; ਨੈੱਟਵਰਕਿੰਗ ਲਈ ਲੋੜ, ਨੈੱਟਵਰਕਿੰਗ ਟਰਮੀਨੋਲੋਜੀ
- ਨੈੱਟਵਰਕ ਦੀਆਂ ਕਿਸਮਾਂ
- ਨੈੱਟਵਰਕ ਟੋਪੋਲੋਜੀ : ਟੋਪੋਲੋਜੀ ਕੀ ਹੁੰਦੀ ਹੈ, ਭੌਤਿਕ ਟੋਪੋਲੋਜੀ ਦੀਆਂ ਮੁੱਖ ਕਿਸਮਾਂ, ਲੀਨੀਅਰ ਬੱਸ ਟੋਪੋਲੋਜੀ, ਸਟਾਰ -ਟੋਪੋਲੋਜੀ, ਟ੍ਰੀ- ਟੋਪੋਲੋਜੀ, ਮੈਸ਼- ਟੋਪੋਲੋਜੀ, ਪਾਰਸ਼ਲ ਮੈਸ਼- ਟੋਪੋਲੋਜੀ
- ਪ੍ਰੋਟੋਕੋਲਜ਼ : ਯੂਨੀਫਾਰਮ ਰਿਸੋਰਸ ਲੋਕੇਟਰ (ਯੂ.ਆਰ.ਐਲ) ਫਾਈਲ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ ਅਤੇ ਹਾਈਪਰਟੈਕਸਟ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ (ਫਾਈਲ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ, ਹਾਈਪਰਟੈਕਸਟ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ), ਪ੍ਰਾਈਵੇਟ ਨੈੱਟਵਰਕਸ
- ਚੈਨਲ ਦੀ ਵਿਚਾਰਧਾਰਾ : ਸੰਚਾਰ ਚੈਨਲ ਕੀ ਹੁੰਦਾ ਹੈ, ਡਾਟਾ ਬਦਲੀ ਦਰ
- ਸੰਚਾਰ ਮਾਧਿਅਮ : ਗਾਈਡਿਡ ਮੀਡੀਆ, ਅਨਗਾਈਡਿਡ ਮੀਡੀਆ, ਆਰ.ਐਫ ਪ੍ਰਸਾਰ
- ਨੈਟਵਰਕਿੰਗ ਡਿਵਾਇਸ : ਹੱਬ ਅਤੇ ਮੋਡਮ

**6. ਲਾਈਬ੍ਰੇਰੀ ਫੰਕਸ਼ਨਜ਼**

- ਫੰਕਸ਼ਨ
- ਸਟਰਲੇਨ ਫੰਕਸ਼ਨ ( Strlen )
- ਸਟਰੇਪੀ ਫੰਕਸ਼ਨ ( Strcpy)
- ਸਟਰੀਟ ਫੰਕਸ਼ਨ (Strcat)

- ਸਟਰੈਮਪ ਫੰਕਸ਼ਨ (Strcmp)
- ਗੈਟਚਰ ਫੰਕਸ਼ਨ (getchar)
- ਪੁਟਚਰ ਫੰਕਸ਼ਨ (putchar)
- ਪ੍ਰਿੰਟਐਫ ਫੰਕਸ਼ਨ ( Printf )
- ਸਕੈਨਐਫ ਫੰਕਸ਼ਨ ( Scanf)
- ਕੋਸ ਫੰਕਸ਼ਨ ( Cos )
- ਐਕਸਪ ਫੰਕਸ਼ਨ ( Exp )
- ਪੋਵ ਫੰਕਸ਼ਨ ( Pow )
- ਸਕਰਟ ਫੰਕਸ਼ਨ ( Sqrt )
- ਐਫਮੋਡ ਫ ਫੰਕਸ਼ਨ (fmod)
- ਫੇਬਸ ਫੰਕਸ਼ਨ (Fabs)
- ਸੀਲ ਫੰਕਸ਼ਨ ( Ceil)
- ਫਲੋਰ ਫੰਕਸ਼ਨ (floor)
- ਇਜ਼ਲੋਅਰ ਅਤੇ ਇਜ਼ਅਪਰ ਫੰਕਸ਼ਨ ( islower() and isupper() )
- ਟੂਲੋਅਰ ਅਤੇ ਟੂਅਪਰ ਫੰਕਸ਼ਨ ( tolower() ) and ( toupper () )
- ਫੰਕਸ਼ਨ ਦੇ ਲਾਭ

**7. ਈ-ਗਵਰਨੈਂਸ (e-Governance)**

- ਈ-ਗਵਰਨੈਂਸ ਦਾ ਪ੍ਰਯੋਗ:
- ਘੱਟ ਖਰਚ, ਤੇਜ ਰਫ਼ਤਾਰ, ਕਿਤੇ ਵੀ ਕਿਸੇ ਵੀ ਟਾਇਮ, ਆਸਾਨ ਪ੍ਰਬੰਧ
- ਈ-ਗਵਰਨੈਂਸ ਦੇ ਅੱਲਗ-ਅੱਲਗ ਖੇਤਰ:ਇੰਟਰਨੈੱਟ ਬੈਂਕਿੰਗ,ਆਨ-ਲਾਈਨ ਰੇਲਵੇ ਅਤੇ ਹਵਾਈ ਟਿਕਟਿੰਗ, ਆਈ-ਟਿਕਟਿੰਗ, ਈ-ਟਿਕਟਿੰਗ, ਪਾਸਪੋਰਟ ਸੇਵਾਵਾਂ
- ਸੁਵਿਧਾ ਸੈਂਟਰ

## ਕੰਪਿਊਟਰ ਸਾਇੰਸ (ਪ੍ਰਯੋਗੀ)

## ਅਗਵਾਈ ਲੀਹਾਂ (ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ)

**ਸਮਾਂ : 3 ਘੰਟੇ** **ਅੰਕ: 40**

**ਪ੍ਰੀਖਿਆ ਲਈ ਅੰਕ ਵੰਡ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗੀ :**

| | | |
|---|---|---|
| ਸੈਕਸ਼ਨ - ਏ | ਵਾਇਵਾ - ਵੋਸ | 10 |
| ਸੈਕਸ਼ਨ - ਬੀ | ਪ੍ਰੋਗਰਾਮ ਰਿਕਾਰਡ ਫਾਇਲ | 10 |
| ਸੈਕਸ਼ਨ - ਸੀ | ਛੋਟੇ ਪ੍ਰੋਗਰਾਮ | 210 |

1. ਸੈਕਸ਼ਨ ਏ ਵਿੱਚ ਪ੍ਰੀਖਿਆਰਥੀ ਤੋਂ ਪਾਠ ਕ੍ਰਮ ਵਿੱਚੋਂ ਪੰਜ ਪ੍ਰਸ਼ਨਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਪ੍ਰਸ਼ਨਇੱਕ ਇੱਕ ਅੰਕ ਦਾ ਹੋਵੇਗਾ। ਇਹ ਪ੍ਰਸ਼ਨ ਅਬਜੈਕਟਿਵ ਟਾਈਪ ਜਾਂ ਵਿਆਖਿਆ ਦੱਸਣੀ ਜਾਂ ਕੰਪਿਊਟਰ ਦੇ ਵੱਖ ਵੱਖ ਹਿੱਸਿਆਂ ਅਤੇ ਇਸ ਨਾਲ ਜੁੜੇ ਸਹਾਇਕਾਂ ਦੇ ਬਹੁਤ ਛੋਟੇ ਅਭਿਆਸ ਹੋਣਗੇ। **2 × 5 = 10 ਅੰਕ**

2. ਸੈਕਸ਼ਨ ਬੀ ਵਿੱਚ ਪ੍ਰੀਖਿਆਰਥੀ ਦਾ ਸਲਾਨਾ ਪ੍ਰੋਗਰਾਮ ਰਿਕਾਰਡ ਫਾਇਲ ਚੈਕ ਕੀਤਾ ਜਾਵੇਗਾ। **10 ਅੰਕ**

3. ਸੈਕਸ਼ਨ ਸੀ ਵਿੱਚ ਤਿੰਨ ਪ੍ਰਸ਼ਨ/ਪ੍ਰੋਗਰਾਮ ਸੈੱਟ ਕੀਤੇ ਜਾਣਗੇ ਜਿਨ੍ਹਾਂ ਵਿੱਚੋਂ ਪ੍ਰੀਖਿਆਰਥੀ ਨੂੰ ਦੋ ਪ੍ਰੋਗਰਾਮ/ਪ੍ਰਸ਼ਨਕਰਨ ਦੀ ਖੁੱਲ ਹੋਵੇਗੀ। ਹਰ ਪ੍ਰੋਗਰਾਮ/ਪ੍ਰਸ਼ਨਪੰਜ-ਪੰਜ ਅੰਕਾਂ ਦਾ ਹੋਵੇਗਾ, ਹਰੇਕ ਪ੍ਰੋਗਰਾਮ/ਪ੍ਰਸ਼ਨਲਈ ਅੰਦਰੂਨੀ ਅੰਕ ਵੰਡ ਪੇਪਰ ਸੈੱਟਰ ਕਰਕੇ ਦੇਵੇਗਾ। **4 × 5= 20 ਅੰਕ**

## <u>ਪਾਠ ਕ੍ਰਮ (ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ)</u>

### 1. ਸਟਰਿੰਗ ਫੰਕਸ਼ਨ ਦੀ ਵਰਤੋਂ

- ਸਟਰਿੰਗ ਫੰਕਸ਼ਨ : ਡੇਕਲੇਰੇਸ਼ਨ, ਇਨਿਸ਼ਿਯਲਾਈਜ਼ੇਸ਼ਨ
- ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਦੀ ਪ੍ਰਿੰਟਿੰਗ ਪ੍ਰਦਰਸ਼ਿਤ ਕਰਨੀ
- ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ
- ਸਾਧਾਰਣ ਇੰਨਪੁਟ / ਆਊਟਪੁੱਟ ਗੈਟਚਰ, ਪੁੱਟਚਰ, ਪ੍ਰਿੰਟਐਫ ( I/O getchar(), putchar(), printf() )
- ਸਟਰਿੰਗ ਔਪਰੇਸ਼ਨ (string.h)

### 2. ਯੂਜ਼ਰ ਡਿਫਾਇੰਡ ਫੰਕਸ਼ਨਜ਼

- ਬਿਲਟ-ਇੰਨ ਫੰਕਸ਼ਨਜ਼/ਲਾਈਬ੍ਰੇਰੀ ਫੰਕਸ਼ਨਜ਼
- ਆਰਗੂਮੈਂਟਸ ਅਤੇ ਪੈਰਾਮੀਟਰਜ
- ਕੋਡ ਲਾਈਨ
- ਮਲਟੀਫੰਕਸ਼ਨ
- ਫੰਕਸ਼ਨ ਦੀ ਬਣਤਰ
- ਫੰਕਸ਼ਨ ਨੂੰ ਕਾਲ ਕਰਨਾ

### 3. ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-1

- ਆਡੀਓ-ਵੀਡੀਓ ਫਾਈਲ
- ਪ੍ਰੋਜੈਕਟ, ਮੂਵੀ, ਕੈਪਚਰਿੰਗ, ਸਪਲਿੰਟਿੰਗ

**4. ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-2**

- ਟਾਈਮ ਲਾਈਨ ਵਿਊ
- ਪ੍ਰੋਜੈਕਟ ਨੂੰ ਚਲਾਉਣਾ
- ਟ੍ਰੀਮਿੰਗ
- ਐਡਿਟਿੰਗ
- ਵੀਡਿਓ ਟਰਾਂਜਿਸ਼ਨ
- ਵੀਡਿਓ ਇਫੈਕਟ
- ਵੀਡਿਓ ਟਾਈਟਲ
- ਵੀਡਿਓ ਕਰੈਟਿਡ
- ਵੀਡਿਓ ਪ੍ਰੀਵਿਊ

**5. ਲਾਈਬ੍ਰੇਰੀ ਫੰਕਸ਼ਨਜ਼**

- ਫੰਕਸ਼ਨ
- ਸਟਰਲੇਨ ਫੰਕਸ਼ਨ ( Strlen () )
- ਸਟਰੇਪੀ ਫੰਕਸ਼ਨ ( Strcpy() )
- ਸਟਰੀਟ ਫੰਕਸ਼ਨ (Strcat() )
- ਸਟਰੈਮਪ ਫੰਕਸ਼ਨ (Strcmp() )
- ਗੈਟਚਰ ਫੰਕਸ਼ਨ (getchar() )
- ਪੁਟਚਰ ਫੰਕਸ਼ਨ ( putchar() )
- ਪ੍ਰਿੰਟਐਫ ਫੰਕਸ਼ਨ ( Printf() )
- ਸਕੈਨਐਫ ਫੰਕਸ਼ਨ ( Scanf() )
- ਕੋਸ ਫੰਕਸ਼ਨ ( Cos() )
- ਐਕਸਪ ਫੰਕਸ਼ਨ ( Exp() )
- ਪੋਵ ਫੰਕਸ਼ਨ ( Pow() )
- ਸਕਰਟ ਫੰਕਸ਼ਨ ( Sqrt() )
- ਐਫਮੋਡ ਫ ਫੰਕਸ਼ਨ (fmod() )
- ਫੇਬਸ ਫੰਕਸ਼ਨ (Fabs() )
- ਸੀਲ ਫੰਕਸ਼ਨ ( Ceil () )
- ਫਲੋਰ ਫੰਕਸ਼ਨ ( floor() )
- ਇਜ਼ਲੋਅਰ ਅਤੇ ਇਜ਼ਅਪਰ ਫੰਕਸ਼ਨ ( islower() and isupper() )
- ਟੂਲੋਅਰ ਅਤੇ ਟੂਅਪਰ ਫੰਕਸ਼ਨ ( tolower() ) and ( toupper () )
- ਫੰਕਸ਼ਨ ਦੇ ਲਾਭ

**D STRUCTURE OF QUESTION PAPER**

**FOR ELECTIVE SUBJECTS**

**(Theory)**

**For question paper carrying 30 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 80 MARKS THEORY ARE:-**

| GROUP | TRADE | SUBJECTS |
|---|---|---|
| A) Business & Commerce | 1. Accountancy and Auditing | a. Principles of Management and Economics<br>b. Book Keeping and Accountancy-(V) |
| | 2.Transport Services | a. Infrastructure and modes of Transport-II<br>b. Transport Management |
| | 3.Basic Financial Services | a. Accounting for Business-II<br>b. Introduction to Financial Market. |
| | 4. Insurance | a. Insurance legislation<br>b. Insurance Salesmanship |
| | 5. Informatics Management | a. Management-II |
| | 6. Import Export | a. Import management |
| B) Engineering & Technology | Computer Science | a. Networking |

**Time: 2 hrs** **Theory: 30 Marks**
**Time : 3 hrs** **Practical: 50 Marks**
**CCE: 10 Marks**
**Total: 90 Marks**

**Structure of Question Paper**

In all, Nineteen 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 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 80 marks (Theory) each.**

**Time: 3 hrs** **Theory: 80 Marks**
**CCE: 10 Marks**
**Total: 90 Marks**

**Structure of Question Paper**

In all, thirty three 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 2 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 fifteen short answer type questions carrying 4 marks each. Candidate will attempt any 9 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 eight questions carrying 6 marks each. Candidate will attempt any 4 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 80 marks theory precedes the syllabus of particular subject.

## E. STRUCTURE OF QUESTION PAPER FOR ELECTIVE SUBJECTS (Practical)

**For Question Paper carrying 50 marks (practical) each (except those specified at***

****SUBJECTS HAVING 80 MARKS PRACTICAL ARE:-**

| GROUP | TRADE | SUBJECTS |
|---|---|---|
| Engineering & Technology | 1. Architecture | a. Engineering Drawing |
| | 2. Mechanical | a. Engineering Drawing |

**Time: 3 hrs** **Practical: 50**

**Marks** Distribution of marks will be as follows:

| | |
|---|---|
| (i) Practical note book/sessional work/visits/project work. | 5 Marks |
| (ii) Viva Voce | 5 Marks |
| (iii) Actual Performance | 40 Marks |

**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.

25 Marks

**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.

15 Marks

**For question paper carrying 80 marks (practical) each**
**(Except those specified at **)**

**Time: 3 hrs** **Practical: 80 Marks**

Distribution of marks will be as follows:

| | |
|---|---|
| (i) Practical note book/sessional work/visits/project work. | 10 Marks |
| (ii) Viva Voce | 10 Marks |
| (iii) Actual Performance | 60 Marks |

**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.

40 Marks

**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.

20 Marks

**Or**

In any other case, the structure of question paper 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

## (UNDER DISCUSSION)

**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: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**THEORY** **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, bird baths, streams, pools, waterfalls, terraces, rockeries, pergolas, arches and topiary.
- 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**

**Time: 3 hrs** **Practical:50Marks**

**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.

**PAPER-II** **Commercial Crops**

**Time: 2hrs** **Theory: 30 Marks**

**CCE: 10 Marks**

**Practical: 50 Marks**

**Total: 90 Marks**

## 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, vermicompasting, application of vermicomposing.

**PAPER-II** **Commercial Crops**

**Time: 3hrs** **Practical: 50 Marks**

**PRACTICAL SYLLABUS**

**Spice Crops**

- Processing and curing of ginger and turmeric

**Medicinal and Aromatic Crops**

- Study of important spice, medicinal and aromatic crops.
- Extraction of essential 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/shalves/bage with compost for button mushroom.
- Spawning in butoon 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 Harvesting Technology and Preservation**

**Time: 2hs** **Theory: 30 Marks**

**CCE: 10 Marks**

**Practical: 50 Marks**

**Total: 90 Marks**

**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 Harvesting Technology and Preservation**
**Time:3hrs** **practical: 50 Marks**

**PRACTICAL**

**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) AGRICULTURE(AGRI-BUSINESS)**

**PAPER-I** **Agricultural Marketing**
**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 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: 50 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.

**PAPER -II** **AGRICULTURAL FINANCE**

**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total: 90 Marks**

**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 Agri. Co-operative Land Development Bank.
- 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).

**PAPER -II** **AGRICULTURAL FINANCE**

**Time : 3 hrs** **Practical: 50 Marks**

**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: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 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 Implements: | 1 | Primary tillage implements: proper use of hitching of mould board plough and disc plough. |
| | | 2 | Secondary tillage : Uses of levellers, 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 : 50 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: 30 Marks**

**CCE: 10 Marks**
**Practical: 50Marks**
**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: 50 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.

3 General cleaning, oiling & greasing of tractors.

4 Checking & tightening of nuts & bolts, checking: fuel, oil, cooling systems & battery checking and inflating tyres.

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.

10 Common defects & remedies of different systems of a tractor.

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: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 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: 50 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: 30 Marks**
**CCE:10Marks**
**THEORY** **Practical:50Marks**
**SYLLABUS** **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 records 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: 50 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) SECTARIAL PRACTICE(OFFICE SECRETARY SHIP)

**PAPER –I** **Modern Office Practices**

**Time: 2hrs** **Theory: 30 Marks**

**CCE: 10 Marks**

**Practical: 50 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**
**Time : 3 hrs** **Practical: 50Marks**

**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-II (ENGLISH)/(PUNJABI)**
**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total: 90 Marks**

**THEORY**
**SYLLABUS**

Revision of shorthand studied in 11th class.

**Part-I**

1. Prefixes and Suffixes.
2. Terminations and special contractions.
3. Shorthand Materials-pen, pencil and copy.
4. Dictation-method of taking dictation.
5. General mistakes and their rectification.

**Part-II**

6. Transcription.
7. Phraseography.
8. Evaluation of paper. Functions of a steno.
9. General knowledge of shorthand in other languages (Hindi/Punjabi).

**PAPER-II SHORTHAND-II(ENGLISH)/(PUNJABI)**

**Time:3 hrs** **Practical: 50 Marks**

**PRACTICAL**
**SYLLABUS**

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**

**PAPER-III TYPOGRAPHY-II(TYPE WRITING – ENGLISH/PUNJABI)**

**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total: 90 Marks**

**THEORY**
**SYLLABUS**

1. Correspondence-Memorandum, D.O., U.O., Circular letter.
2. Typing systematically, Typing heading, Typing addresses on envelopes, Typing in margins, typing sub-headings.

3. Use and types of carbon paper, making duplicate copies, making corrections on carbon copies, care of carbon papers.
4. Tabulation-Importance, methods.
5. Stencil paper-Importance, use, method of cutting, methods of making corrections, use of fluid, stylus pen, stencil plate. Duplicating machine, rotary duplicator.
6. Typing-legal and literary documents.
7. Evaluation methods of type paper, proof reading.

**PAPER-III TYPOGRAPHY-II(TYPE WRITING – ENGLISH/PUNJABI)**
**Time: 3 hrs Practical: 50 Marks**

**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 AND AUDITING

**PAPER-I FUNDAMENTAL OF E-BUSINESS**
**Time: 2hrs Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total: 90 Marks**

**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.
- Introduction to the internet : Concept of internet, use of internet, requirement of internet, internet domain, internet server, establishing connectivity on the internet, types of internet providers, constitute of internet protocol, browsing the internet, tools and service of internet, procedure of opening e-mail account on internet.

## 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: 50 Marks**

**PRACTICAL SYLLABUS**

1. Log into internet.
2. Navigation for seeking information.
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: 80 Marks**
**CCE: 10 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**

(i) Introduction: Micro Economics - Meaning and Scope, Macro Economics- Meaning and Scope, Difference between Micro and Macro 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.

**PAPER-III BOOK KEEPING AND ACCOUNTANCY-II**

**Time: 3hrs** **Theory: 80 Marks**
**CCE:10 Marks**
**Total:90 Marks**

**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.
- Goodwill: Nature, Factors affecting and methods of valuation: Average profit, Super profit and Capitalization methods.
- 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 & PRACTICES-II**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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.

Phonogram: Procedure for booking and charges. Use of Directory for Telephones. Making, Maintaining and Updating Telephone Index, PBX, EPABX, Radio Telephone, Telephone Recording and Answering sets.

**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 & PRACTICES-II**

**SYLLABUS**

**Time: 3 Hrs. PRACTICAL Practical:50 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**

- Making enquiry for goods. Placement of order for goods.
- 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

**PAPER-II: ACCOUNTING AND E-COMMERCE**

**(TYPEWRITING(ENGLISH))**

**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**UNIT-1: Carbon Mani folding**

Carbon papers and their kinds, assembling, carrying out corrections on carbon and copies, use of Eraser, Erasing shield, white correcting fluid etc., squeezing 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: ACCOUNTING AND E-COMMERCE**

**SYLLABUS**

**Time: 3 Hrs. PRACTICAL Practical:50 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.
- Cyclostyling.

**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, Foot notes 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: COMPUTER APPLICATIONS IN BUSINESS**

**(INTRODUCTION TO COMPUTER APPLICATIONS)**

**Time:2 hrs.** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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: COMPUTER APPLICATIONS IN BUSINESS**

**Time: 3 Hrs. SYLLABUS Practical:50 Marks**

**PRACTICAL**

1. Formatting, copying, backup, restore command.
2. Creating of files, records, fields, saving, printing and deletion of file.
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.
8. Business communication and letter typing under Word star.

## (iv) PURCHASING AND STORE KEEPING

**PAPER-I: PURCHASE AND STORE ACCOUNTING**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**UNIT - I : GENERAL ACCOUNTING**

Elementary knowledge of Book-Keeping, Journal, Ledger and Trial Balance.

**UNIT-II: PURCHASE RECORDS**

Materials requisition, Bill of Lading, Quotations, Comparative Statements, Suppliers Accounts, Contract Records, Maintenance Records, Purchase Order, Purchase Book, Goods Inspection Note, Returns Outwards Books, Credit and Debit Notes, Payment Records, Computation of Purchase Prices.

**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:50 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.

**PAPER-II: ELEMENTS OF BUSINESS LAW & CLEARING PROCEDURE**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 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: 50 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 (PS)**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**COMPUTER FUNDAMENTALS**

Basic anatomy of computers-Introduction to computing – What is computer-Characteristics of computer – speed – Storage – Accuracy – Versatile Automation – Diligence – Classification of computers – Generation of Computers –Types of computers – Data representation within computer – Bits, Bytes, EBCDIC, BCD, ASCII, number system Basic structure of computer – Input, Process, Output – Memory – RAM - ROM – EPROM – DRAM – CACHE – CDROM – Introduction to Computer Languages.

**1. INPUT/OUTPUT DEVICES**

Input Devices – Key boards, Mouse, Touch Screen, MICR, Light Pen, Joy Stick. Digitiser, Scanner – Output Devices – VDU – Printers (Impact, Non Impact) – Impact: Dot matrix, Line Printer, Daisy Wheel, Drum printer, Plotter – Non Impact: Laser, Inkjet.

**2. DATA STORAGE DEVICES**

Magnetic Tape – Magnetic Disk – Floppy Disk – Hard Disk – Data Cartridge – Compact disk – Optical Disk

**3. OPERATING SYSTEM**

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

**4. MS-DOS**

Internal Commands – External Commands – FORMAT, BACKUP, RESTORE, CHKDSK, XCOPY, DISKCOPY, ATTRIB, DISKCOMP, ATTRIB, UNDELETE – Batch Files – Batch file commands – Editors – Edit – Control functions.

**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**

Starting MS-Word – Creating a Document – Opening a Document – Saving a Document – Editing Text – Formatting Text – Viewing Documents – Formatting Documents – Line spacing – Paragraph Spacing – Setting Tabs – Indenting Text – Aligning Text – Adding Headers and Footers – Numbering Pages – Inserting a Table – Proofing a Document – Spell – check Utility – Automatic Spell-check – Auto Correct – Printing a Document – Mail Merge.

**7. MS-EXCEL**

Introduction to MS-Excel – Starting MS-Excel- Opening a Worksheet – Saving a Worksheet – Spreadsheet Operations – Entering Numbers, Text, Dated & Time, Formulas – Editing the worksheet – Deleting Cells, Rows, Columns-Inserting Cells, Rows, Columns – What-if Analysis – Printing a Worksheet – Formulas and functions – Entering Formulas- Absolute and Relative Reference of a Cell – Mixed Reference – Operators in Formulas – Using Text, Date and Time in Formula – Arrays and Named Ranges – Functions – Entering Functions – Calculation using Functions – Different types of Functions in Excel – charts, Macros and Forms – Creating a Chart – Editing a Chart – Inserting and Deleting in a Chart – Save and Print a Chart

– Macros – Creating and running Simple Macros – Creating and Running Menu Macros.

**9. DATABASE CONCEPT**

Introduction to DBMS

**10. PROGRAMMING IN FOXPRO**

Creating database structure – Opening & closing database files – Modifying and copying structure of database files – Adding, Editing and viewing data – Using queries and logical expressions – Understanding indexes and expressions – Generating reports and mailing labels – Memory variables and functions – Managing numbers and dates – command files – Programming with Fox Pro – Designing custom screens – Using the Menu builder.

**PAPER III: ELEMENTS OF COMPUTER APPLICATIONS**

**PRACTICAL**

**Time: 3 Hrs. SYLLABUS Practical: 50 Marks**

**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

Programs using multiple files.

## 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 RECEPTIONIST

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

**Time: 2 hrs.** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total:90 Marks**

### THEORY

### SYLLABUS

**UNIT – I: Introduction**

Introduction – Meaning and definition – Important concepts – Objectives – Advantages of account – Types of accounts – Rules for debit and credit, double entry book-keeping system.

**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**

Subsidiary books – Purchase, sales – Returns inward and returns outward – Cash book and Petty cash book.

**UNIT – V: Banking Transactions**

Banking transactions – Banks pass book, Cash book with banking transactions and petty cashbook ; type of banks and their function – Various bank accounts – Operation of accounts – Endorsement and crossing of cheques – Bank reconciliation statement.

**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**

**Time : 3 Hrs SYLLABUS Practical: 50 Marks**

**UNIT – I** Preparation of different kinds of vouchers and documents which are used for accounting purpose.

**UNIT –II** Entries in the following books of accounts on the basis of vouchers and documents – Journal, ledger, cash book, petty cash book, trial balance and final accounts.

**UNIT-III** 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.

**UNIT – IV** Preparation of bank reconciliation statement from given practice sets (i.e. pages of cash book and pass book).

**UNIT – V** 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.

**PAPER –II COMMUNICATION AND CORRESPONDENCE**

**Time: 2hrs.** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical: 50 Marks**
**Total:90 Marks**

**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**

Qualities of a good telephone operator – Different telephone codes – Equipment in use (PBX, PABX, EPBAX) – Handling of an equipment, panels – Head set and Plug – Cards and Plugs – Keys – Cord Text – Jack Call – Night Switch Key – Booking of long distance call – Maintenance of various records like, log book, complaint register, handling over register, trunk call book and voucher, telephone sales summary sheet, telephone message slip etc. – General duties and responsibilities of Telephone Department.

**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.

**PAPER –II** **COMMUNICATION AND CORRESPONDENCE**

**SYLLABUS**

**Time: 3 Hrs.** **PRACTICAL** **Practical: 50 Marks**

**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** **FUNDAMENTALS OF COMPUTER APPLICATIONS**

**(ELEMENTS OF COMPUTER APPLICATIONS)**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**UNIT – I : Computer Fundamentals**

Basic anatomy of Computers – Introduction to computing – What is computer – Characteristics of computers speed – Storage – Accuracy – Versatile – Diligence – Classification of computers – Generation of computers – Types of computers – Binary number system, Simple binary addition and substation – Date representation within computer Bits, Bytes, EBCDIC, BCD, ACSII, number system – Basic structure of

computer – Input, Process, Output – Main Memory – RAM, ROM, EPROM, DRAM, CACHE, CDROM – Introduction to computer languages, translators – Interpreter, compiler, assembler software generations, types of software.

**UNIT – II: Input/Output Devices**

Input Devices – Key boards, Mouse, Touch Screen, MICR, Light Pen, Joy Stick, Digitizer, Scanner – Output Devices – VDU Printers ( Impact, Non impact) – Impact : Dot Matrix, Line Printer, Daisy Wheel, Drum printer, Plotter – Non-Impact : Laser, Inkjet.

**UNIT – III: Dare Storage Devices**

Magnetic Tape – Magnetic Disk – Hard Disk – Date Cartridge – Compact Disk – Optical Disk.

**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.

Internal commands – External Commands – Format, Backup, Restore, Chkdsk, Xcopy, diskcopy, Attrib, Diskcomp, Attrib, Delete, Undelete – Batch files – Batch file commands – Editors – Edit – Control functions.

**UNIT-VI: MS-Windows**

Introduction to Windows – Advantages of Windows – Control panel – File Manager – Accessories – Write Paint Brush, Calendar, Calculator, Cardfile – Overview.

**UNIT –VII: MS-WORD**

Starting MS-WORD –Creating a document – Opening a document- Saving a document – Editing text – Formatting text- viewing documents – Formatting documents – Line spacing – Paragraph spacing- Setting tabs – Indenting text – Aligning text – Adding Headers and Footers – Numbering pages – Inserting a table – Proofing a document – Spell check utility – Automatic spell check – Auto text – Auto correct – Printing a document – Mail Merge.

**UNIT-VIII: MS-EXCEL**

Introduction to MS-Excel – Starting MS-Excel – Opening a Worksheet – Saving a Worksheet – Spreadsheet operations – Entering numbers, Text, Dates & Time, Formulas – Editing the worksheet – Deleting Cells, Rows, Columns – Inserting Cells, Rows, Columns – What if Analysis- Printing a Worksheet – Formulas and Functions – Entering Formulas – Absolute and relative reference of a Cell – Mixed referencing – Operators in formulas – Using Text, Date and Time in Arrays and named ranges – Functions –entering functions- calculation using functions – different types of functions in Excel – Charts, Macros and Forms – Creating a chart – Editing a Chart – Inserting and Deleting in a chart – Save and Print a Chart - Macros – Creating and running simple Macros – Creating and running Menu Macros.

**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**

Creating database structure – Opening and closing database files – Modifying and Copying structure of database files – Adding, Editing and Viewing data – Using Queries ad Logical expressions, Understanding Indexes and expressions – Generating reports and Mailing Labels – Memory Variables and Functions – Managing Numbers and Dates – Command files – Programming with Fox Pro – Designing Custom Screens – Using the Menu builder.

**PAPER – III FUNDAMENTALS OF COMPUTER APPLICATIONS**

## (ELEMENTS OF COMPUTER APPLICATIONS)

## PRACTICAL

**Time: 3 Hrs.** **SYLLABUS** **Practical: 50 Marks**

**1. Introduction to Operating System**

Installation of DOS – Fine tuning MSDOS – Use of Internal and External commands of DOS file operation. Creation and usage of batch files – Autoexec.BAT – Mail utilities – Installation of Windows – Study of different menus available in Windows.

**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

**PAPER-I** **TOURISM MARKETING**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE: 10 Marks**
**Practical:50 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 &** market, **Target Marketing** | - | Basis of segmentation, identifying target 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: 50 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 brouchers 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: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**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** **Practical:50 Marks**

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)

**PAPER-III ACCOMODATION AND HOSPITALITY OPERATIONS**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**Total:90 Marks**

**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, house keeping & 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, masson, 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 stablishments – Industrial, Commercial, Transportational & institutional; F&B Equipments, Crockery, Cutleries, Variety of menus, Alcolic and non alcolic beverages, billing and payment procedure; traits and grooming of F&B service staff, Coordination with other departments.

**PAPER-III: ACCOMODATION AND HOSPITALITY OPERATIONS**

**PRACTICAL**

**Time: 3 Hrs.** **SYLLABUS** **Practical: 50 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: 30 Marks**
**CCE:10 Marks**
**Practical:50 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, hypothetical/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.**

i. Pledge of goods.
ii. Hypothecation of goods
iii. Pledge of shares/securities, units of mutual funds.
iv. Bank term deposit receipts, insurance policies, NSC etc.
v. Priority sector lending – agriculture, SSI and other priority sector.
vi. Commercial advances
vii. 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.

**PAPER-I ADVANCES AND FOREIGN EXCHANGE**

**SYLLABUS**

**Time: 3 Hrs. PRACTICAL Practical: 50 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:
    i. Cash credit against pledge of goods to an individual
    ii. Cash credit against pledge of goods to a partnership firms.
    iii. Cash credit against assignment of book debts to a limited company.
    iv. Cash credit against Hypothecation of goods of an individual.
    v. Cash credit against hypothecation of goods of partnership.
    vi. Cash credit against hypothecation of goods to limited company.
    vii. Overdraft against shares and securities to an individual.
    viii. Overdraft against shares and securities to a Partnership.
    ix. Overdraft against shares and securities to a Limited Company.
    x. Demand loan against bank term deposit receipt to an individual.
    xi. Demand loan against bank term deposit receipt to a Partnership.
    xii. Demand loan against bank term deposit receipt to a Limited Company.
    xiii. 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
xxxi. Advances under schedule of: PMRY/SEPUP schemes.

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: 30 Marks**
**CCE:10 Marks**
**Practical:50 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.

1. **Collection of cheques/bills (inland)** – Outward/Inward.
2. **Safe deposit lockers/safe custody accounts.**
3. **Standing Instructions, investment advice.**
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: 50 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**

**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**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:50 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(MARKETING AND SALESMANSHIP/RURAL MARKETING)**

**PAPER-I ADVANCE MANAGEMENT (PRINCIPLES OF MANAGEMENT)**

**Time: 2hrs Theory: 30 Marks**

**Practical: 50 Marks**
**CCE:10 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.
iv **Planning:** Steps in Planning process, how to make plans effective, type of plans, objectives, Policies, procedures, methods, rules strategies, programmes and budgets.

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-I ADVANCE MANAGEMENT (PRINCIPLES OF MANAGEMENT)**

**PRACTICAL**

**Time: 3 Hrs. SYLLABUS Practical:50 Marks**

1 Prepare Organisational Structure of your local Government/Private Organisation in Rural areas.

2 Construct Wage Payment structure in Government Sector/Banking Institution/Private Industry nearby you.

3. Visit any company/Organization in your locality and enlist the leadership patterns exhibited by them in day to day activities.

4. Visit any local Hotel, Restaurant, Industry and enlist the components of Business Environment affecting that Business concern.

5. Prepare a model/Chart on Maslow's Need Hierarchy Theory of Motivation and verify each step by surveying at-least 20 people from your locality.

6. Enlist the Levels of Management of any Multinational company like LG, SAMSUNG, Tata, Reliance Group, Hindustan Uniliver, Patanjali, Dabur etc. and specify the position and role of executives at each level.

7. Enlist the Selection procedure adopted by Multinational companies/Public Sector Undertakings/ Government Organization for various levels.(viz. Lower level, Middle level, Upper level).

**PAPER-II** **MARKETING MANAGEMENT**

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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-II** **MARKETING MANAGEMENT**

**PRACTICAL**

**Time: 3 Hrs.** **SYLLABUS** **Practical:50 Marks**

1. Enlist Marketing strategies being used for Consumer Durable Products like Car, fridge, TV, AC etc of a company of your own choice and compare them to choose best strategy of that product/service which is most suitable in that vicinity.

2. Make a Record of Stock prices in last one year of a Company registered on NSE or BSE using IT tools.

3. List the common Instructions and notices issued by SEBI to companies and Investors in the beginning and end of last financial year.

4. Make brief project report on Unorganized Money Market of rural area.

5. Make brief project report on Organized Money Market of rural area.

6. Prepare the Complete Capital Structure of any one Company listed on BSE or NSE using balance sheet of particular year of a company.

7. Enlist latest issues of Stocks (IPO, Shares, Bonds) of prominent companies with Primary Market.

8. Illustrate the procedure of Sale and Purchase of Shares in Secondary Market using Information Technology tools and prepare a flow diagram/chart of sale/purchase process of shares.

9. Illustrate Procedure of Modern Marketing Management Strategy used in sale of product/services of any company.

**PAPER III** **SALESMANSHIP**

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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.

**PAPER-III** **SALESMANSHIP**

**PRACTICAL**

**Time: 3 Hrs.** **SYLLABUS** **Practical: 50 Marks**

1. Demonstrate the process in the form of flow chart of online Purchasing of Books from e-Shopping Sites like Amazon, Flipkart etc.

2. Demonstrate the process in the form of flow chart of Browsing jobs of Salesmanship on Internet from e-Job Sites and e-Newspapers.

3. Note down different Recharge schemes of Mobile service providers from their websites and demonstrate the Recharge process up to Payment Portal only in the form of flowchart.

4. Demonstrate process of debiting amount in the form of Flow Chart using ATM/Debit card.

5. Enlist the online services provided by any one Indian Bank by opening its websites.

6. Enlist and Demonstrate different types of Advertisements used by companies for selling their Product and Services on Internet.(take print and paste in your Practical file)

7. Spell a flow diagram depicting the procedure of e-banking, taking only one service.

8. Demonstrate in the form of flow chart, Online Sales and Sales promotion done by a company in India using tools of e-Marketing.

9. Create a Report on Self Help Groups run by NABARD or other Organizations in Rural Area.(specifically: Objectives, Role, Responsibilities and Achievements)

## (ix) TRANSPORT SERVICES

**PAPER I** **INFRASTRUCTURE AND MODES OF TRANSPORT-II**

**Time: 3hrs** **Theory: 80 Marks**
**CCE:10Marks**
**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 -II**

**Time: 3hrs** **Theory: 80 Marks**
**CCE:10Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

1. Recruitment of drivers and conductors, training, Offences committed by drivers and conductors. Redress mechanism.
2. **Road Safety measures**: Environmental Hazards and the preventive measures.
3. **Motor Vehicle insurance**: Accidental insurance policy for passengers.
4. Online banking, tour and tracking.

**PAPER III** **ICT IN TRANSPORT INDUSTRY-II**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**Total:90 Marks**

**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-II**

**Time: 3 Hrs. Practical:50 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

## (x) BASIC FINANCIAL SERVICES

**PAPER I** **ACCOUNTING FOR BUSINESS-II**

**Time: 3hrs** **Theory: 80 Marks**
**CCE:10Marks**
**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-II**

**Time: 3hrs** **Theory: 80 Marks**
**CCE: 10 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, under writing, 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.

**PAPER III COMPUTER APPLICATIONS IN FINANCIAL MARKETING-II**

**Time: 2hrs** **Theory: 30 Marks**
**CCE: 10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**1. Introduction to internet:**

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

**PAPER III COMPUTER APPLICATIONS IN FINANCIAL MARKETING-II**

**Time : 3 hrs.** **Practical: 50 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.**

## (xi) INSURANCE

**PAPER I PRINCIPLES AND PRACTICES OF INSURANCE-II**

**(PRINCIPLES AND PRACTICES OF INSURANCE)**

**Time: 2hrs**

**Theory: 30 Marks**
**Practical: 50 Marks**
**CCE: 10 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.

   **Insurance of liability and interest:** Public liability, Professional indemnity, different types of fidelity. Guarantee insurance, Commercial, individual,

collective and excess floating policies. Package policy: Domestic multi Risk, Traders combined, bankers blanket, jewellers block, marine cum eraction, storage cum eraction insurance policy. Loss Prevention. Introduction method of loss prevention. Loss prevention associations of India.

**PAPER-I PRINCIPLES AND PRACTICES OF INSURANCE-II**

**PRACTICAL**

**Time: 3 Hrs. SYLLABUS Practical: 50 Marks**

1. Visit any company/Organization of your locality and note down the risk handling techniques adopted by that Company/Organization in case of theft.
2. Visit any company/Organization of your locality and note down the risk handling techniques adopted by that Company/Organization in case of fire.
3. Visit any company/Organization of your locality and note down the activities undertaken by them in case of loss prevention.
4. Draw a flow diagram of settlement of Motor Accident claim as per Motor Accident Claim Tribunal.
5. Fill the different proposal form for

   (a) Personal Accident Policies:- Janta Personal Accident Policy, Health Insurance Policy.
   (b) Liability Policies:- Public Liability Policy, Professional Indemnity Policy.
   (c) Package Policies:- Domestic Multi-Risk Policy, Bankers Blanket Policy.
6. Visit a Branch of an Insurance Company nearby you and note down the various functions performed by that branch and prepare a report.

**PAPER II INSURANCE LEGISLATION-II**

**Time: 3hrs**

**Theory: 80 Marks**
**CCE: 10 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-II**

**Time: 3hrs** **Theory: 80 Marks**
**CCE:10Marks**
**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

**(xii) TAXATION PRACTICES**

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

**(ELEMENTS OF BOOKS-KEEPING)**

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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.

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

**PRACTICAL**

**Time: 3 Hrs. SYLLABUS Practical: 50 Marks**

1. Prepare a chart showing head of accounts on debit and credit side of trial balance.
2. Visit any firm/ organization nearby you and prepare trial balance from their balances.
3. Visit any firm/ organization nearby you and prepare Bank reconciliation statement from their cash book and pass book for a month.
4. Prepare a chart showing different types of errors in the books of accounts and make rectified entries of each.
5. Visit any firm/ organization and note down the methods of depreciation used by them. Comment and justify.
6. Visit any firm/ organization and prepare a report showing Rate of Depreciation/ useful life of an asset/ Annual depreciation charged to an asset/ profit or loss on sale of an asset.
7. Prepare a detail format of Manufacturing account, Trading and Profit & Loss account and Balance sheet.
8. Visit any firm/ organization in your locality and enlist various books of account and various accounts maintained by that firm/ organization.
9. Visit any not for profit organization in your locality and enlist its various sources of income and heads of expenditure further enlist various accounts and statements prepared by that organization.

**10.** Prepare a chart showing constituents of Partnership deed.

**PAPER: II** **PRINCIPLES OF MANAGEMENT-II**

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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.

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

**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 PRINCIPLES OF MANAGEMENT-II**

**PRACTICAL**

**Time: 3 Hrs. SYLLABUS Practical:50 Marks**

1. Prepare Organizational Structure of any Government / Private Organization.
2. Construct Wage Payment structure in Government / Banking / Institution/ Private Industry nearby you.
3. Visit Any Company / Organization in your locality and enlist the leadership styles exhibited by them in day to day life.
4. Visit any local Hotel / Restaurant / any industry and enlist the components of Business environment affecting that Business Concern.
5. Prepare a Model Chart on Maslow's need hierarchy theory of Motivation and verify each step by surveying at least 15 to 20 people from your locality.
6. Enlist the levels of management of any multinational company like Sony, LG, and Samsung etc. and specify the position and role of executive at each level.
7. Enlist the selection procedure adopted by any Multination Company / Public Sector Undertaking/ Government Organization for various levels. (Lower level, Middle level, Upper level)

**PAPER III: FUNDAMENTALS OF INCOME TAX-II**

**Time: 2hrs. Theory: 30 Marks**

**Practical: 50 Marks**
**CCE:10Marks**
**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:**

Income tax authorities. Procedure for assessment, collection of tax, recovery of Tax and refunds, settlement commission, Appeals and Revision. Penalties and prosecution.

**PAPER-III FUNDAMENTALS OF INCOME TAX -II**

**PRACTICAL**

**Time: 3 Hrs. SYLLABUS Practical: 50 Marks**

1. Prepare a chart showing income tax rates applicable on different Income Groups of Different assesses of current Financial Year ( FY).
2. Preparing a chart showing various deductions U/S 80C of income tax of Current Year.
3. Visit 2-3 an Income tax Assesses and calculate Income tax from their Income and deduction of current Assessment Year.
4. Calculate Tax liability of any individual / H.U.F of your locality who is having both Agricultural and Non-Agricultural Income.
5. Prepare a Report regarding calculation of rebate in case of receipt of arrear of salary/ pension U/S 89(I) using imaginary figures.
6. Prepare a file of various ITR Forms by downloading from Income Tax Website: WWW. Incometaxindia.gov.in
7. Visit an organization/ Firm in your locality. Prepare a report regarding applicability of income tax provisions on such organization/ firm.
8. Download form 26AS of Assesses and check TDS Deducted.
9. Practice e –filling ITR of an individual assesses ( without Submitting) on www.incometaxindia.gov.in. Print relevant pages and paste these pages in practical file.

## (xiii) INFORMATICS MANAGEMENT(RURAL INFORMATICS MANAGEMENT AND DOCUMENTATION)

### PAPER I ELEMENTS OF MANAGEMENT-II(PRINCIPLES OF MANAGEMENT(IM))

**Time: 3hrs.** **Theory: 80 Marks**
**CCE:10Marks**
**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.

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

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: INFORMATION TECHNOLOGY AND E-COMMERCE-II

## (ICT AND E-COMMERCE)

**Time: 2hrs.** **Theory: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**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-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-II**

**(ICT AND E-COMMERCE)**

**PRACTICAL**

**Time: 3 Hrs** **SYLLABUS** **Practical:50 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** **E- GOVERNANCE-II**

**Time: 2hrs**

**Theory: 30 marks**

**CCE:10Marks**

**Practical:50Marks**

**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.

E-governance in Agriculture, Rural Development, Health, Planning, Education, Commerce and Trade, Other Sectors.

**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-II**

**PRACTICAL**

**Time: 3 Hrs** **SYLLABUS** **Practical:50 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:**

Downloading syllabus, books, forms, date sheet, etc.

**Police:** Registering FIR, etc.

## (xiv) IMPORT EXPORT

## (EXPORT IMPORT PRACTICE AND DOCUMENTATION)

**PAPER I** **MANAGEMENT-II**

## (PRINCIPLES OF MANAGEMENT)

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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.

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

**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 I** **MANAGEMENT-II**

**(PRINCIPLES OF MANAGEMENT)**

**PRACTICAL**

**Time: 3 Hrs** **SYLLABUS** **Practical:50 Marks**

1. Construct Wage Payment Structure in Government Sector, Banking Institution or Private Industry nearby you of your own choice.
2. Prepare Organizational Structure of your local Government or Private Organization.

3. Visit any company/Organization of your own choice and enlist the leadership patterns exhibited by them in day to day activities.

4. Visit any local Hotel, Restaurant, or any Industry and enlist the staffing procedure adopted by them.

5. Prepare a model or Chart on Maslow's Need Hierarchy Theory of Motivation and verify each step by surveying people from field.

6. Enlist the complete product line of any Multinational company like LG, SAMSUNG, Tata, Reliance Group, Hindustan Uniliver, Patanjali, Dabur etc.

7. Enlist the Selection procedure adopted by Multinational companies, Public Sector Undertakings of your own choice for various levels.(viz. Lower level, Middle level, Upper level)

**PAPER II** **TECHNOLOGY AND E-COMMERCE**

**(INFORMATION TECHNOLOGY AND E-COMMERCE** )

**Time: 2hrs.**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**Unit-IInternet 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 TECHNOLOGY AND E-COMMERCE**

**(INFORMATION TECHNOLOGY AND E-COMMERCE** )

**PRACTICAL**

**Time: 3 Hrs SYLLABUS Practical:50 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: 80 Marks**
**CCE:10 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 oversees 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.

**(xv) COOPERATION**

**PAPER I** **BOOK KEEPING-II(ELEMENTS OF BOOK KEEPING (COOP))**

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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-I BOOK KEEPING-II**

**(ELEMENTS OF BOOK KEEPING)**

**PRACTICAL CUM PROJECT WORK**

**Time: 3 Hrs. SYLLABUS Practical: 50 Marks**

1. Prepare a chart showing head of accounts on debit and credit side of trial balance.
2. Visit any firm/ organization nearby you and prepare trial balance from their balance.
3. Visit any Cooperative organization nearby you and prepare bank reconciliation statement from their cash book and pass book for a month.
4. Prepare a chart showing different types of errors in the books of accounts and make rectified entries of each.
5. Visit any firm/ organization and note down the methods of depreciation used by them. Comment and justify.
6. Visit any firm/ organization and prepare a report showing Rate of Depreciation/ useful life of an asset/ Annual depreciation charged to an asset/ profit or loss on sale of an asset.
7. Prepare a detail format of Manufacturing account, Trading and Profit & Loss account and Balance sheet.
8. Visit any firm/ organization in your locality and enlist various books of account and various accounts maintained by that firm/ organization.
9. Visit any not for profit organization in your locality and enlist its various sources of income and headS of expenditure further enlist various accounts and statements prepared by that organization.
10. Prepare a chart showing constituents of partnership deed.

**PAPER II**

## APPLICATION OF MANAGEMENT(PRINCIPLES OFMANAGEMENT(COOP))

**Time: 2hrs** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 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".

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

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** **APPLICATION OF MANAGEMENT**

**(PRINCIPLES OF MANAGEMENT)**

**PRACTICAL**

**Time: 3 Hrs.** **SYLLABUS** **Practical: 50 Marks**

1. Prepare Organizational Structure of any Government / Private Organization.
2. Construct Wage Payment structure in Government / Banking / Institution/ Private Industry nearby you.
3. Visit Any Company / Organization in your locality and enlist the leadership styles exhibited by them in day to day life.
4. Visit any local Hotel / Restaurant / any industry and enlist the components of Business environment affecting that Business Concern.
5. Prepare a Model Chart on Maslow's need hierarchy theory of Motivation and verify each step by surveying at least 15 to 20 people from your locality.
6. Enlist the levels of management of any multinational company like Sony, LG, and Samsung etc. and specify the position and role of executive at each level.
7. Enlist the selection procedure adopted by any Multination Company / Public Sector Undertaking/ Government Organization for various levels. (Lower level, Middle level, Upper level)

**PAPER III COOPERATIVE MANAGEMENT-II**

**Time: 2hrs.** **Theory: 30 Marks**

**Practical: 50 Marks**
**CCE: 10 Marks**
**Total:90 Marks**

**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:**

National Dairy Development Board, Progress of Dairy Cooperatives under operation Flood Programme, organizational structure of diary cooperatives,

village cooperative dairy society, District Cooperative Milk Produce, union, state cooperative milk federation, problems faced by dairy cooperatives.

**PAPER-III** **COOPERATIVE MANAGEMENT-II**

**PRACTICAL CUM PROJECT WORK**

**Time: 3 Hrs.** **SYLLABUS** **Practical: 50 Marks**

1. Visit any cooperative Agricultural marketing federation nearby you and prepare a chart showing its structure and aim.
2. Visit any cooperative Agricultural Marketing federation and note down the drawbacks and problems faced by it.
3. Visit any cooperative warehouse /cold store nearby you and note down its policies.
4. Visit any cooperative consumer nearby you and note down their problems and suggest for their improvements.
5. Visit any cooperative housing society and note down its organizational pattern and resource mobilization activities.
6. Visit any housing cooperative society and note down their problems and suggest for their improvements.
7. Visit any Dairy cooperative nearby you and note down their organizational structure.
8. Visit any Dairy Cooperative society nearby you and note down the problems faced by them.

## III HOME SCIENCE GROUP

## (i) FOOD PRESERVATION

**Paper-I** **FOOD PROCESSING**

**Time: 2hrs.** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

### 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

**Time : 3 hrs** **Practical:50 Marks**

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.
4. Canning of mango, pineapple, citrus fruits, papaya, peas, tomato & spinach/saag.
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: 30 Marks**
**CCE:10 Marks**
**Practical:50 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.
7. Book keeping, balance sheet and profit-lose analysis.
8. Project report writing.

## PLANT MANAGEMENT

### PRACTICAL

**Time : 3 hrs.** **Practical: 50 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.

**Paper-III**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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.
3. Paper packing-paper as a container butter paper, wax paper, cellophane paper.
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.
6. Corrugated boards-importance, criteria for selection.
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:50 Marks**

1. Observing the packing of foods in food industry.
2. Market survey for availability of packing materials.
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) GARMENT MAKING(COMMERCIAL GARMENT DESIGNING AND MAKING )**

**DRESS MAKING**

**Paper-I**

**Time: 2hrs.** **Theory: 30 Marks**
**CCE:10Marks**

**Practical:50Marks**
**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:50 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: 30 Marks**

**CCE:10 Marks**

**Practical:50 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 asessories 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:50 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: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**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** **PRACTICAL**

**Time : 3 hrs.** **Practical:50 Marks**

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: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**Total:90 Marks**

### THEORY

### SYLLABUS

1. Study of hard and soft water methods of removing of hardness of water.
2. Study of various kinds of advanced finishing processes used in textiles - Shearing, Raising, Sinzeing, Decatizing, Sanforization. Mercerisation, Sizing, Starching, Crease, Resistance, Calendaring, Anti-static Water Resist and Water proof finish. Fire Resist and Fire proof finish. Mildew proofing and Moth proofing their importance and uses.
3. Indtroduction 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:50 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.

## TEXTILE DESIGNING AND PRINTING-II

**Paper-II**

**Time: 2hrs.** **Theory: 30 Marks**

**CCE:10 Marks**

**Practical:50 Marks**

**Total:90 Marks**

### 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.
2. Printing of cotton fabric using Direct Dyes, Rapid Fast Dyes, Reactive Dyes, Azoic and Indigo-sol Dyes with Direct Style.
3. Printing of synthetic and blended fabrics with Pigment Colours, Disperse and Reactive dyes.
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.

## TEXTILE DESIGNING AND PRINTING-II

**Paper-II**

**Time : 3 hrs.** **Practical:50 Marks**

### PRACTICAL

1 Practice of printing cotton fabric with Batik style and Chemicals Resists Printing.

2 Practice of printing cotton fabric with various Tie and Dye Techniques.

3 Practice of printing cotton fabric with Direct, Rapid Fast, Indigosol and Reactive Dyes with Block, Screen and Spray Printing methods.

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-II

## THEORY

**Paper-III**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE: 10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

### 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.
6) Study of machinery used in textile dyeing-Winch machine, Jigger machine, Beam dyeing machine, Jet dyeing machine, Soft flow machines, cone dyeing machine and Cabinet dyeing machine.

**TEXTILE DYEING-II**

**PRACTICAL**

**Paper-III**

**Time : 3 hrs.** **Practical:50 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.

**(iv) TEXTILE (WEAVING)**

**(TEXTILE CRAFT (WEAVING))**

**FABRIC STRUCTURE AND DESIGNING**

**Paper-I**

**Time: 2hrs.** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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:50 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, tins 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: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**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:50 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.

## POWERLOOM MECHANICS & OPERATIONS

**Paper-II**

**Time: 2hrs.** **Theory: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**Total:90 Marks**

### THEORY

### SYLLABUS

1) Types of powerlooms-Air jet,water jet, Dornier, Automatic, Shuttleless and Computerized looms.
2) Parts of power loom and their functioning.
3) a) Introduction to different types of dobbies - Knowles' positive dobby, Negative dobby, 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) Auxillary - 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 dobby 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:50 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, dobby 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 (KNITTING TECHNOLOGY)

## TEXTILE CALCULATIONS AND GARMENT MAKING

**Paper-I**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**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 YARN CALCULATIONS AND GARMENT MAKING

## PRACTICAL

**Paper-I**

**Time : 3 hrs.** **Practical:50 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: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**Total:90 Marks**

## 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 Neele 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.** **Practical:50 Marks**

(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: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**Total:90 Marks**

## 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.
8. Types of knitted fabric produced on a Hand Flat Jacquard Knitting Machine.
   (i) Knitting of fashion garments
   (ii) Narrowing
   (iii) Widening
9. Basic knowledge regarding electronic machines.

## FASHIONED KNITWEAR

## PRACTICAL

**Paper-III**

**Time : 3 hrs.** **Practical:50 Marks**

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.
8. Producing (i) Decca-Design (ii) Rack-Design. (iii) Jacquard-Design, (iv) Tuck-Design.
9. Knitting-(i) Half cardigan (ribs) (ii) Full cardigan (ribs).
10. Knitting-(i) Pull-over (ii) Slip-over.

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

## IV ENGINEERING & TECHNOLOGY GROUP

### (i) ELECTRICAL(MAINTENANCE AND REPAIR OF ELECTRICAL DOMESTIC APPLIANCES)

**Paper I. ELEMENTS OF ELECTRICAL TECHNOLOGY**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10Marks**
**Practical:50Marks**
**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:50 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.

20) Testing, fault finding and repair 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.

24) Connecting, starting, running and reversing of an A.C. universal motor.

25) Installation of three phase A.C. motor.

**Paper-II ELECTRICAL DOMESTIC APPLIANCES-II**

**Time: 2hrs.** **Theory: 30 Marks**

**CCE:10 Marks**

**Practical:50 Marks**
**Total:90 Marks**

## 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 electic Hand Drill, Common faults, causes, testing and repair.

**10. Battery Charger.**

Construction, working, common faults, causes, testing and repair, specifications of a battery charger.

## ELECTRICAL DOMESTIC APPLIANCES-II

**Paper-II**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

1. Testing, fault finding, repair and overhauling Blower type, Room Heater and its maintenance.
2. Testing, fault finding, repair and overhauling Electric Fans.
3. Testing, fault finding, repair and overhauling Electric Mixer.
4. Testing, fault finding, repair and overhauling Washing Machine.
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 Vaccum Cleaner.
8. Testing, fault finding, repair and overhauling Voltage Stabilizer. (Manual)
9. Testing, fault finding, repair and overhauling Electric Hand Drill.

**Paper-III MATERIALS & WORKSHOP PRACTICE-II**

**Time: 2hrs** **Theory:30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

### THEORY

### SYLLABUS

**1. Assembly shop :**

Tools, machines, equipment and instruments required for assembly shop-their working and use. Planning layout and setting of an assembly shop. Rules and methods of sequential assembly of appliances. Safety precautions and measures in assembly shop. Up keeping of 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 :**

Tools, machines, equipment and instruments required for repair-ship - their working and use. Planning, layout and setting of repair-shop. Rules and methods of repair, servicing and overhauling domestic appliances. Safety precautions and measures in repair-shop. Unkeeping of repair shop.

**4. Winding Shop :**

Tools, machines, equipment and instruments required for winding shop, their working and use. Planning, layout and setting of a winding shop. Rules and methods of winding of armature, stator, rotor and fields coils. Safety precautions and measures in winding shop. Upkeeping of winding shop.

**5. Estimating, Costing and Billing :**

Elements of estimation ; Quantity and specifications of required materials, knowledge of waste and extra material requirement, proforma for estimation. Elements of costing. Market value of materials, labour cost, production cost, overhead cost, profit and total cost. Method of costing, costing proforma. Billing methods and terms of payments.

**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-II

**Paper-III**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 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.
4. Formation of stator coil winding.
5. Practice for making a card-board bobbin/former.
6. Practice for assembly of domestic appliances.
7. Rotor winding of motor used in electric mixer.
8. Drawing stator winding of A.C. motor. (Single & three phase motor).
9. Estimating repair, service and overhauling of domestic appliances, its costing and billing.
10. Study of a given project report.

11. Preparation of a test report.
12. Study of an electricity bill issued by electricity deptt.
13. Estimating electricity bill of a given electrical installation.

## (ii) ELECTRONICS

## (REPAIR AND MAINTENANCE OF RADIO AND TELEVISION)

**Paper-I DIGITAL ELECTRONICS AND COMMUNICATION**

**(TV TRANSMISSION AND RECEPTION)**

**Time: 2hrs** **Theory:30 Marks**
**CCE:10 Marks**
**Practical:50 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.

**4**. Comparison of a TV Receiver with Visual Display unit.

### DIGITAL ELECTRONICS AND COMMUNICATION

### (TV TRANSMISSION AND RECEPTION)

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

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

**Paper-II** **TEST & MEASURING INSTRUMENTS**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**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 MEASUREING INSTRUMENTS**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

1. Demonstration of composite video-signal on a CRO.
2. Demonstration and use of Monochrome/colour pattern generator.
3. Familiarization and use of Sweep generator.
4. Demonstration of sound Section of TV Receiver.

(a) Identification of parts and sections.

(b) Tracing of various stages.

(c) Preparation of circuit diagrams in stages.

(d) Voltage and waveform measurement of various stages.

**Paper-III** **ELECTRONICS DEVICE AND CIRCUITS**

**(TV SERVICSING)**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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.

**ELECTRONIC DEVICE AND CIRCUITS**

**(TV SERVICSING)**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 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) ARCHITECTURE

## (ENGINEERING DRAWING AND DRAFTING)

### Paper-I ENGINEERING DRAWING -II

**Time: 3hrs** **Practical: 80 Marks**

**CCE:10 Marks**

**Total:90 Marks**

### PRACTICAL

### SYLLABUS

### Structure of Question Paper

The question paper will consist of five parts.

| | | |
|---|---|---|
| 1. | Drawing instruments & their uses | 20 marks |
| 2. | Line lettering & dimensions | 20 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. | 10 marks |
| 5. | Project work | 10 marks |

## SYLLABUS

**1. Pictorial Drawing :**

(a) Limitation of orthographic projections. Difference between :

(i) Axonometric and oblique drawing.

(ii) Isometric and diametric 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 carpenting, metal fitting, electrical and diesel engine shops.

(iii) Layout of following shops

(a) Carpenting

(b) Metal fitting

(c) Electrical (Household wiring)

(d) Diesel engine.

**5. Brick Masonry :**

Bricks, Types and uses of bricks, Characteristics of goval bricks. Important technical terms regarding bond-English and Flemish, Stecher, Header and Diagonal bond. Classification of brick masonry.

**6. Project work**

Layout of building, working out material quantity calculation.

**Note :** 8 Minimum 25 sheets must be prepared based on above concept.

**Paper-II** **WORKSHOP PRACTICE-II**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

1. Surveying-Division of surveying, instruments used for taking measurements, Units of measured, Basic principles of surveying precision of surveying.
2. Chain Survey - Chain, arrows, tapes Ranging Rods, offset rods, Pegs, methods of chaining, Error sum chaining. Chaining on sloping ground, numerical related to chaining, obstacles in chaining, recording of field book.
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-II**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

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** **CONSTRUCTION MATERIAL AND ESTIMATE**

**(REPRODUCTION OF BLUE PRINTS)**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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 :**

9. **Building Estimates :** Types of estimate, standard method of taking out quanlity, labour and material detailed and abstract estimate. Analysis of rates for simple items of works, Schedules of rates, specifications.

**CONSTRUCTION MATERIAL AND ESTIMATE**

**(REPRODUCTION OF BLUE PRINTS)**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

**(Minimum 10 sheets)Drawing of charts (1 sheet)**

| | | | | | | |
|---|---|---|---|---|---|---|
| Tracing | of | Sheet | No. 1 | of | M/c | Drawing |
| " | " | " | No. 2 | " | " | " |
| " | " | " | No. 3 | " | " | " |
| " | " | " | No. 4 | " | " | " |
| " | " | " | No. 5 | " | " | " |
| " | " | " | No. 6 | " | " | " |
| " | " | " | No. 7 | " | " | " |
| " | " | " | No. 8 | " | " | " |
| " | " | " | No. 9 | " | " | " |
| " | " | " | No. 10 | " | " | " |
| " | " | " | No. 11 | " | " | " |

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

## (MECHANICAL SERVICING(GENL.))

## Fitting and Welding

**Paper-I**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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 TOLRENCES

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, brazing 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 cutling, Fluxes their composition and application.

**(iii) ELECTRIC ARC WELDING :**

Introduction, Principle of arc welding, Arc welding equipment. Types of welding joints. Edge preparation, types of electrodes and their uses Flux properties and uses. Arc welding methods using AC and DC supply.

**(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:50 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 familiarisewith 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

Or

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: 30 Marks**
**CCE:10 Marks**
**Practical:50 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:50 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.

**MECHANICAL DRAWING-II**

**( ENGINEERING DRAWING (MECHANICAL))**

**Paper-III**

**Time: 3hrs** **Practical: 80 Marks**

**CCE:10 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. 20 marks.

2. **Projections of planes and solids 25 marks**

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

   **Or**

   **Assembly Drawing 25 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 arthographic 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 roaping, 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 DESIGINING

### Furniture Furnishing & Finishing Materials

**Paper-I**

**Time: 2hrs** **Theory: 30 Marks**

**CCE:10 Marks**

**Practical:50 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:50 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.

**Paper-II** **TOOLS & PROCESSES**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**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.** **PRACTICAL** **Practical:50 Marks**

(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.

**Paper-III** **FURNITURE DESIGN**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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:50 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) AUTOMOBILE ENGINEERING

## (MECHNICAL SERVICING(AUTO))

**Paper-I** **WORKSHOP TECHNOLOGY**

**Time: 2hrs** **Theory: 30 Marks**

**CCE:10 Marks**
**Practical:50 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:50 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.

**Paper-II** **GARAGE PRACTICE AND MANAGEMENT**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**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**

1. Garage location & layout. Types, scope, selection of site for garage, layout of building and machinery.

**2. Maintenance of shop, safety and first aid facilities.**

(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 recorder 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:50 Marks**

1. Servicing of the fuel filter.

2. Servicing of fuel injection pump.
3. Servicing of fuel injector.
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 auto mobile services.

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

**Paper-III AUTOMOBILE SUSPENSION & CONTROL**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

**I. Frames and Body work :** Function of frames. Types of frames for 2, 3 and 4 wheelers. Forces acting on the frames. Frames alignment. Types of body and their repair procedures, body denting, painting and polishing. Body accessories and fittings. Trouble shooting of frame and its maintenance.

**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 & CONTROL**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 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.

10. Bleeding of brakes.

11. Trouble shooting of lighting system.

12. Headlight, beam alignment & focusing.

13. Driving practice and road testing.

## (VII) COMPUTER SCIENCE

## (COMPUTER TECHNIQUES)

**Paper-I. OBJECT ORIENTED PROGRAMMING IN C++**

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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 betweens 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, deehex, 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(); eofi), 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.

## OBJECT ORIENTED PROGRAMMING IN C++

**Time : 3 hrs.** **PRACTICAL** **Practical:50 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, vitual function and polymorphism.
11. Programs on point (setting a pointer) to objects, classes and functions.
12. Operations of file pointers for input and output.
13. Programs on file operation in C++.

**Paper-II** **DESK TOP PUBLISHING**

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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 Clip board - 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 Acess, 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.

## DESKTOP PUBLISHING

**Time : 3 hrs.** **PRACTICAL** **Practical:50 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.
9. Designing of corporate logos and image rendering.

**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.
6. Pasting photographs and Images using Photoshop.
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 NETWORKING**

**(ADVANCED MATHEMATICS AND COMPUTER COMMERCIAL APPLICATIONS)**

**Time: 3hrs** **Theory: 80 Marks**
**CCE:10 Marks**
**Total:90 Marks**

**THEORY**

**SYLLABUS**

PART-A

1. **Matrics & Determinants, Simultaneous Linear Equations :**

Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew symmetric matrices. Addition, Subtraction, multiplication and scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication Determinant of a square matrix (up to 3×3matrices), Minors, cofactors.

Adjoint and inverse of a square matrix (upto 2X2 matrix), solving system of linear equations in two variables(having unique solution)

2. **Differentiation:**

Differentiability, derivative of composite functions, chain rule, derivative of trigonometric functions, derivative of implicit function. Derivatives of $\log_e^x$ and $e^x$.

3. **Integration:**

Integration as inverse process of differentiation. Integration of a variety of functions by only substitution, only simple integrals of the type:

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}$$

$$\int \sqrt{a^2 \pm x^2}\,dx \text{ and } \int \sqrt{x^2 - a^2}\,dx$$

4 **Differential Equations:**

Definition, order and degree, general and particular solutions of a differential equation, Solution of differential equations by method of separation of variables.

**PART-B**

**I. INTRODUCION 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 LEATHER GOODS

### Paper-I. PATTERN CUTTING AND DESIGNING-II

**Time: 2hrs**

**Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 Marks**
**Total:90 Marks**

**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, their 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-II**

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

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.
4. Computer based Drawing and Designing of pattern.

**Paper-II. NOVELTY LEATHER ITEMS-II**

**Time: 2hrs** **Theory: 30 Marks**
**CCE10 Marks**

**Practical:50 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-II

**Time : 3 hrs.** **PRACTICAL** **Practical:50 Marks**

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.
4. Preparation and practice of leather laces.
5. Preparation and practice of portfolios.
6. Preparation and practice of dak pad.
7. Preparation and practice of dressing case.
8. Preparation and practice of novelty watch strap.

## Paper-III INDUSTRIAL LEATHER GOODS

**Time: 2hrs** **Theory: 30 Marks**
**CCE:10 Marks**
**Practical:50 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:50 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.