

**A. SCHEME OF STUDIES**  
**12th CLASS EXAMINATION**  
**(SENIOR SECONDARY CERTIFICATE EXAMINATION-II)**  
**(VOCATIONAL STREAM)**  
**ADMISSION YEAR 2021-22.... ONWARD**

**Subjects for Studies**

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

Sr. No.	Subject	Th.	Pr	Marks	InA/Project	Total
1.	General English	80	-	20	100	
2.	General Punjabi Or Punjab History and Culture	80	-	20	100	
3.*	Environmental Education	45	-	5	50	
4.*	Computer Science	50	45	5	100	
5.*	General Foundation Course (GFC)	45	-	5	50	

**Note:** For the subjects mentioned at “\*” the question papers 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.	InA	OJT.	Total	Th.	P.	Total	OJT.
Elective Subject - I	30	50	10	10	100	2	6	8	As per P.S.E.B. Guidelines
Elective Subject - II	30	50	10	10	100	2	6	8	
Elective Subject - III	30	50	10	10	100	2	6	8	

**Note:**

1. Six period are for Library Studies/Extra Curricular Activities/Optional/ Tutorials/ Assignments.
2. Three months are for On-the-job training (O.J.T) every year based on the instructions sent by the Board from time to time .
3. Punjab School Education Board Regulations for Senior Secondary Examination are also applicable to vocational stream with certain exceptions.
4. The Board reserves the right to amend syllabus courses and/or scheme of studies as and when it considers necessary.

**\* InA : Internal Assessment**

## Subject- General Foundation Course

Time:3 hrs

Theory:45 Marks

INA:05 Marks

Total:50

### Structure of Question paper

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

**Part -I** will consists **fourteen (14)** objective type questions (One sentence question/ true-false/ fill in the blanks and multiple choice questions) carrying **1(One)** marks each.

**Part-II** will consists **ten (10)** short type questions carrying **3(Three)** marks each. Candidate will attempt any seven 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 consists **four (4)** long type questions carrying **5(Five)** marks each. Candidate will attempt any two questions out of these. A question may have two or more parts. The answer of each question should not be more than two page of the answer sheet.

### Syllabus

#### Industry

Meaning, Kinds of Industry - Manufacturing, Service Industry, Establishing an Industrial Unit - Procedures, Legal Requirements.

#### Project Report

Meaning, Need and Elements of Project Report, Registration of the Firm, Choosing Suitable Policy of Insurance for - Building, Content and Vehicle, Liability Insurance and its Types.

#### Organizations in India for Industrial Development

Nationalized Banks - State Bank of India, Punjab National Bank etc, Small Industrial Development Organization, Small Industrial Development Bank of India , Regional Rural Banks, National Small Industries Corporation, IFCI, State Financial Corporations like Punjab Financial Corporation.

#### Budget

Meaning, Types, Utility, Meaning and Advantages of Budgetary Control, Marketing Mix, Elements of Marketing Mix, Concept of SWOT Analysis.

#### Communication

Meaning, Definition, Importance, Features, Elements, Scope, Principles of Communication, Types and Media of Communication, Barriers in Communication, New Trends in Communication - Email,

Facsimile (FAX), Internet, Teleconferencing, Audio Conferencing, Computer Tele Conferencing, Video Conferencing.

### **Communication Skills**

Meaning, Techniques to Develop Good Communication Skill, Various Communication Skills for Workplace Success, Pronunciation Etiquettes of Communication Skills, Tips on Improving Speaking Skills.

### **Personnel Management**

Decision Making, Risk Taking Behaviors, Method and Processes of Recruitment, Wages & Incentives, Appraisal and Training, Employer – Employee Relations.

### **Interview**

Meaning of Resume, Tips to Write a Good Resume, Concept of Interview, Types of Interview - Traditional, One to One, Job Panel, Group, Telephone and Behavior Interviews, Preparation for the Interview.

### **Business Transactions and Ledger**

Introduction, Meaning & Definition, Format of Journal, Journal Entries - Simple and Compound with Narration, Meaning, Utility and Format of Ledger, Meaning and Formats of Cash Book, Trading Account, Profit & Loss Account and Balance Sheet.

### **Banking Transactions**

Banking Transaction and their Recording, Bank Account - Current, Saving, Recurring Deposit, Fixed Deposit Account, Pass Book, Pay in Slip, Withdrawal Slip, Statement of Account, Opening and operating a Bank Account, Types of Cheques.

### **E-Banking**

Meaning, Process, Importance, Kinds of e-banking, Services - Credit Card, Debit Card, Mobile Banking, Telephone Banking, Electronic Fund Transfer, Electronic Cheque, e-wallet, ATM - Introduction, Advantages and Precautions.

### **Income Tax**

Meaning, Important Definitions, Components of GST - CGST, SGST, IGST, Format of GST Bill .

### **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 : 80 Marks  
InA/Project : 20 Marks  
Total : 100 Marks

#### **SYLLABUS AND THE STRUCTURE OF QUESTION PAPER**

Part-I (Objective type questions)

1. It will consist of 8 objective type questions carrying one mark each.

8 marks

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 intensive study  $3 \times 1 = 3$
- b. Lessons meant for extensive study  $3 \times 1 = 3$
- c. Grammar  $2 \times 1 = 2$

**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).

$1+1+1+1+1 = 6$  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 (1 out of 2.) 3 marks
- 9 Three( out of four) short answer questions of about 40 to 50 words from intensive study.  $3 \times 2 = 6$
- 10. Two (out of three) short answer questions of about 40 to 50 words from extensive study.  $2 \times 2 = 4$
- 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 Chameleon 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.**

**ਪ੍ਰਸ਼ਨ-ਪੱਤਰ ਦੀ ਰੂਪ-ਰੇਖਾ**  
**ਪੇਪਰ ਸੈਂਟਰ ਲਈ ਵਿਸ਼ੇਸ਼ ਹਿਦਾਇਤਾਂ**  
**ਪੰਜਾਬੀ ਲਾਜ਼ਮੀ**  
**ਸ੍ਰੋਣੀ ਬਾਰੂੰਵੀ**  
**ਸੈਲਾਨੀ 2021-22**

ਲਿਖਤੀ=80 ਅੰਕ  
ਅਂਤਰਿਕ ਮੁਲਾਂਕਣ=20 ਅੰਕ

ਕੁੱਲ=100 ਅੰਕ

ਪ੍ਰ.1	ਸੁੰਦਰ ਲਿਖਾਈ	
ਪ੍ਰ.2	ਵਸਤੂਨਿਸ਼ਠ ਪ੍ਰਸ਼ਨ	05 ਅੰਕ
(ਓ)	ਇੱਕ ਜਾਂ ਦੋ ਸ਼ਬਦਾਂ ਵਿੱਚ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ	40 ਅੰਕ
(ਅ)	ਬਹੁਚੋਣਵੇਂ ਪ੍ਰਸ਼ਨ	5×2=10 ਅੰਕ
(ਇ)	ਸਹੀ/ਗਲਤ	5×2=10 ਅੰਕ
(ਸ)	ਖਾਲੀ ਥਾਂਵਾਂ ਭਰੋ	5×2=10 ਅੰਕ
	ਇਹ ਵਸਤੂਨਿਸ਼ਠ ਪ੍ਰਸ਼ਨ 'ਪੰਜਾਬੀ ਸੱਭਿਆਚਾਰ ਦੀ ਜਾਣ-ਪਛਾਣ', ਕਵਿਤਾਵਾਂ, ਕਹਾਣੀਆਂ ਅਤੇ ਅਖਾਊਤਾਂ ਵਿੱਚੋਂ ਲੁੜੀਂਦੇ ਅਨੁਪਾਤ ਅਨੁਸਾਰ ਹੋਣੇ ਚਾਹੀਦੇ ਹਨ।	5×2=10 ਅੰਕ
ਪ੍ਰ.3	'ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ-12' ਦੇ ਸੱਭਿਆਚਾਰ ਭਾਗ ਦੇ ਪਾਠਾਂ ਦੇ ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ 5 ਪ੍ਰਸ਼ਨ ਪੁੱਛ ਕੇ ਕਿਸੇ ਦੋ ਦਾ ਉੱਤਰ ਦੇਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	
ਪ੍ਰ.4	ਕਾਰ-ਵਿਹਾਰ ਦੇ ਪੱਤਰ ਲਈ ਦੋ ਵਿਸ਼ੇ ਦੇ ਕੇ ਕਿਸੇ ਇੱਕ ਬਾਰੇ ਪੱਤਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	3+3=6 ਅੰਕ
ਪ੍ਰ.5	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+1=5 ਅੰਕ
ਪ੍ਰ.6	ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਪਾਠ- ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਦੇ ਕੇ ਕਿਸੇ ਇੱਕ ਨੂੰ ਕੋਸ਼-ਤਰਤੀਬ ਅਨੁਸਾਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	1+3=4 ਅੰਕ
ਪ੍ਰ.7	ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਪਾਠ- ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ 6 ਵਾਕ ਦੇ ਕੇ ਕਿਸੇ 3 ਦਾ ਵਾਕ-ਰੂਪਾਂਤਰਨ ਕਰਨ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	6×1/2=3 ਅੰਕ
ਪ੍ਰ.8	ਪਾਠ-ਪੁਸਤਕ ਅਤੇ ਪਾਠ- ਅਭਿਆਸਾਂ ਵਿੱਚੋਂ 5 ਅਖਾਊਤਾਂ ਦੇ ਕੇ ਕਿਸੇ 3 ਨੂੰ ਵਾਕਾਂ ਵਿੱਚ ਵਰਤਣ ਜਾਂ ਉਹਨਾਂ ਦੀਆਂ ਵਰਤੋਂ ਦੀਆਂ ਸਥਿਤੀਆਂ ਦੱਸਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	3×1=3 ਅੰਕ
ਪ੍ਰ.9	ਪਾਠ-ਪੁਸਤਕ ਵਿੱਚੋਂ 3 ਕਵਿਤਾਵਾਂ ਦੇ ਕੇ ਕਿਸੇ 1 ਦਾ ਕੇਂਦਰੀ ਭਾਵ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	3×2=6 ਅੰਕ
ਪ੍ਰ.10	ਪਾਠ-ਪੁਸਤਕ ਵਿੱਚੋਂ 2 ਕਹਾਣੀਆਂ ਦੇ ਕੇ ਕਿਸੇ 1 ਕਹਾਣੀ ਦਾ ਆਪਣੇ ਸ਼ਬਦਾਂ ਵਿੱਚ ਸਾਰ ਲਿਖਣ ਲਈ ਕਿਹਾ ਜਾਵੇਗਾ।	3×1=3 ਅੰਕ
		5×1=5 ਅੰਕ

**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.  $1 \times 7 = 7$  Marks

**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.  **$3 \times 6 = 18$  Marks**

**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.

Answer to each question should be in about 80-100 words.

**E x E = 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.**

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

## **SYALLBUS**

### **PART -A**

**Part - II**

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**

**InA: 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 question 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

<b>Unit</b>	<b>1 Mark questions</b>	<b>2 Mark questions</b>	<b>4 Mark questions</b>	<b>5 Mark questions</b>
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	
<b>Total Marks</b>	<b>5 marks</b>	<b>10 marks</b>	<b>20 marks</b>	<b>10 marks</b>

## **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 policies, appropriate technologies, comprehensive review and revision mechanism, human approach.
- Development of skilled manpower.
- Role of individual and community.
- Role of national and international agencies( both governmental and non- governmental)

### **Unit-IV Sustainable Agriculture**

- Need for sustainable agriculture.
- Green revolution-impact on environment.
- Importance of soil for crops, Irrigation systems, use of manure and fertilizers.

- Crop protection-major plant pests and diseases (wheat, rice, cotton, sugarcane, potato), measures for their control agrochemicals.
- Impact of agrochemicals on environment.
- Elements of sustainable agriculture-mixed farming, mixed cropping, crop rotation, biological and economic consideration, use of biofertilizers and bio pesticides, biological pest control, integrated pest management.
- Application of biotechnology in crop improvement.
- Management of agricultural produce- storage, preservation, transportation and processing.

#### **Unit-V Environmental Actions**

- Meeting basic human 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 drugs, 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 species listed for region by collecting information through different sources and observation and to assess the reasons for its diminishing number. Suggest ways and means to protect the species.
- To conduct a survey of plants and trees in the locality and collect information about their cultural, economic and medicinal values from the local people and available literature. To prepare an action plan for afforestation and planting of trees as trees are most valuable in terms of their cultural, economic importance and medicinal use.
- To study the practices followed in the region for storage, preservation, transportation and processing of perishable or non perishable farm products and to assess the extent of their wastage due to faulty practices.
- To make a list of raw materials used by the family for preparing different types of dishes. To identify the plants and their parts from which food material is obtained. To make a list of plants on which the animals depend for their food. To prepare a report supported by diagrams/photographs/pictures/graphs to focus on the importance of biodiversity in providing food to human population.
- To study the impact of changes in agricultural practices 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 disposal, types of animal breed and their feed, types of shelter and health care, method of rearing and processing of products and animal wastes and their disposal. To suggest an action plan for modifying the prevailing practices so as to make them environment friendly and sustainable.

## 5. ਕੈਪਿਊਟਰ ਸਾਈਸ

ਸਮਾਂ: 3 ਘੰਟੇ

ਲਿਖਤੀ : 50 ਅੰਕ

ਅੰਤਰ ਮੁਲਾਂਕਣ/ਪ੍ਰੋਜਕਟ: 5 ਅੰਕ

ਪ੍ਰਯੋਗੀ : 45 ਅੰਕ

ਕੁੱਲ: 100 ਅੰਕ

### ਅਗਵਾਈ ਲੀਹਾ (ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ)

- ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਤਿੰਨ ਭਾਗਾਂ (ਭਾਗ ਉ, ਭਾਗ ਅ, ਭਾਗ ਇ) ਵਿੱਚ ਵੇਡਿਆ ਹੋਵੇਗਾ।
- ਭਾਗ ਉ ਆਬਜੈਕਟਿਵ ਟਾਇਪ ਹੋਵੇਗਾ ਜਿਸ ਵਿੱਚ 1 ਤੋਂ 6 ਤੱਕ 1-1 ਅੰਕ ਦੇ 6 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।
- ਭਾਗ ਅ ਵਿੱਚ ਪ੍ਰਸ਼ਨਾਂ 7 ਤੋਂ 12 ਤੱਕ 2-2 ਅੰਕ ਦੇ 6 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।
- ਭਾਗ ਇ ਵਿੱਚ ਪ੍ਰਸ਼ਨਾਂ 13 ਤੋਂ 17 ਤੱਕ 4-4 ਅੰਕ ਦੇ 5 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।
- ਭਾਗ ਸ ਵਿੱਚ ਪ੍ਰਸ਼ਨ ਨੰ 18 ਤੋਂ 19 ਤੱਕ 6-6 ਅੰਕ ਦੇ 2 ਪ੍ਰਸ਼ਨ ਹੋਣਗੇ।
- ਭਾਗ ਉ ਅਤੇ ਭਾਗ ਅ ਦੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜ਼ਰੂਰੀ ਹੋਣਗੇ। ਭਾਗ ਅ ਅਤੇ ਇ ਵਿੱਚ ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਦੋ ਜਾਂ ਦੋ ਤੋਂ ਵੱਧ ਭਾਗ ਵੀ ਹੋ ਸਕਦੇ ਹਨ। ਭਾਗ ਇ ਦੇ ਕਿਸੇ ਵੀ 2 ਪ੍ਰਸ਼ਨਾ ਵਿੱਚ ਅੰਦਰੂਨੀ ਛੋਟ ਹੋਵੇਗੀ।

ਲੜੀ ਨੰ	ਅਧਿਆਇ ਦਾ ਨਾਂ	ਕੁੱਲ ਅੰਕ	1 ਅੰਕ† ਵਾਲੇ ਪ੍ਰਸ਼ਨ	2 ਅੰਕ† ਵਾਲੇ ਪ੍ਰਸ਼ਨ	4 ਅੰਕ† ਵਾਲੇ ਪ੍ਰਸ਼ਨ	6 ਅੰਕ† ਵਾਲੇ ਪ੍ਰਸ਼ਨ
1 .	ਗਿਆਰੂਵੀਂ ਕਲਾਸ ਦੀ ਦੁਹਰਾਈ	3	1	1		
2.	ਸਟਰਿਗ ਫੰਕਸ਼ਨ ਦੀ ਵਰਤੋਂ	6	-	1	1	
3.	ਯੂਜ਼ਰ ਡਿਡਾਇਨਡ ਫੰਕਸ਼ਨਜ਼	7	1	1	1	
4.	ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-1	7	1	1	1	
5.	ਵਿੰਡੋ ਮੂਵੀ ਮੇਕਰ-2	5	1		1	

6.	ਨੈਟਵਰਕਿੰਗ ਸੰਕਲਪ	9	1	1	-	1
7.	ਲਾਈਬ੍ਰੇਰੀ ਫੰਕਸ਼ਨਜ਼	6	-	1	1	
7.	ਈ-ਗਵਰਨੈਂਸ	7	1	-	-	1
ਕੁੱਲ ਜੋੜ		50	6	12	20	12

### ਪਾਠ ਕ੍ਰਮ (ਲਿਖਤੀ ਪ੍ਰੀਖਿਆ)

#### ਗਿਆਨ੍ਵਿੰਦੀ ਕਲਾਸ ਦੀ ਦੁਹਰਾਈ

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

#### 1. ਸਟਰਿੰਗ ਫੰਕਸ਼ਨ ਦੀ ਵਰਤੋਂ

- ਭੂਮਿਕਾ
- ਡਿਕਲੇਅਰੇਸ਼ਨ ਅਤੇ ਸਟਰਿੰਗ ਵੇਰੀਏਬਲ
- ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਦੀ ਪਿੰਟਿੰਗ ਪ੍ਰਦਰਸ਼ਿਤ ਕਰਨੀ
- ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ ਯ ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ, ਸਟਰਿੰਗ ਲਿਖਣਾ, ਮੋਨੀਟਰ ਤੋਂ ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ
- ਸਧਾਰਣ ਇਨਪੁੱਟ ਆਊਟਪੁੱਟ
- ਸਟਰਿੰਗ ਉਪਰੋਸ਼ਨ 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 (ਫਰਾਫ. ਵਕਾਅ. 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 ਫੰਕਸ਼ਨ

- ਭੂਮਿਕਾ
- ਬਿਲਟ ਇੰਨ ਫੰਕਸ਼ਨ ਲਾਇਬਰੇਰੀ ਫੰਕਸ਼ਨ ਯੂਜਰ ਡੀਫਾਈਨ ਫੰਕਸ਼ਨਜ਼, ਫੰਕਸ਼ਨਜ਼ ਦੀ ਜੁਕਤ
- ਆਰਗੂਮੈਂਟ ਅਤੇ ਪੋਰਾਮੀਟਰ
- ਕੋਡ ਲਾਈਨ
- ਮਲਟੀਫੰਕਸ਼ਨ ਪ੍ਰੋਗਰਾਮ
- ਫੰਕਸ਼ਨ ਦੀ ਬਣਤਰ
- ਰਿਟਰਨ ਮੁੱਲ ਅਤੇ ਉਹਨਾਂ ਦੇ ਟਾਈਪਸ, ਸਿੱਪਲ ਰਿਟਰਨ
- ਫੰਕਸ਼ਨ ਨੂੰ ਕਾਲ ਕਰਨਾ
- ਫੰਕਸ਼ਨ ਨਾਲ ਆਰਗੂਮੈਂਟ, ਬਗੈਰ ਰਿਟਰਨ ਮੁੱਲ
- ਸਟੋਰੇਜ ਸ਼ੈਟੀਆਂ
- 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, ਪ੍ਰਜੈਕਟ 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, ਮਾਈਕਰੋਫ਼ਨ ਦਾ ਸਾਊਂਡ ਕਾਰਡ ਜਾਂ ਯੂ.ਐਸ. ਬੀ ਪੋਰਟ ਨਾਲ ਜੋੜ
- ਵਿੰਡੋਜ਼ ਮੂਵੀ ਮੇਕਰ ਇੰਨੋਟਰਡੇਸ ਯ ਮੀਨੂ ਬਾਰ ਅਤੇ ਟੁਲ-ਬਾਰ, ਪੇਨਜ਼, ਸਟੋਰੀ-ਬੋਰਡ ਜਾਂ ਟਾਈਮ ਲਾਈਨ ਪੇਨਜ਼, ਕੋਲੈਕਸ਼ਨ ਪੇਨ, ਕਾਨਟੈਂਟਸ ਪੇਨ, ਡੀਟੋਲਜ਼, ਬੰਬ ਨੇਲ, ਮੋਨੀਟਰ
- ਸਟੋਰੀਬੋਰਡ : ਸਟੋਰੀ ਬੋਰਡ ਦੀ ਵਰਤੋਂ, ਸਟੋਰੀ ਬੋਰਡ ਦਾ ਨਿਰਮਾਣ
- ਵਿੰਡੋਜ਼ ਮੂਵੀਮੇਕਰ ਦੀ ਵਰਤੋਂ : ਮੂਵੀ ਟਾਸਕ ਪੇਨ, ਵੀਡੀਓ ਕੈਪਚਰ, ਐਡਿਟ ਵੀਡੀਓ, ਫਿਲਿਸ਼ਵੀਡੀਓ
- ਕੋਲੈਕਸ਼ਨ, ਸਪਲਿਟ ਬਟਨ, ਸਕਰੀਨ ਸ਼ਾਟ ਬਟਨ, ਵੀਡੀਓ ਟਰੈਕ, ਆਡੀਓ ਟਰੈਕ, ਟਾਈਟਲ ਟਰੈਕ
- ਹੈਂਡਜ਼ ਆਨ ਵਿੰਡੋਜ਼ ਮੂਵੀਮੇਕਰ (hands on windows movie maker) : ਨਿਉ ਪ੍ਰੋਜੈਕਟ ਖੇਲ੍ਹਣਾ, ਆਪਣੇ, ਕੰਪਿਊਟਰ ਤੋਂ ਵੀਡੀਓ ਇਮੋਰਟ ਕਰਨਾ, ਪਿਕਚਰ ਇੰਪੋਰਟ ਕਰਨਾ
- ਵੀਡੀਓ ਸਕਰੀਨ / ਮੋਨੀਟਰ ਯ ਕਲਿਪ ਨੂੰ ਦੇਖਣਾ, ਨਿਉ 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 ਵਿਚੂ
- ਸਟੋਰੀ ਬੋਰਡ ਵਿੱਚ ਵੀਡੀਓ ਕਲਿਪ 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 ਪ੍ਰਾਗਾਇੰਟ ਨੂੰ ਸਾਫ਼ ਕਰਨਾ, ਟੁੱਟੇ ਹੋਏ ਵੀਡੀਓ ਕਲਿਪਸ ਨੂੰ ਆਪਸ ਵਿੱਚ ਜੋੜਨਾ, ਮੂਵੀ ਨੂੰ ਐਡਿਟ ਕਰਨਾ, ਵੀਡੀਓ ਟਰਾਂਜ਼ਿਸ਼ਨ, ਵੀਡੀਓ ਇਫੈਕਟਸ, ਟਾਈਟਲ ਅਤੇ ਕਰੈਡਿਟਸ, ਵੀਡੀਓ ਟਰਾਂਜ਼ਿਸ਼ਨ ਨੂੰ ਲਾਗੂ ਕਰਨਾ, ਵੀਡੀਓ ਇਨਫੈਕਟਸ ਜੋੜਨਾ, ਟਾਈਟਲ ਤੇ ਕਰੈਡਿਟ, ਪ੍ਰੀ-ਵਿਚੂ ਮੂਵੀ ਟਾਈਟਲ, ਆਡੀਓ ਐਡ ਕਰਨਾ, ਆਡੀਓ ਨੂੰ ਪਿਕਚਰ ਨਾਲ ਅਲਾਈਨ ਕਰਨਾ, ਆਡੀਓ ਕਲਿਪ ਦਾ ਟਾਈਮ ਲਾਈਨ ਵਿਚੂ, ਐਡਟਿੰਗ ਆਡੀਓ, ਵੀਡੀਓ ਦਾ ਆਡੀਓ ਘੱਟ ਜਾਂ ਵੱਧ ਕਰਨਾ ।

#### 5. ਨੈੱਟਵਰਕਿੰਗ ਸੈਕਲਪ

- ਭੂਮਿਕਾ
- ਨੈੱਟਵਰਕਰ ਕੀ ਹੁੰਦਾ ਹੈ; ਨੈੱਟਵਰਕਿੰਗ ਲਈ ਲੋੜ, ਨੈੱਟਵਰਕਿੰਗ ਟਰਮੀਨਲਾਂ
- ਨੈੱਟਵਰਕ ਦੀਆਂ ਕਿਸਮਾਂ
- ਨੈੱਟਵਰਕ ਟੋਪਲੋਜੀ : ਟੋਪਲੋਜੀ ਕੀ ਹੁੰਦੀ ਹੈ, ਭੌਤਿਕ ਟੋਪਲੋਜੀ ਦੀਆਂ ਮੁੱਖ ਕਿਸਮਾਂ, ਲੀਨੀਅਰ ਬੱਸ ਟੋਪਲੋਜੀ, ਸਟਾਰ - ਟੋਪਲੋਜੀ, ਟ੍ਰੀ- ਟੋਪਲੋਜੀ, ਮੈਸ਼- ਟੋਪਲੋਜੀ, ਪਾਰਸ਼ਲ ਮੈਸ਼- ਟੋਪਲੋਜੀ
- ਪ੍ਰੋਟੋਕੋਲਜ਼ : ਯੂਨੀਫਾਰਮ ਰਿਸੋਰਸ ਲੋਕੇਟਰ (ਯੂ.ਆਰ.ਐਲ) ਫਾਈਲ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ ਅਤੇ ਹਾਈਪਰਟੈਕਸਟ

ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ (ਫਾਈਲ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ, ਹਾਈਪਰਟੈਕਸਟ ਟਰਾਂਸਫਰ ਪ੍ਰੋਟੋਕੋਲ), ਪ੍ਰਾਈਵੇਟ ਨੈੱਟਵਰਕਸ

- ਚੈਨਲ ਦੀ ਵਿਚਾਰਪਾਰਾ : ਸੰਚਾਰ ਚੈਨਲ ਕੀ ਹੁੰਦਾ ਹੈ, ਡਾਟਾ ਬਦਲੀ ਦਰ
- ਸੰਚਾਰ ਮਾਧਿਅਮ : ਗਾਈਡਿੱਡ ਮੀਡੀਆ, ਅਨਗਾਈਡਿੱਡ ਮੀਡੀਆ, ਆਰਐਡ ਪ੍ਰਸਾਰ
- ਨੈੱਟਵਰਕਿੰਗ ਡਿਵਾਇਸ : ਹੱਥ ਅਤੇ ਮੋਡਮ

## 6. ਲਾਈਬ੍ਰੇਰੀ ਫੁੱਕਸ਼ਨਜ਼

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

## 7. ਈ-ਗਵਰਨੈਂਸ (e-Governance)

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

## ਕੰਪਿਊਟਰ ਸਾਈਂਸ (ਪ੍ਰਯੋਗੀ)

### ਅਗਵਾਈ ਲੀਹਾਂ (ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ)

ਸਮਾਂ : 3 ਘੰਟੇ

ਅੰਕ: 45

ਪ੍ਰੀਖਿਆ ਲਈ ਅੰਕ ਵੰਡ ਹੇਠ ਲਿਖੇ ਅਨੁਸਾਰ ਹੋਵੇਗੀ :

ਸੈਕਸ਼ਨ - ਏ	ਵਾਇਵਾ - ਵੋਸ	10
ਸੈਕਸ਼ਨ - ਬੀ	ਪ੍ਰੋਗਰਾਮ ਰਿਕਾਰਡ ਫਾਇਲ	10
ਸੈਕਸ਼ਨ - ਸੀ	ਛੋਟੇ ਪ੍ਰੋਗਰਾਮ	20

1. ਸੈਕਸ਼ਨ ਏ ਵਿੱਚ ਪ੍ਰੀਖਿਆਰਥੀ ਤੋਂ ਪਾਠ ਕ੍ਰਮ ਵਿੱਚੋਂ ਪੰਜ ਪ੍ਰਸ਼ਨਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਪ੍ਰਸ਼ਨਇੱਕ ਇੱਕ ਅੰਕ ਦਾ ਹੋਵੇਗਾ। ਇਹ ਪ੍ਰਸ਼ਨ ਅਥਜੈਕਟਿਵ ਟਾਈਪ ਜਾਂ ਵਿਆਖਿਆ ਦੱਸਣੀ ਜਾਂ ਕੰਪਿਊਟਰ ਦੇ ਵੱਖ ਵੱਖ ਹਿੱਸਿਆਂ ਅਤੇ ਇਸ ਨਾਲ ਜੁੜੇ ਸਹਾਇਕਾਂ ਦੇ ਬਹੁਤ ਛੋਟੇ ਅਭਿਆਸ ਹੋਣਗੇ।  $2 \times 5 = 10$  ਅੰਕ
2. ਸੈਕਸ਼ਨ ਬੀ ਵਿੱਚ ਪ੍ਰੀਖਿਆਰਥੀ ਦਾ ਸਲਾਨਾ ਪ੍ਰੋਗਰਾਮ ਰਿਕਾਰਡ ਫਾਇਲ ਸੈਕ ਕੀਤਾ ਜਾਵੇਗਾ।  $10$  ਅੰਕ
3. ਸੈਕਸ਼ਨ ਸੀ ਵਿੱਚ ਤਿੰਨ ਪ੍ਰਸ਼ਨ/ਪ੍ਰੋਗਰਾਮ ਸੈਟ 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 ਸੈਟਰ ਕਰਕੇ ਦੇਵੇਗਾ।  $4 \times 5 = 20$  ਅੰਕ

### ਪਾਠ ਕ੍ਰਮ (ਪ੍ਰਯੋਗੀ ਪ੍ਰੀਖਿਆ)

#### 1. ਸਟਰਿੰਗ ਫੁੱਕਸ਼ਨ ਦੀ ਵਰਤੋਂ

- ਸਟਰਿੰਗ ਫੁੱਕਸ਼ਨ : ਡੇਕਲੇਰੇਸ਼ਨ, ਇਨਿਸ਼ਿਅਲਾਈਜ਼ੇਸ਼ਨ
- ਪ੍ਰੋਗਰਾਮ ਸਟਰਿੰਗ ਦੀ ਪਿੰਟਿੰਗ ਪ੍ਰਦਰਸ਼ਿਤ ਕਰਨੀ
- ਸਟਰਿੰਗ ਪੜ੍ਹਨਾ ਅਤੇ ਲਿਖਣਾ
- ਸਾਧਾਰਣ ਇੰਨਪੁਟ / ਆਊਟਪੁਟ ਗੈਟਚਰ, ਪੁੱਟਚਰ, ਪਿੰਟਐਫ ( I/O getchar(), putchar(), printf() )
- ਸਟਰਿੰਗ ਓਪਰੇਸ਼ਨ (string.h)

## 2. ਯੂਜ਼ਰ ਡਿਡਾਇਡ ਫੈਕਸ਼ਨਜ਼

- ਬਿਲਟ-ਇਨ ਫੈਕਸ਼ਨਜ਼/ਲਾਈਬ੍ਰੇਰੀ ਫੈਕਸ਼ਨਜ਼
- ਆਰਗੂਮੈਂਟਸ ਅਤੇ ਪੈਰਾਮੀਟਰਜ਼
- ਕੋਡ ਲਾਈਨ
- ਮਲਟੀਫੈਕਸ਼ਨ
- ਫੈਕਸ਼ਨ ਦੀ ਬਣਤਰ
- ਫੈਕਸ਼ਨ ਨੂੰ ਕਾਲ ਕਰਨਾ

## 3. ਵਿੱਡੋ ਮੂਵੀ ਮੇਕਰ-1

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

## 4. ਵਿੱਡੋ ਮੂਵੀ ਮੇਕਰ-2

- ਟਾਈਮ ਲਾਈਨ ਵਿਊ
- ਪ੍ਰੈਸੈਕਟ ਨੂੰ ਚਲਾਉਣਾ
- ਟ੍ਰੈਮਿੰਗ
- ਐਡਟਿੰਗ
- ਵੀਡੀਓ ਟਰਮਿਜ਼ਸ਼ਨ
- ਵੀਡੀਓ ਇਫੈਕਟ
- ਵੀਡੀਓ ਟਾਈਟਲ
- ਵੀਡੀਓ ਕਰੈਟਿੰਗ
- ਵੀਡੀਓ ਪ੍ਰੋਵਿਊ

## 5. ਲਾਈਬ੍ਰੇਰੀ ਫੈਕਸ਼ਨਜ਼

- ਫੈਕਸ਼ਨ
- ਸਟਰਲੋਨ ਫੈਕਸ਼ਨ ( Strlen() )
- ਸਟਰੋਪੀ ਫੈਕਸ਼ਨ ( Strcpy() )

- સ્ટરીટ ફેંકસન (Strcat() )
- સ્ટરોમપ ફેંકસન (Strcmp() )
- ગૈટચર ફેંકસન (getchar() )
- પુટચર ફેંકસન ( putchar() )
- પ્રિટાફ ફેંકસન ( Printf() )
- સ્કેનાફ ફેંકસન ( Scanf() )
- કોસ ફેંકસન ( Cos() )
- એક્સપ ફેંકસન ( Exp() )
- પોવ ફેંકસન ( Pow() )
- સ્કરટ ફેંકસન ( Sqrt() )
- એફ્મેડ ફ ફેંકસન (fmod() )
- ફેસમ ફેંકસન (fabs() )
- સીલ ફેંકસન ( Ceil () )
- ફ્લોર ફેંકસન ( floor() )
- ઇન્ઝલોઅર અતે ઇન્ઝઅપર ફેંકસન ( islower() and isupper() )
- ટૂલોઅર અતે ટૂઅપર ફેંકસન ( tolower() ) and ( toupper () )
- ફેંકસન દે લાભ

## **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 12<sup>th</sup> 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:-**

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

**Time: 2 hrs**  
**Time : 3 hrs**

**Theory: 30 Marks**  
**Practical: 50 Marks**  
**InA: 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**  
**InA: 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**

**Time: 3 Months**

**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 as per P.S.E.B guidelines. **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**

#### **TRADE : HORTICULTURE**

#### **12<sup>th</sup> VOCATIONAL**

##### **PAPER-I**

##### **LANDSCAPING AND FLORICULTURE**

##### **THEORY**

**Time : 2 hrs**

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

- Importance, Definition, Status and Scope of Floriculture and Landscaping.
- 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.
- Important Ornamental Plant, Trees, Shrubs, Climbers and Pot Plants, Bedding Plants, Bulbous Plants and Groundcovers their Selection Based on Landscape Value and Use, their Planting and Maintenance.
- Establishment and Maintenance of Lawns.
  
- 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, 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.
- Nursery Production - Propagation, Potting, Repotting, Plant Care, Maintenance and Sale

## **LANDSCAPING AND FLORICULTURE**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- 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, pinching de-suckering, disbudding, topiary.
- Landscape plan (i) modern bungalow (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.

**TRADE : HORTICULTURE**

**12<sup>th</sup> VOCATIONAL**

**PAPER-II**

**COMMERCIAL CROPS**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

**Commercial Crops**

Introduction, Present Status and Future Prospects of Plantation, Spice, Medicinal and Aromatic Crops.

**Commercial Cultivation**

Commercial Cultivation of the Following with Respect to Soil, Climate, Improved Varieties, Propagation and Nursery Techniques, Layout and Planting, Cultural Practices, Water Management, Weed Control, Plant Protection, Harvesting, Processing, Products, Storage and Marketing of the following -

- Spice Crops - Ginger, Turmeric, Fennel and Coriander.
- Medicinal Crops - Dioscorea, Periwinkle, Sarpagandha, Ashwagandha, Steroid Bearing Solanum, Isabgol, Senna and Liquorice, Aloevera, Geloe, Tulsi, Stevia.
- Aromatic Crops - Lemon Grass , Citronella, Palmarosa, Vetiver (Khus), Geranium, Patchaouli, Davana, Mint Species and Rosemary.

**Bee Keeping**

Importance and Scope, Bee Species and Colony/ Organisation, Social Behavior, Bee Hives and their Equipments, Apiary Management Practices, Products of Bee Hive, Diseases and Enemies of Honey Bees, Pesticidal Poising, Economics of Bee Keeping, Marketing of Honey and Role of Bees in Crop Pollination.

## **Mushrooms**

Types, Production of Summer and Winter Season Mushroom, Environmental Requirements, Containers, Media and Preparation, Disinfection, Seeding and Pawning, After Care, Harvesting, Dehydration and Packing.

## **Vermiculture**

Introduction, Role of Earthworms, Organic Wastes, Advantages of Vermiculture, Vermi Composting, Application of Vermi Composting.

## **COMMERCIAL CROPS**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Processing and curing of ginger and turmeric
- Study of important spice, medicinal and aromatic crops.
- Extraction of essential oils in plants such as Mentha.
- Propagation of geranium and patchouli through cuttings.
- Study of propagation in aromatic grasses.
- Study of species and castes of honey bees.
- Study of bee pasturage.
- Site selection and arrangement of apiary.
- Setting up bee hive.
- Seasonal management of bee colonies.
- Identification and Management of pest and diseases of bees.
- Extraction, processing and marketing of honey.
- Production of hive products other than honey.
- Study of common cultivated mushrooms and their food value.
- Compost preparation for button mushroom.
- Filling of trays/shelves/bags with compost for button mushroom.
- Spawning in button mushroom.
- Casing in button mushroom.
- Cropping and harvesting of button mushroom.
- Substrate preparation for paddy straw mushroom.
- Bed preparation and spawning in paddy straw mushroom.

- Cropping in paddy straw mushroom.
- Post harvest management.
- Management of insect-pests and diseases.
- Identification of Important species of earthworms.
- Selection of suitable species.
- Vermi composting materials and feed for earthworms.
- Different schemes for vermi composting.
- Preparation and maintenance of vermi composting beds.
- Products of cocoons and its survival.

### **TRADE : HORTICULTURE**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-III      POST HARVEST TECHNOLOGY AND PRESERVATION**

#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90 Marks</b>

- Maturity Index for Fruits and Vegetables.
- Methods of Harvesting, Handling, Grading and Transportation.
- Harvest life of Fruits and Vegetables.
- Methods of Temporary Preservation of Fruits and Vegetables.
- Method of Harvesting, Handling, Grading and Transportation.
- Different Technique of Removal of Field Heat/Pre Cooling.
- Packaging of Fruits and Vegetables for Local and Distant Market.
- Canning, Drying and Dehydration of Horticultural Crops.
- Cool Chain and Value Addition in Horticulture Crops.
- Varieties of Fruits and Vegetables Suitable for Processing.
- Preparation of Material for Processing, Technique of Syruping Exhausting, Sealing, Sterilizing and Cooling.
- Technique of Storage Including Cold Storage of Fruits & Vegetables.
- Controlled Atmospheric (CA) and Modified Atmospheric (MA) Storage.
- Pre and Post Harvest Treatments for Extending Shelf Life of Horticultural Commodities.
- Evaluation of Quality of Preserved / Processed Products.

## **POST HARVEST TECHNOLOGY AND PRESERVATION**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Determination of maturity standards for fruits and vegetables.
- Procedure of harvesting, handling, grading and transportation of horticultural crops.
- Study of storage life of important fruits and vegetables.
- Preservation of fruits and vegetables at low temperature, chemical additives, salt, sugar etc.
- Study of spoilage of fruits.
- Visit to a processing factory (vegetable and fruits), grading and waxing units (kinnows).
- 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.

## **II. BUSINESS AND COMMERCE GROUP**

### **(i) TRADE : MODERN OFFICE PRACTICES**

**12<sup>th</sup> VOCATIONAL**

**PAPER-I**

**OFFICE MANAGEMENT - II**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

#### **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.

#### **Office Forms and Stationery**

Office Forms: Meaning, Advantages, Disadvantages, Designing Forms: Principles, Form Control, Office Stationery: Principles of Stationery Control.

### **Office Manuals and Charts**

Office Manuals: Meaning, Content, Types, Steps in Preparing Office Manuals.

### **Concept of Communication**

Meaning, Importance, Essential Features, Qualities of Good Communication, Classification: Oral and Written, Barriers to Communications. Uses of telephone in business.video calling

### **Mechanical System**

CCTV (Close Circuit TV), Bells and Buzzers, Photostat Machine, Printers.

### **Business letters**

Meaning, Importance and Types of Business Letters, Essentials of Letter Writing, Layout of a Business Letter, Qualities of Good Business Letter.

### **Job Finding and Job Success**

Preparation for Job Finding, Applying and Interviews for Jobs.

### **Reception work**

Qualities of a Receptionist, Location and need of the Reception Office, types of reception counter.

### **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.

### **Report Writing**

Meaning, Objectives, Importance, Kinds, Qualities of a Good Report, How to Prepare a Report.

## **OFFICE MANAGEMENT - II**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Visit an office to see types, quality, arrangement and suitability of furniture and submit a report.
- Preparation of a stock register.
- Consulting telephone directory.
- Applying and Preparing for an interview.
- Charge handling over and taking over.
- Keeping record of visitors.
- Railway and air reservation.
- Booking hotel accommodation..
- Making travel arrangements for participants.
- Practice on Stapling/Punching/use of tags on records.

**12<sup>th</sup> VOCATIONAL  
TYPOGRAPHY - II (ENGLISH) / (PUNJABI)  
THEORY**

Time : 2 hrs

Theory : 30 Marks  
InA : 10 Marks  
Practical : 50 Marks  
Total : 90 Marks

## Part-I: Typography

## Correspondence

Business: Different styles of letters – indented, semi indented and blocked, Official: Office Memorandum, office order, DO letter and Office Note.

## Manuscript

#### Proof correction signs, List of standard abbreviations.

## Shorthand

Introduction and Importance, Correct Sitting Posture, Qualities of a good Stenographer, Consonants and Vowels – Meaning, First six consonants, Second Group of Consonants, Next Eight consonants, First, Second & Third place vowels

## Part-II: Computer Applications

## Excel

Starting with Excel, understanding worksheets/spreadsheet and workbooks, entering text, entering numbers and formulas, entering dates and times, Navigating between spreadsheets, Opening a Workbook, Saving a workbook and printing a Worksheet/Workbook.

## Editing Excel

selecting cells, Editing cell contents, Inserting and deleting cells, Inserting and deleting rows and columns, working with worksheet ranges, Using cut, copy and paste options, clearing data, Spell checking, auto correct worksheets, finding and replacing data, using autofill, adding comments.

## Using Formulas and Functions

Using arithmetic operators, using range names in formulas, using relative and absolute cell referencing, copying formulas. Using auto sum for efficiency, common functions – sum (), average (), max(), min(), count(), countif(), counta(), Using paste function.

## **Formatting Worksheets**

Center aligning, left aligning, right aligning and justifying cell content, row and column height, changing width and font, Making format changes, Auto formatting worksheets, modifying styles, additional formatting options – special alignment, special cell borders, special cell shades, protecting cells, Conditional formatting, tab colors help separate worksheets.

## **Using Charts**

Creating custom charts (graphs) - choosing the chart type, selecting data for chart, modifying the chart, Making a quick, presentable and easily interpretable chart.

## **Power Point**

Understanding presentations and slides, creating a new presentation - the auto content wizard and presentation design, creating presentations using design templates, Editing and Arranging Presentations: Using the outline – adding and importing new items, promoting and demoting elements, Using the slide sorter view, using the notes page view. Saving and printing.

## **Power Point Advanced Features**

Modifying presentations, editing individual slides - putting comments in your Presentations, adding text and text boxes, moving and rotating text, Adding pictures, Animating your Presentations: Using Power Point's slide show – timed transitions, transition effects, setting up shows, rehearsing slide show, Voice narration, using action buttons, introducing animation schemes, customizing animation.

## **Internet and Security**

Finding information from the web using popular Internet search engines like Google, Yahoo, Rediff, e-Commerce and e-Business.

## **Email**

Opening e-mail accounts using popular sites offering free email services like Yahoo, Google, Rediffmail, Indiatimes, Hotmail etc., composing a message, formatting text, selecting the e-mail message format, add a signature, sending and receiving emails with/without attachment, reading email, replying to email, printing an email, deleting email, forwarding an email, creating folders/labels for archiving emails.

## **Computer Virus**

Computer virus, computer virus versus biological virus. Virus classification - boot sector virus, companion virus, e-mail virus, logic bomb, macro virus, cross-site scripting virus, Worm and Trojan, Effects of computer virus, the vulnerability of operating systems to virus, protection from virus and use of popular antivirus software.

**TYPOGRAPHY – II****Time: 3 hrs****PRACTICAL****Marks : 50**

- Key Board Operations – Speed Test of 30 wpm – 10 minutes (300 words/1500 strokes)
- Inculcation of Accuracy in key boarding skills for typing a paragraph by using Typing Tutor software. Minimum benchmark for accurate typing is the speed of 30 words per minute.
- Proof Corrections / Correspondence - One manuscript of 200 words containing 10 proof correction signs.
- One Official/Business letter of 180-200 words in MS word.
- Creating a spreadsheet with at least 5-6 columns and 6-8 rows including main heading, column headings,
- calculations (max, min, sum, average, or simple arithmetic operations), formatting and page setting, saving and printing the Spreadsheet.
- Creating a presentation with at least 7-8 slides including Bulleted points, Insertion of Picture/Clip Arts, Slide Transition Effects and Custom Animations, saving and printing the presentation.
- Shorthand - Dictation

**Same for Punjabi as well as Hindi Medium****12<sup>th</sup> VOCATIONAL****PAPER-III****ACCOUNTING AND E-COMMERCE****Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

**Introduction to Accounting**

Meaning, Definition, Functions, Importance, Accounting Cycle.

**Key Accounting Terms**

Transaction, Debit, Credit, Accounting Equation, Assets, Liabilities, Capital, Profit, Expenditure, Stock, Depreciation, Types of Accounts- Personal, Real, Nominal.

**Depreciation**

Meaning, Need, Features, Causes of Depreciation and Basic Factors affecting Depreciation, Methods: Straight Line, Written Down Method.

### **Goods and Services Tax (GST)**

Meaning, Characteristics and Objectives.

### **Introduction to e-commerce**

Definition, Applications, History, Elements, Features, Working, Functions, Need of e-commerce, Limitations, e-commerce Practices vs. Traditional Practices, Scope, Types of e-commerce.

### **e-commerce in India**

Introduction, e-commerce in India, Problems, Opportunities, Legal Issues Involved in e-commerce.

### **e-payment**

Introduction, Transaction through Internet, Characteristics, Requirements of e- payment System, Types: e-cheques, Credit Card and Debit Card, Working of e- cash, e-wallets, Procedure of using an e-wallet, Benefits, Risk, Use of ATMs, Digital Signatures and Biometric Security System.

### **e-banking**

Meaning, Features, Service Provide by e-banking, Traditional Banking vs. e- banking, Process,, Types, Merits and demerits, Present Status of e-banking in India, Future Prospects.

### **e-marketing**

Meaning, Features, 4 P's of Marketing, Traditional Marketing vs. e-marketing, Advantages and Disadvantages of e-marketing.

## **ACCOUNTING AND E-COMMERCE**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Preparation of final accounts.
- Visit a bank to see the services offered by bank to a business firm.
- Drawing cheque, various types of crossings on a cheque.
- Purchasing through internet/online purchases.
- How to transfer money online.
- Purchasing through debit and credit cards.
- View your account statements online.
- Making DD, FD payments etc. through e-banking.
- How to use Amazon, and other apps.
- Visit to nearby ATM and withdraw money through ATMs, making payments through- Credit card, Smart cards and Debit cards.

**(ii) TRADE : BANKING AND FINANCIAL  
SERVICES  
12<sup>th</sup> VOCATIONAL  
ADVANCES AND FOREIGN EXCHANGE**

**PAPER-I**

**THEORY**

<b>Time : 2 hrs</b>	<b>Theory</b>	<b>: 30 Marks</b>
	<b>InA</b>	<b>: 10 Marks</b>
	<b>Practical</b>	<b>: 50 Marks</b>
	<b>Total</b>	<b>: 90Marks</b>

**Concept of lending- Importance to economy and banks Type of**

**Advance- Cash credit, overdraft**

**Type of LOANS-**

- a. Fixed/fluctuating
- b. Secured/partly secured/unsecured
- c. Commercial/priority sector

**Types of borrowers–** Individual-Minor, unsound person, married woman, illiterate person, drunken person, sole proprietorship /Joint accounts –H.U.F, husband- wife/partnership firms/Companies

**Loan application - importance, preparation. Security –**

**Meaning and types**

**Mode of charges –** Meaning, parties, rights and duties, precautions of pledge, mortgage / meaning and types of assignment, creation of charges, meaning and precautions of hypothecation. Difference between pledge and mortgage.

**Safe deposit lockers/safe custody accounts.** meaning and difference Standing

**Instructions, investment advice.**

**Merchant banking services** – meaning, functions, service of merchant bank:-consultancy, Shares, bond and debentures: issue, sale and purchase and underwriting, issue of D-Mat account. Difference between merchant banking and investment banking. Forfeiting.

Hire Purchase. meaning and features. Leasing

meaning, features and types. Factoring: meaning, features and types.

Guarantee- meaning, types i.e. performance and financial etc, concept of guarantor, right, liabilities and precautions of guarantor.

Indemnity-meaning and difference between guarantee and indemnity. Housing

Finance: meaning, features and schemes.

Mutual funds –Meaning and types (open end close end).

Automated Teller Machines – Round the clock banking. KYC-meaning and features

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.

## ADVANCES AND FOREIGN EXCHANGE

Time: 3 hrs

PRACTICAL

Marks : 50

1. Can a company issue shares at a premium? If so, state the purpose for which the money received on account of share premium is utilized.
2. Now a day's best payments options are plastic cards (Debit and Credit Cards). Do you agree with this statement. If yes, then prove it and also visit your nearest ATM and write your experience.
3. "Bank is financial institution. It's Main aim is to provide financial services to customers", visit your nearest bank and share your views on it and write in detail the services provided by banks.
4. To prepare a project report about the perception of customers about the financial services availed by them from their concerned banks.
5. Visit any industrial organization or a Financial Institution and prepare a report on the working and services provided by them.
6. Fill the forms of any bank like PNB for opening saving account, pay-in-slip, withdrawal slip, money transfer form, demand draft application form etc, paste the photocopy of the same in your scrap note book.
7. Foreign Exchanges: With the help of all prescribed forms/vouchers/registers/ledgers specimen folio's exercise on-
  - a) Opening and operation of NRE accounts.
  - b) Opening of a letter of credit.
8. branch undertaking such services.

# **TRADE : BANKING AND FINANCIAL SERVICES**

## **12<sup>th</sup> VOCATIONAL**

### **PAPER-II**

### **MANAGERIAL ECONOMICS AND STATISTICS**

#### **THEORY**

<b>Time : 2 hrs</b>	<b>Theory</b>	<b>: 30 Marks</b>
	<b>InA</b>	<b>: 10 Marks</b>
	<b>Practical</b>	<b>: 50 Marks</b>
	<b>Total</b>	<b>: 90Marks</b>

Managerial Economics: Meaning, Nature, Scope and Concepts.

Marginal Analysis: Law of Diminishing Marginal Utility, Law of Equi marginal Utility.

Law of Demand: Meaning, Determinants, Exceptions, Kinds of Demand, Change in Demand and Importance.

Elasticity of Demand: Meaning, Types and Degrees of Elasticity of Demand, Methods of Measuring Price Elasticity of Demand, Factors Determining Elasticity of Demand, Importance.

Indifference Curve Analysis: Meaning, Assumptions, Properties, Consumer Equilibrium, Importance. Definition, Functions, Scope and Limitations of statistics.

Measures of Central Tendency: Types of averages – Arithmetic mean (Simple and Weighted), Median and Mode.

Measures of Dispersion: Range, Quartile deviation, Mean deviation, Standard deviation and Coefficient of variation.

Simple Correlation : Meaning, Types, Karl Pearson's & Rank Correlation.

Index Numbers: Meaning and importance, Methods of construction of Index Numbers: Weighted and unweighted; Simple aggregative method, Simple average of price relative method,

Weighted index method: Laspeyres method, Pasches method and Fishers ideal method, Consumer price index.

**MANAGERIAL ECONOMICS AND STATISTICS**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Make an assignment on diagrams of law of demand, elasticity of demand, indifference curves and numerical of demand and elasticity of demand.
- Students will make record of various goods having different elasticity of demand and its exceptions.
- Students will make raw data of marks of one subject and calculate mean, median and mode after formulation of the data collected.
- Students will make data of marks of two different subjects of any class of their school and will calculate standard deviation and coefficient of standard deviation and correlation between the subjects.

# **TRADE : BANKING AND FINANCIAL SERVICES**

## **12<sup>th</sup> VOCATIONAL**

### **PAPER-III**

### **INTRODUCTION TO COMPUTER APPLICATIONS**

#### **THEORY**

<b>Time : 2 hrs</b>	<b>Theory</b>	<b>: 30 Marks</b>
	<b>InA</b>	<b>: 10 Marks</b>
	<b>Practical</b>	<b>: 50 Marks</b>
	<b>Total</b>	<b>: 90Marks</b>

Introduction and general Information about computers – history of computer, organization of computer, memory, batch and serial processing of data, application of computers in business, key board, types of video-adopter, types of PCs IBMPC system – various sub-system and units and parts.

**INTRODUCTION TO E-COMMERCE:** Meaning, Features, Functions and Benefits, e-commerce vs Traditional Practices, Scope and Basic Models, Limitations, Precautions of Secure e-commerce, Proxy Server.

**E-COMMERCE IN INDIA:** Status, Problems, Opportunities and Future of e-commerce in India.

**E-PAYMENT:** Transactions through Internet, Requirements of e-payment System, Post-Paid Payment System - Credit Card Solutions, Cyber Cash, Internet Cheques, Instant Paid Payment System - Debit Card, Pre-Paid System – Electronic Cash, Digi Cash, Net Cash, Cyber Cash, Smart Cards.

**E-MARKETING:** Meaning, Features, Concept of e-marketing and 4 P's of e-marketing. **E-TRADING:** Meaning, Features, Functions and Benefits of e-trading.

**E-BUSINESS:** Meaning, Scope, Features and Difference between e-commerce and e-business. **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, Procedure of Opening e-mail Account on Internet.

**E-BANKING:** Meaning, Importance, Types , Advantages, Disadvantage, Process, Traditional Vs. e- banking, e-banking In India.

**E-PAYMENTS:** Meaning, Features, Objectives, Advantages, Disadvantages payments. and Types of e-

**E-MARKETING :** Meaning, Features, Concept, 4 P's of e-marketing, Traditional Marketing Vs e- marketing, Advantages and Disadvantages, Status of e-marketing in India.

### **INTRODUCTION TO COMPUTER APPLICATIONS**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

Internet and its Application - log into internet, navigation for seeking information, downloading information from internet.

Sending and receiving e-mail.

Creating an e-mail account. Creating  
a message.

Creating an address book. Attaching a  
file with an e-mail. Receiving a  
message.

Deleting a message.

Purchasing through the internet and online banking.

Prepare a PPT file of 8 slides on e-banking in MS Office - PowerPoint.

Prepare a note on e-business and e-commerce and show the precautions for secure e-commerce.

### (iii) TRADE : MARKETING

#### 12<sup>th</sup> VOCATIONAL

##### PAPER-I

##### ADVANCED MANAGEMENT -II

##### THEORY

Time : 2 hrs

Theory	: 30 Marks
InA	: 10 Marks
Practical	: 50 Marks
Total	: 90 Marks

##### ▪ Management

Meaning, Management as Science, Management as an Art, Management as Profession, Administration and Management, Levels, Principles of Management Given by Henry Fayol, Managerial Skills and Rules, Role of Marketing Manager.

- **Scientific Management:** Meaning, Features, Principles of Scientific Management, Steps to Grow Your Business with Marketing Strategies, Aims, Objectives and Techniques of Scientific Management.
- **Business Environment:** Meaning, Features, Importance, Components, (i.e. Social, Economic, Political and Technical Environment), Meaning and Features of New Economic Policy 1991, Meaning of Liberalization, Privatization and Globalization.
- **Planning:** Meaning, Step, How to Make Plans Effective, Elements of Planning i.e. Objectives, Policies, Procedures and Budgets, Rules, Methods, Strategies and Programmes.
- **Organization Structure:** Meaning, Developing Organization Structure, Features of a Good Organization Structure, Role and Forms of Organization Structure.
- **Staffing:** Selection Procedure, Type of Tests, Advantages and Disadvantages, Interview: Meaning, Types of Interview i.e. Group Interview, Individual Interview, Panel Interview and Telephonic Interview.
- **Directing:** Meaning of Directing, Leadership: Meaning, Features, Qualities of a Good Leader, Importance of Leadership Management, Techniques of Effective Leadership, Motivation: Meaning, Types, Importance, Intrinsic and Extrinsic Techniques of Motivation, Theories of Motivation.

##### ADVANCED MANAGEMENT -II

Time: 3 hrs

##### PRACTICAL

Marks : 50

- Make a project report on hierarchical structure of public or private sector organization.
- Make a file by collecting advertisements regarding recruitment from newspapers, magazines and internet etc.
- Visit the various websites and prepare project on steps to apply online for test and interview.
- Designing and filling up curriculum vitae for apply a post of marketing manager in an industry.
- Visit to nearest bank/organization and make a report on functions of its manager and other staff.
- Project work: draw organizational flow charts of any five business organizations by showing levels of its management.

## TRADE : MARKETING

### 12<sup>th</sup> VOCATIONAL

#### PAPER-II

#### MARKETING MANAGEMENT - II

##### THEORY

Time : 2 hrs

Theory : 30 Marks  
InA : 10 Marks  
Practical : 50 Marks  
Total : 90 Marks

##### ▪ Marketing

Meaning, Concept, Functions, Role, Elements of Modern Marketing, Marketing and Selling, Marketing Management, Management Philosophies.

##### ▪ Financial Management And Financial Institutions

Financial Management: Meaning, Scope, Objectives, Financial Planning: Meaning, Objectives, Functions of a Financial Manager, Capital Structure: Fixed Capital, Working Capital, Financial Institutions: Meaning, Kinds of Financial Institutions i.e. Commercial Banks, Insurance Companies and Finance Companies.

##### ▪ Marketing Mix

Meaning, 4 Ps of Marketing Mix (i.e. Product, Place, Price and Promotion), Types of Products, Meaning of Price Determination, Factors Affecting Price Determination, Meaning of Channels of Distribution, Kinds of Channels, Meaning of Sales Promotion and Types of Sales Promotion.

##### ▪ International Marketing

Meaning and Benefits of International Marketing.

##### ▪ Financial Markets

Capital Markets, elements of Capital Markets, nature and functions of Capital Markets, Primary and Secondary markets, unorganized Capital Market, Money Market, constituents of Money Markets, functions of Money Markets, distinction between Capital and Money Market, Stock exchange, functions of stock exchange, over the counter exchange of India, objectives of SEBI, functions of SEBI.

#### MARKETING MANAGEMENT - II

Time: 3 hrs

##### PRACTICAL

Marks : 50

- Prepare a report of five financial institutions that provide loan to companies.
- Prepare a project by enlisting the different methods of marketing mix.
- Visit to an organization and report its different methods of marketing.
- List marketing strategies being used for consumer products of any company.
- Project report on different kinds of loans provided by financial institutions.
- Market survey of selected consumer products on the basis of brand name and package.
- Making enquiries from wholesalers and retailers to study and report on the channels of distribution of selected products.

## TRADE : MARKETING

### 12<sup>th</sup> VOCATIONAL

#### PAPER-III

#### SALESMANSHIP - II

##### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

##### ▪ SALESMANSHIP

Meaning, Types, Training of Salesman, Wage Payment of Salesman, Salesmanship as Career, selection Techniques of Salesman.

##### ▪ E-BANKING

Meaning, Features, Difference between of e-banking and Traditional Banking, Types of e-banking, Advantages and Disadvantages, Process of e-banking, Present Status of e-banking in India.

##### ▪ E-MARKETING

Meaning, Features, Difference between e-marketing and Traditional Marketing, Advantages and Disadvantages, Present Status of e-marketing in India. 4 P's of e- marketing

##### ▪ E-ADVERTISING

Meaning, Features, Difference between e-advertising and Traditional Advertising, Advantages and Disadvantages.

##### ▪ SALES PROMOTION

Meaning, Objectives, Merits, Demerits and Techniques of sales promotion, Role of Media in Sale Promotion.

##### ▪ RETAIL MANAGEMENT

Retail Management: Meaning, Retailer, Retail vs. Wholesale, Retail Stores.

#### SALESMANSHIP - II

Time: 3 hrs

PRACTICAL

Marks : 50

- Prepare a report on best method of selling by your nearest area's trader.
- Interact with at least five salesmen to know the different techniques of salesmanship used by them.
- Prepare project work on the role of media in salesmanship.
- Visit your nearest market place and make a report on consumer's behavior towards online and offline shopping.
- Make an assignment on the popularity of different brands of consumer product.
- Role playing by each student as salesman with some other student playing the role of customer, Teacher concerned to assess the performance and external examiner to give his award on the basis of oral questions.
- Preparation of sales presentation plan by each student on the basis of selected products to be sold and type of customers to be called upon.
- Ascertaining through interview of outdoor salesman (living or working nearby) the important steps which they follow in sales presentation and preparation of report thereon.

## (iv)TRADE : INSURANCE

### 12<sup>th</sup> VOCATIONAL

#### PAPER-I

#### PRINCIPLES AND PRACTICES OF INSURANCE -II

##### THEORY

Time : 2 hrs

Theory	: 30 Marks
InA	: 10 Marks
Practical	: 50 Marks
Total	: 90Marks

### Insurance Terminology

Insurance ,Insured, Insurer, Underwriter Premium , Claim, Riders , ULIPS, Surrender Value, Reinsurance, Under insurance, Over insurance, Double insurance, Nomination, Assignment, Bonus, Micro insurance, Prospectus, Endorsement, Free Look Period, Risk, Co-Insurance, warranties.

### Motor Insurance

Introduction, Meaning, Origin, Definition of Motor Insurance, Motor Risks - Property, Personal and Third Party Risk; Classification of Motor Vehicles - Private, Commercial, Two Wheelers and Miscellaneous, Procedure of Getting Motor Insurance Policy, Certificate of Insurance, Policy and Covers - Act only Policy, Comprehensive Policy, Third Party Insurance Policy. Extra Benefits Cover and Additional Benefits Cover Policies. Risks Covered, Risks not Covered, Motor Insurance Claims - Entitlement of Claims, Conditions of Indemnity, Settlement of Claims, No Claims Discount - Meaning, Features, Benefits and Limitations, Motor Accident Claims Tribunal - Who Can File a Complaint, Documents Required, Court Fee and Features.

#### CASE STUDY - Third Party Insurance

### Insurance of Persons

Introduction, Meaning, Features, Risks Covered, Risks not Covered, Premium and Claim of Personal Accident, Janta Personal Accident, Gramin Personal Accident Policy, Accident Policy for School Going Children Group, Personal Accident Air Travel Insurance Policies, Bhagaya Shree Child Welfare Insurance, Road Safety Insurance, Jandhan Yojna, Jivan Jyoti Yojna.

**ASSIGNMENT** - Make Assignment on Travel Insurance Policy.

### **Insurance of Liability and Interest**

Meaning of Liability Insurance, Public Liability - Introduction, Scope of Cover , Add on Cover, Exclusions and Types, Professional Indemnity - Meaning, Scope, Who can Buy Policy, Additional Covers, Exclusions, Product Liability Insurance - Meaning, Scope, Need, Add on Covers, How to Get Claim, Fidelity Guarantee Insurance - Introduction, Conditions, Different Types of Fidelity Guarantee Insurance – Commercial - Individual, Collective, Position, Excess Floating Policies ,Blanket Policy **Package Policy**

Meaning of Package Policy, Domestic Multi Risk, Traders Combined, Bankers Blanket, Jewelers Block, Marine cum Erection, Storage cum Erection Insurance Policy.

### **Specialized Insurance**

Industrial all Risk Insurance, Advance Loss of Profit Cover, Oil & Energy Risk Insurance, Satellite Insurance.

### **Health Insurance**

Meaning , Need, Exclusion, Benefit of Health Insurance, Types of Health Insurance - Hospitalization Plans, Daily Cash Benefit Plan, Critical Illness Plans, Senior Citizen Health Insurance, Family Floater Plan, Difference between Mediclaim and Health Insurance.

## **PRINCIPLES AND PRACTICES OF INSURANCE – II**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Visit any company/ organization of your locality and note down the risk handling techniques adopted by the company/organization in case of theft.
- Visit any company/ organization of your locality and note down the risk handling techniques adopted by the company/ organization in case of fire.
- Visit any company/organization of your locality and note down the activities undertaken by them in case of loss prevention.
- Visit to 15-20 shopkeepers to enlist the Insurance Policies they have and enquire their experiences about the Insurance Policies.
- Visit any Company/ Organization nearby you and note down the experiences of insurance policy holders who have taken claims of insurance.

- Make a report on health insurance schemes provided by any company.
- Draw a flow diagram of settlement of motor accident claim as per Motor Accident Claim Tribunal.
- Fill the different proposal forms for
  - Personal Accident Policies: Janta Personal Accident Policy, Health Insurance Policy.
  - Liability Policies: Public liability Policy, Professional Indemnity Policy.
  - Package Policies: Domestic Multi - Risk Policy, Bankers Blanket Policy.
  - Visit a branch of an insurance company nearby you and note down the various functions performed by that branch and prepare a report.

## TRADE : INSURANCE

### 12<sup>th</sup> VOCATIONAL

#### PAPER-II

#### INSURANCE LEGISLATION - II

#### THEORY

Time : 2 hrs

Theory	: 30 Marks
InA	: 10 Marks
Practical	: 50 Marks
Total	: 90Marks

### Privatization Of Insurance Industry

Introduction, Historical Background, Arguments against Privatization, Steps Taken by Government to Privatize the Insurance Sector, Malhotra Committee Recommendations, Impact of Privatization.

### Accounts

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.

### Contract

Meaning, ,Essential of Valid Contract- Offer and Acceptance- Meaning , Features of Valid Offer And Acceptance, Difference Between Offer And Acceptance, Capacity to Contract, Lawful Consideration, Certainty of Meaning, Possibility of Performance, Lawful Object, Lawful Consideration Free Consent, Other Legal Formalities.

## **Insurance Contract**

Meaning, Kinds of Insurance Contracts - Indemnity, Life Insurance and Reinsurance, Difference between Life Insurance Contract and Indemnity Contract, Essentials of Valid Insurance Contract - Insurable Interest, Utmost Good Faith - Meaning and Essentials, Principle of Indemnity, Meaning, Features, Merits and Conditions Methods of Indemnity, Principle of Subrogation - Meaning, Essentials and Features, Principle of Causa Proxima, Principle of Mitigation of Loss, Principle of Contribution, Co-Insurance, Over Insurance, Double Insurance, Under Insurance, Warranties in Insurance Contract, Warranties under Marine Insurance.

## **Registration of Insurance Company**

General Insurance Requirements, Capital Structure Requirements, Procedure of Obtaining Registration Certificate, Renewal, Suspension, Cancellation of Registration. **Complaint against Insurer**

Meaning, Procedure of Filing Complaint against Insurer

## **IRDA**

Introduction, Duties, Objectives, Mission, Composition of Authority and their Tenure

## **Books Maintained by Insurance Companies**

Statutory Books - Register of Agents, Register of Policies, Register of Claims and Subsidiary Books.

## **Assignment and Nomination**

Assignment- Meaning, Features, Types - Absolute and Conditional, Criteria for Making Assignment, Situations where Policies can be Assigned and what to Check before Assigning A Policy, Procedure of Assigning Policy, Nomination - Meaning, Provisions regarding Nomination, Change and Withdrawal of Nomination, Minor Nominee, Nomination Versus Assignment, Insurance Documents - Proposal Form, Claim Form, Renewal Forms, Cover Note, Policy Document.

## **INSURANCE LEGISLATION - II**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Visit any branch of Insurance Company in your locality and prepare a report on various accounting books maintained by that branch.
- Prepare a chart showing items of Debit Side and Credit Side of Revenue Account of Life Insurance.

- Prepare a Profit and Loss account of Insurance Company, taking imaginary figures.
- Visit any branch of Insurance Company in your locality and fill the forms/ formats of the statutory books maintained by them.
- Draw a flow chart of essential elements of a valid insurance contract.
- Make a flow chart on procedure of complaint against insurer.
- Make an assignment on insurance companies registered with IRDA.
- Prepare a report on Integrated Grievance Management System of IRDA

## **TRADE : INSURANCE**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-III**

#### **INSURANCE SALESMANSHIP -II**

##### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

#### **Life Insurance Corporation of India**

Introduction, History, Objectives, Functions of LIC, Organizational Setup of LIC - Committees and Departments, Organizational Structure of LIC, Functions of Head Office, Zonal Office, Divisional Office and Branch Office, Direct Agent Branch, Ordinary Branch.

#### **General Insurance Corporation**

Introduction, History, Organization Structure - Board of Directors and Management Team, Public Sector General Insurance Companies - The New India Insurance Company and The United India Insurance Company - Introduction, History, Present Position, Mission, Objectives and Organizational Structure and Claims.

#### **Distributional Channels**

Introduction, Need of Alternative Distribution Channels, Traditional Channels - Agents, Development Officers, Modern Channels - Bancassurance, Corporate Agents, Internet Marketing.

#### **Agent**

Meaning, Qualification, Selection and Training, Duties, Responsibilities , Functions of Agent, License of Insurance Agents, Types of Insurance Agents - Captive Agents and Independent Agents, Advantages and Disadvantages of Captive Agents and Independent Agents, Commission Structure, Code of Conduct of Insurance Agents, Unfair Practices

#### **Development Officer**

Meaning, Qualification, Selection Process, Qualities.

#### **Bancassurance**

Meaning, Need, Advantages and Models of Bancassurance - Distribution Alliance Model, Joint Venture Model, Full Integration Model, Build and Buy Model.

## **Buying An Insurance Policy**

Procedure of Buying Life Insurance Policy, Procedure of Buying Motor Insurance Policy, Procedure of Buying Fidelity Guarantee Insurance Policy, Procedure of Buying Fire Insurance Policy, Procedure of Buying Marine Insurance Policy.

### **Insurance Documents**

To Enter into a Contract - Proposal Form, Endorsement, Renewal Notice

### **INSURANCE SALESMANSHIP -II**

<b>Time : 3 hrs</b>	<b>PRACTICAL</b>	<b>Marks : 50</b>
<ul style="list-style-type: none"><li>• Visit any branch of National Insurance Company nearby you and draw its organizational structure.</li><li>• Visit any branch of New India Insurance Company nearby you and draw its organizational structure.</li><li>• Visit any branch of United India Insurance Company nearby you and draw its organizational structure.</li><li>• Visit any branch of Birla Sun Life Insurance Company nearby you and draw its organizational structure.</li><li>• Visit any branch of ICICI Prudential Insurance Company nearby you and draw its organizational structure.</li><li>• Visit any branch of Insurance Company (Given in Syllabus) nearby you and fill the proposal forms of different available policies.</li><li>• Visit any branch of Insurance Company (Given in Syllabus) nearby you and fill the claim forms of different available policies.</li><li>• Visit any branch of Insurance Company (Given in Syllabus) nearby you and compare their policies with respect to premium and claim.</li><li>• Visit any Insurance Agent of Insurance Company (Given in Syllabus) nearby you and note down the promotional strategy adopted by him.</li><li>• Visit any branch of Life Insurance Corporation of India nearby you and draw its organizational structure.</li><li>• Visit any branch of insurance company and collect the details regarding distribution channels adopted by them</li><li>• Collect the insurance documents required in buying a policy and make a project report on these documents</li></ul>		

## **(v)TRADE : TAXATION PRACTICE**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-I**

#### **ELEMENTS OF BOOK - KEEPING -II**

#### **THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

#### **Trial Balance**

Meaning, Features, Advantages, Limitations. Preparation of Trial balance.

#### **Bank Reconciliation Statement**

Meaning, Features, Objectives and Need, Reason for Difference in Balance of Cash, Book and Pass Book, Preparation of Bank Reconciliation Statement with Adjusted Cash Book/ Pass Book.

#### **Depreciation**

Meaning, Features, Need, Objective and Causes. Method of Recording Depreciation (Straight line and Diminishing Balance Method Only), Purchase and Sale of Assets including Part of an Asset (Excluding change in method of charging depreciation).

#### **Financial statements (With adjustment)**

Adjustments in Preparation of Financial Statements with respect to Closing Stock, Outstanding Expenses, Prepaid expenses, Accrued Income, Income Received in Advance, Depreciation, Bad debts, Provision for doubtful debts, provision for discount on Debtor, Abnormal loss, Good/ Cash taken for personal use, Interest on Capital and Managers commission, Preparation of Trading and Profit & Loss Account and Balance Sheet of a Sole Proprietorship with Adjustments.

#### **Accounting for Non Profit organization**

Meaning, Features, Specific terms (Subscription, Entrance fees, Donation, Legacy, Endowment Fund, Government Grant, Life Membership Fees, Honorarium, Specific Fund, Investment and Consumable goods), Receipt and Payment Account: Meaning, Features and preparation, Income and Expenditure Account - Meaning, Features and Preparation of Income & Expenditure Account and Balance Sheet from the given Receipt and Payment Account with additional information.

## **Accounting for partnership I**

Meaning of Partnership, Features, Partnership Deed, Provisions Applicable in the Absence of Partnership Deed, Fixed and Fluctuating Capital Accounts, Interest on Capital, Interest on Drawing, Interest on Partner's Loan, Preparation of Profit and Loss Appropriation Account (Division of Profit among partners excluding guarantee of profit), Past Adjustments (relating to Interest on Capital, Interest on Drawing, Salary and Profit sharing ratio only), Change in the Profit Sharing Ratio among the Existing Partners (Calculation of Sacrificing ratio and Gaining ratio only).

## **Accounting for partnership II Goodwill**

Meaning, Features, Factors determining the Valuation of Goodwill, Types of Goodwill, Preparation of Goodwill with average Profits Method.

## **Accounting with Tally**

Use of different types of Voucher in Tally, Alteration in information, Preparation of Final account of a Sole Proprietorship using Tally Software, Generation of Report : Trail Balance, Profit and Loss Account and Balance sheet.

### **ELEMENTS OF BOOK - KEEPING - II**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Prepare a chart showing head of accounts on debit and credit side of trailbalance.
- Visit any firm/ organization nearby you and prepare trail balance from their balance.
- Visit any firm/ organization nearby you and prepare bank reconciliation statement from their cash book and pass book from a month.
- Visit any firm/ organization and note down the methods of depreciation used by them. Comment and justify.
- 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.
- Prepare a detail format of Manufacturing account, Trading and Profit & Loss account and Balance sheet.
- Visit any firm/ organization in your locality and enlist various books of account and various accounts maintained by that firm/ organization.
- Visit any not for profit organization in your locality and enlist its various sources of income and head of expenditure further enlist various accounts and statements prepared by that organization.
- Prepare a chart showing constituents of partnership deed.
- Visit to an organization in which Accounting is done using Tally Software. Prepare a report on various Group (other than default group), ledger Account (other than default Ledger account) and Various Vouchers used. Prepare a Final account of a Sole Proprietor using tally software take printout of Trading Account, Profit & Loss Account and Balance Sheet.

## **TRADE : TAXATION PRACTICE**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-II**

#### **PRINCIPLES OF MANAGEMENT – II**

#### **THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

#### **Management**

Management as Science, as Art, as Profession, Administration and Management, levels of Management, Managerial Skills and Rules, Branches of Management.

#### **Scientific Management**

Meaning, Features, Aims and Objectives of Scientific Management, Principles of Scientific Management, Techniques of Scientific Management.

#### **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, Privatization and Globalization.

#### **Planning**

Steps in Planning Process, How to Make Plans Effective, Type of Plans, Objectives, Policies, Procedures, Methods, Rules Strategies, Programmes and Budgets.

#### **Organization Structure**

Meaning, Developing Organization Structure, Role of Organization Structure, Features of a Good Organization Structure, Forms of Organizational Structure.

#### **Staffing**

Selection Procedure, Type of Tests, Advantages and Disadvantages of Test.

#### **Interview**

Meaning, types and process.

#### **Wage Payment**

Incentive Wage System, Group Incentives and Prerequisites of Good Incentive Plan.

## **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.

### **PRINCIPLES OF MANAGEMENT - II**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Prepare Organizational Structure of any Government/ Private Organization.
- Construct Wage Payment structure in Government/ Banking/ Institution/ Private Industry nearby you.
- Visit Any Company/ Organization in your locality and enlist the leadership styles exhibited by them in day to day life.
- Visit any local Hotel/ Restaurant/ any industry and enlist the components of Business environment affecting that Business Concern.
- 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.
- 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.
- Enlist the selection procedure adopted by any Multinational Company/ Public Sector Undertaking Government Organization for various levels. (Lower level, Middle level, Upper level)

## **TRADE : TAXATION PRACTICE**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-III**

#### **FUNDAMENTALS OF INCOME -TAX - II**

### **THEORY**

**Time : 2 hrs**

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

### **Methods of Taxation**

Schedule of Rates of Tax for Individual, HUF and Firm, Computation of Tax Liability of Individual, H.U.F. and Company.

### **Double Taxation Relief**

Meaning, Provisions Related to Bilateral Relief and unilateral Relief, Objective, advantages and effects of Double Taxation Relief agreements.

### **Avoidance of Tax**

Meaning and Special provisions Relating to Avoidance of Tax.

### **Assessment of Agricultural Income**

Meaning of Agriculture Income, Conditions, Example of Agricultural Income, Meaning and Conditions Related to Partial Integration of Tax, Assessment of Tax by Partial Integration of Tax, Mixed Income.

### **Assessment of Individuals**

Meaning of Individual, profit from Different Organization and Income of Other Person Included in Gross Total Income of Individuals, Assessment of Individual, Provision Related to Share from AOP

### **Assessment of Hindu Undivided Family**

Meaning and Conditions, Residential Status of HUF, Assessment of HUF, Partition of HUF.

### **Assessment of Firms**

Meaning, Features and Assessment of Partnership firm.

### **Income Tax Authorities and their Powers**

Officers Related to Income Tax Authority and Their Appointment, Meaning and Power of CBDT, Assessment Officer and Income Tax Inspector.

## **Procedure of Assessment**

Provision, Procedure, Types and Income Tax Return Forms.

## **Tax Deduction at Sources**

Meaning, Advantages, Importance, Provision Related to TDS.

## **Advance payment of Tax**

Meaning, Who have to Pay, Provision Related to Advance payment of tax.

## **Recovery of Tax and Refund**

Recovery: Meaning, reasons, Methods of Recovery of Tax. Refund:

Meaning , Cases of Refund of Tax.

## **Settlement Commission**

Meaning, Objective, Powers and Rights of Income tax Settlement Commission. Procedure to Settle a Dispute by Income Tax Settlement Commission,

## **Goods and Service Tax**

Meaning, Registrations Process, Document Required and Fees, Penalty.

GST Return: Meaning, Condition of Return File, Type of Return - Regular Scheme and Composition Scheme.

## **Composition Scheme**

Meaning, Conditions, Advantages, Who and How opted, GST Rates Applicable, Filing of Return and Payment of GST

## **FUNDAMENTALS OF INCOME - TAX - II**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Prepare a chart showing income tax rates applicable on different income groups of Different assesses of current Financial Year (FY).
- Preparing a chart showing various deductions U/S 80C of income tax of current Year.
- Visit an Income Tax office and prepare a project report on the working of various sections of Income Tax office.
- Calculate Tax liability of any individual/ H.U.F of your locality who is having both agricultural and non agricultural Income.
- Prepare a Report regarding calculation of rebate in case of receipt of arrear of salary/ pension U/S 89 (I) using imaginary figures.
- Prepare a file of various ITR Forms by downloading from Income Tax website -

WWW.incometaxindia.gov.in

- Visit an organization/ firm in your locality. Prepare a report regarding applicability of income tax provisions on such organization/ firm.
- Download form 26AS of Assesses and check TDS Deducted.
- Practice e-filling ITR of an individual assessee (without Submitting) on www.incometaxindia.gov.in. Print relevant pages and paste these pages in practical file.
- Visit an Sale Tax office and prepare a project report on the working of various sections of sale tax office

#### **(vi)TRADE : IMPORT AND EXPORT MANAGEMENT**

**12<sup>th</sup> VOCATIONAL**

**PAPER-I**

**MANAGEMENT - II**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

##### **Management**

Meaning, Management as Science, as Art, as Profession, Administration and Management, Levels of Management, Managerial Skills and Rules, Branches of Management.

##### **Scientific Management**

Meaning, Features, Aims, Objectives, Principles, Techniques of Scientific Management.

##### **Business Environment**

Meaning, Features, Importance, Components: internal and external, Economic Environment in India, New Economic Policy, Liberalization, Privatization and Globalization.

##### **Planning**

Steps in Planning Process, How to Make Plans Effective, Type of Plans, Meaning of Objectives, Policies, Procedures, Methods, Strategies, Programs and Budgets.

##### **Organisation Structure**

Meaning, Role, Features, Developing Organization Structure, Forms of Organization, Difference between Formal and Informal Organization, Importance of Good Organizational Structure.

##### **Staffing**

Selection Procedure, Type of Tests, Advantages and Disadvantages of Test,

##### **Interview**

Meaning, Objectives of Interviews ,Types of Interviews.

##### **Wage Payment**

Incentive Wage System, Group Incentives and Prerequisites of Good Incentive Plan.

##### **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.

## **MANAGEMENT - II**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Draw organizational chart of any five business organizations by showing levels of its management.
- Draw organizational chart of any five departments of state government.
- Designing and filling up curriculum vitae to apply a post in a company.
- Make a file by collecting advertisement regarding recruitment from news paper magazine and internet etc.
- How to apply for online test.
- Make a report on panning procedure followed in your school.
- Make a project report on motivational techniques adopted by any two govt. or private sector industries to motivate their employees.

## **TRADE : IMPORT AND EXPORT MANAGEMENT**

**12<sup>th</sup> VOCATIONAL**

**PAPER-II**

**TECHNOLOGY AND E-COMMERCE - II**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

### **Internet Technologies**

Meaning of Information Technology, Scope and Advantages of Information Technology, Meaning of Internet, Introduction and History of the Internet, Requirement to Get Connected with Internet, Ways of Internet Connectivity: Modem, Broadband, DSL, Bluetooth etc. Business Application of the Internet.

### **Internet Tools**

e-mail: Meaning, Advantages, Disadvantages of e-mail, Anatomy of e-mail, Opening e-mail Account, Reading, Sending, Deleting e-mail Address, Adding Signature, Attaching Files, Opening Attachments, Managing e-mail Account.

### **e-commerce**

Meaning, Features, Functions, Opportunities of e-commerce in India.

Advantages, Disadvantages, Future, Problems &

### **anking**

Meaning, Advantages, Disadvantages of e-banking, Difference between Traditional Banking and e-banking.

### **Advertisement**

Advertisement through Internet, Advantages of Advertisement through Internet, Social Networking Sites Facebook, Twitter, Orkut, Myspace, etc.

## TECHNOLOGY AND E-COMMERCE -II

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

- Opening e-mail account, communications through e-mail (Reading, Sending, Deleting, Attaching files), managing e-mail account.
- Opening account on Social networking sites (Facebook, Twitter, orkut, etc.) and interaction thereon.
- Download information through internet and save it into computer memory.
- Messaging through Way2sms, SMS Junction, etc.
- Operating net banking.
- How to publish advertisement through internet.

## TRADE : IMPORT AND EXPORT MANAGEMENT

**12<sup>th</sup> VOCATIONAL**

**PAPER-III** **IMPORT MANAGEMENT**  
**THEORY**

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

- Meaning of Indian Import, Types of Foreign Trade, Importance of Foreign Trade, Foreign Trade Policy 2015-20, Potential Items of Import, Potential Items of Import from USA, UK and Gulf Countries, Setting up an Appropriate Business Organization, Choosing Suitable Mode of Operation, Naming the Business.
- Select the Product and Making Effective Business Correspondence, Selecting Overseas Markets, Selecting Buyers, Selecting Channels of Distribution, Negotiating with Buyer. Processing an Import Order, Entering into Import Contract, Import Pricing and Costing.
- Meaning of Indent House, Advantages of Indent House, Obtaining Foreign Currency.
- Registration with Regional Authorities of Director General of Foreign Trade, Registration with Import Promotion Council, Obtaining an Import License and Quota, Obtaining Permanent Account Number (PAN). Import of Samples, Gifts, Sports Goods and Repaired Goods etc., Obtaining an Import License.
- Import Documentation, Indent, Types of Indent, Bill of Lading, Bill of Entry, Letter of Credit, Bill of Sight, Dock Challan, Dock Warrant.

## IMPORT MANAGEMENT

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

- Preparation of bill of lading.
- Filling of bill of entry.
- Enlist the different items of import by India with showing of import data of each item.
- Procedure to apply for PAN through internet.

- Procedure to apply of IEC through internet.
- Visit any financial institution and report about its functioning.
- Prepare a detail list of any five entities engaged in import business in India.

## **(vii) TRADE : CO-OPERATIVE MANAGEMENT**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-I**

#### **BOOK-KEEPING – II**

##### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

### **Trial Balance**

Meaning, Features, Advantages, Limitations, Preparation of Trial Balance with Balance Method only.

### **Bank Reconciliation Statement**

Meaning, Features, Objectives and Need, Reason for Difference in Balance of Cash Book and Pass Book, Preparation of Bank Reconciliation Statement with Adjusted Cash Book / Pass Book.

### **Depreciation**

Meaning, Features, Need, Objective and Causes. Method of Recording Depreciation (Straight Line and Diminishing Balance Method only). Purchase and Sale of Assets Including Part of an Asset. (Excluding Change in Method of Charging Depreciation) **Financial Statements (With Adjustment)**

Adjustments in Preparation of Financial Statements with respect to Closing Stock, Outstanding Expenses, Prepaid Expenses, Accrued Income, Income Received in Advance, Depreciation, Bad Debts, Provision for Doubtful Debts, Provision for Discount on Debtor, Abnormal Loss, Good/ Cash Taken for Personal Use, Interest on Capital and Managers Commission.

Preparation of Trading & Profit and Loss Account and Balance Sheet of a Sole Proprietorship With Adjustments.

### **Accounting for Non Profit Organization**

Meaning, Features, Specific Terms (Subscription, Entrance Fees, Donation, Legacy, Endowment Fund, Government Grant, Life Membership Fees, Honorarium, Specific Fund, Investment and Consumable Goods). Receipt and Payment Account: Meaning, Features and Preparation.

Income And Expenditure Account: Meaning, Features And Preparation of Income and Expenditure Account and Balance Sheet from the Given Receipt and Payment Account with Additional Information.

### **Accounting For Partnership - I**

Meaning of Partnership, Features, Partnership Deed, Provisions Applicable in the Absence of Partnership Deed, Fixed and Fluctuating Capital Accounts, Interest on Capital, Interest on Drawing, Interest on Partner's Loan, Preparation of Profit and Loss Appropriation Account (Division of Profit Among Partners Excluding Guarantee of Profit)

Past Adjustments (Relating to Interest on Capital, Interest on Drawing, Salary and Profit Sharing Ratio Only).

Change in the Profit Sharing Ratio Among the Existing Partners (Calculation of Sacrificing Ratio and Gaining Ratio Only)

### **Accounting For Partnership - II Goodwill**

Meaning Features, Factors Determining the Valuation of Goodwill. Types of Goodwill, Preparation of Goodwill with Average Profits Method.

### **Accounting with Tally**

Use of Different Types of Voucher in Tally, Alteration In Information, Preparation of Final Account of a Sole Proprietorship Using Tally Software.

Generation of Report: Trail Balance, Profit and Loss Account and Balance Sheet.

## **BOOK KEEPING – II**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Prepare a chart showing head of accounts on debit and credit side of trailbalance.
- Visit any firm/ organization nearby you and prepare trail balance from their balance.
- Visit any firm/ organization nearby you and prepare bank reconciliation statement from their cash book and pass book from a month.
- Visit any firm/ organization and note down the methods of depreciation used by them. Comment and justify.
- 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.
- Prepare a detail format of Manufacturing account, Trading and Profit & Loss account and Balance sheet.

- Visit any firm/ organization in your locality and enlist various books of account and various accounts maintained by that firm/ organization.
- Visit any not for profit organization in your locality and enlist its various sources of income and head of expenditure further enlist various accounts and statements prepared by that organization.
- Prepare a chart showing constituents of partnership deed.
- Visit to an organization in which Accounting is done using Tally Software. Prepare a report on various Groups (other than default group), ledger Account (other than default Ledger account) and Various Vouchers used. Prepare a Final account of a Sole Proprietor using tally software take printout of Trading Account, Profit & Loss Account and Balance Sheet.

## **TRADE : CO-OPERATIVE MANAGEMENT**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-II**

#### **APPLICATION OF MANAGEMENT**

#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

### **Management**

Definition of Management, as Noun, as Process, as Activity, as Group, as Discipline, as Science, as Art, as Profession, Characteristics of Management, Importance of Management, Administration and Management, Levels of Management, Fayal's Major Contribution, Managerial Skills And Rules, Branches of Management.

### **Scientific Management**

Meaning, Features, Scope, Aims and Objectives of Scientific Management, Principles of Scientific Management, Techniques of Scientific Management. Benefits of Scientific Management .

### **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, Privatization, Privatization since Industrial Policy 1991, Globalization.

## **Planning**

Meaning, Nature, Importance, Essentials of a Good Plan, Steps in Planning Process, How to Make Plans Effective, Type of Plans, Advantages of Planning, Limitations, Objectives, Policies, Procedures, Methods, Rules, Strategies, Programmes and Budgets. Management by Objectives (MBO)

## **Organization**

Meaning, Features, Nature, Steps ,Objectives, Principles, Developing Organization Structure, Role of Organization Structure, Features of a Good Organization Structure, Types or Forms of Organizational Structure, Importance of Organization, Divisional Structure of Organization ,Delegation.

## **Staffing**

Meaning, Nature, Need, Importance, Process, Recruitment, Selection Procedure, Type of Tests, Advantages and Disadvantages of Test, Interview. Differences Between Recruitment and Selection, Training .

## **Wage Payment**

Factors Influencing Wage Rates, Methods of Wage Payments, Incentive Wage System, Group Incentives and Essentials of a Good Incentive Plan.

## **Directing**

Meaning , Nature, Elements, Importance, Supervision. Meaning of Motivation, Types of Motivation, Importance of Motivation, Nature of Motivation, Theories of Motivation, Techniques to Increase Motivation, Maslow's Needs Hierarchy Theory .

Leadership: Nature of Leadership Features of Leadership, Qualities of a Good Leader, Importance of Leadership Management, Techniques of Effective Leadership. Communication: Meaning, Elements, Process, Need, Importance, Types, Barriers.

## **Controlling**

Definition, Importance, Relation between Planning and Controlling. Steps in the Process of Control

## **APPLICATION OF MANAGEMENT**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Prepare organizational structure of any Government/ Private Organization.
- Construct Wage payment structure in Government/ Banking/ Institution/ Private industry nearby you.
- Visit any Company/ Organization in your locality and enlist the leadership style exhibited by them in day to day life.
- Visit any local Hotel/Restaurant/any Industry and enlist the components of business environment affecting that business concern.
- Prepare a Model chart on Maslow's need Hierarchy theory of Motivation and verify each step by surveying at least 15-20 people from your locality.
- Enlist the Levels of management of any Multinational companies like Sony, LG and Samsung and specify the position and role of executive at each level.
- Prepare the procedure of Recruitment in any Organization
- Enlist the selection procedure adopted by the multinational companies/Public sector undertaking/Government organization for various levels (lower level, middle level, upper level)
- Prepare chart showing Henry Fayal's principles.
- Visit any Organization and draw a chart showing the Leadership functions.

## **TRADE: CO-OPERATIVE MANAGEMENT**

**12<sup>th</sup> VOCATIONAL**

**PAPER-III**

**CO-OPERATIVE MANAGEMENT-II**

**THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

### **Co-operative Agricultural Marketing**

Introduction, Marketing Services, Operations of Marketing Societies, Co-operative Marketing in India, Structure and Organization of Co-operative Marketing. Marketing of Agricultural Produce, National Agricultural Co-operative, Marketing Federation (NAFED),

Linking of Credit with Marketing, Drawbacks of Agricultural Marketing Co-operation, Problems of Agricultural Marketing Co-operatives. Suggestion of All India Rural Credit Review Committee, Differences between and Profit Making Company.

## **Co-operative Storage of Agricultural Produce**

Introduction, Policy on Co-operative Storage and Warehousing, Role of National Co-operative Development Corporation, Cold Storage,

## **Consumer Co-operative Societies**

National Co-operative Consumer's, Federation (NCCF), Organizational Structure of NCCF, State Consumer Co-operative Federation (SCCF) District Consumer Co-operative Wholesale Stores (DCCWS), Primary Consumer Co-operative Stores (PCCSS), Objectives of Consumers Co-operatives, Management of Consumer, Management of Consumer Co-operative, Govt. Support, Features of Consumer Co-operatives, its Problem, Suggestions for Improvement, Future Prospects Role of NCDC

## **Co-operative Housing**

Introduction, Advantages of Co-operative Housing, Types of Housing Co-operatives, Organizational Pattern, Resource, Mobilization, National Co-operative Housing Federation Of India (NCHF) , Co-operative Housing in Rural Areas. Problems Faced by the Housing Co-operatives, Suggestions.

## **Dairy Co-operatives**

Introduction, National Dairy Development Board, Progress of Dairy Co-operatives under Operation Flood Programme, Organizational Structure of Diary Co-operatives, Village Co-operative Dairy Society, District Co-operative Milk Produce, Union, State Co-operative Milk Federation, Problems Faced by Dairy Co-operatives.

## **Co-operative Education And Training:**

Significance of Co-operative Education and Training, Organization Efforts in India.

Co-operative Training Policy, Co-operative Training Structure, Deficiencies of Co-operative Training Programmes, Remedial Measures for Improving the Efficiency of Co-operative Training.

## CO-OPERATIVE MANAGEMENT -II

Time : 3 hrs

### PRACTICAL

Marks : 50

- Visit any co-operative agriculture marketing federation nearby you and prepare a chart showing its structure and aims.
- Visit any co-operative agriculture marketing federation and note down the drawbacks and problems faced by it.
- Visit any co-operative warehouse/cold store nearby you and note down its policies.
- Visit any co-operative consumer nearby you and note down their problems and suggest for their improvement.
- Visit any co-operative housing society and note down its organizational pattern and resource mobilization activities.
- Visit any housing co-operative society and note down their problems and suggest for their improvement.
- Visit any dairy co-operative nearby you and note down their organizational structure.
- Visit any dairy co-operative nearby you and note down problems faced by them.
- Prepare a project report on source of income of housing co-operative societies.
- Enlist the Management of multipurpose agriculture co-operative societies nearby you.

### **III HOME SCIENCE GROUP**

#### **(i)TRADE : FOOD PRESERVATION**

**12<sup>th</sup>VOCATIONAL**

**PAPER-I**

**FOOD PROCESSING**

**THEORY**

**Time : 2 hrs**

**Theory : 30Marks**

**InA : 10Marks**

**Practical : 50 Marks**

**Total : 90Marks**

## **Food Processing**

Definition,Types,Technique, Common Terms used in Food Processing.

### **Unit Operation**

Definition,Types of Unit Operation,General Principles of Food Processing, Small and Large Scale Processing, Sanitation and Hygiene at Food Processing unit.

### **Processing by Heat**

Pasteurization and Sterilization, Preparation of Milk Products- Cheese,Condensed and Evaporated Milk,Whole and Skim Milk Power and Ice Cream, Curd and Yogurt , Difference between Curd and Yogurt, Processing of Vegetable and Fruit by Heat.

### **Canning**

Definition,Types of Technique,General Outlines of Canning Unit Operations - Receiving, Selecting, Weighing, Sorting, Preparing, Blanching, Filling, Exhausting, Seaming, Sterilizing, Cooling, Packing, Labeling, Warehousing & Dispatching, Processing and Canning of Various Seasonal Fruits at Domestic and Commercial Level- Apples, Pears, Mangoes, Papaya and Vegetables Like Beans, Tomatoes, Carrots, Potatoes, and Peas.

### **Can Spoilage**

Spoilage of Canned Fruits and Vegetables, Causes and their Control

### **By-Products**

Utilization of Fruit and Vegetable Waste of Lemon, Orange, Guava, Mangoes, Banana, Grapes, Tomatoes, Peas and Spinach.

### **FOOD PROCESSING**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Washing, sterilizing, disinfecting bottles and cans.
- Pasteurization and sterilization of fruit and vegetable juices in bottles.
- Visit to canning/ bottling unit to observe application of seam checking gauge, micrometer, pressure gauge, vacuum gauge, cut out analysis of can etc.
- Preparation of paneer, cheese, curd, yogurt.
- Preparation of- lassi, flavored milk, ice-cream, butter, ghee, kalakand and condensed milk.
- Canning of mango, pineapple, citrus fruits, papaya, peas, tomato & spinach/saag.
- Utilization of by products in preparation of lemon peel pickle, orange peel marmalade and citrus peel candy.

## **TRADE : FOOD PRESERVATION**

**12<sup>th</sup>VOCATIONAL**

**PAPER-II**

**PLANT MANAGEMENT**

**THEORY**

**Time : 2 hrs**

**Theory : 30Marks**

**InA : 10Marks**

**Practical : 50 Marks**

**Total :90Marks**

### **Factory Layout Plan**

Plant Layout, Selection of Site, Water Supply, Drainage, Labour, Equipment Forward and Backward Linkage, Maintenance of Equipment.

### **Water**

Types, Chemical and Bacteriological Qualities of Water, Management of Water, Impact of Hard Water on Equipment, Food and Containers, Chlorination of Water and its Importance in Food Processing.

### **Detergents and Cleaning Agents**

Types, Uses and Selection of Cleaning Agents for Food Industry, Working with detergents and other Cleaning Agents in a Food Processing Unit, Precautions.

### **Hygiene and Sanitation**

Hygienic Standards for Plant and Staff, Disinfection in a Food Processing Unit and Waste Disposal of Plant.

### **Pests and Rodents**

Detection of Pests and Rodents in a Food Factory, their Effects, Controlling and Elimination of Pests and Rodents in Food unit.

Book Keeping, Balance Sheet and Profit & Loss Analysis.

### **Project Report**

Introduction, Need, Importance and Components of Project Report.

### **Documentation**

Introduction, Types, Need of documentation in Food Industry, Maintaining Documents and Inspection of Raw Material in Food Industry, Methods of Documentation, Store Keeping.

## **PLANT MANAGEMENT**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Visit to a food factory and write report on plant layout.
- Write a project report on setting up of a food factory.
- Write a report on sanitary standards of a food factory.
- Make a chart of Planning layout of food processing unit.
- Determination of hardness of water.
- Practical training to carry out measures for pest control.
- Cleaning and maintenance of equipment.
- Procedure and filling-up of required documents - Loan forms, licenses, electric connections, FPO returns, sales tax returns etc.

## **TRADE : FOOD PRESERVATION**

**PAPER-III**

**12<sup>th</sup>VOCATIONAL**  
**FOOD PACKAGING**  
**THEORY**

**Time : 2 hrs**

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

### **Food Packaging**

Introduction, Definition, Importance of Packaging of Food, Modes and Economic Properties, Advantages and Disadvantages and scope of food Packaging.

### **Packing Materials**

Origin, Types – Traditional and Modern, Properties, Economical Status and Eco Friendly Packaging Materials.

### **Modern Packaging Materials**

Introduction, Availability, Utility and Recycling of - O.T.S. Cans, Bottles, P.V.C. L.D.P.E., H.D.P.E., Laminators, Retort Pouch, Pet Bottles, Glass.

### **Paper Packaging**

Introduction, Types, Uses, Limitations of - Butter Paper, Wax Paper, Cellophane Paper, Brown Paper, Plastic Films, Aluminum Foils, Poly Coated Paper and Laminations.

### **Disposable Packaging**

Introduction, Meaning, Uses and Economical Status of Retort Pouch (Boil in Pouch), Tetra Pack, Flexible Laminate and Poly Pack, Limitations of Different Disposable Packaging Material, Permeability of Oxygen and Moisture.

### **Modern Food Packaging**

Introduction and Uses of - Edible Packaging, Aerosol Packaging, Skin Packs, Blister Packs.

### **Crushing Material**

Wood Shearing, Paper Shearing, Thermocols, Corrugated Boards- Importance, Criteria for Selection.

## **Wooden Packaging**

Introduction, History, Uses, Advantages and Disadvantages of Wooden Containers in Food Processing Industry, their Replacements with Changing Situations.

## **Sealing Material**

Types of Strips, Seals, Veils, Wad and Closures for Local and Export Markets.

### **FOOD PACKAGING**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Make a report on packaging of foods in food industry.
- Market survey of packing materials availability.
- Preparation of a scrap book with samples of different packaging materials.
- Suitability of butter paper, wax paper, cellophane and other papers.
- Measurements of closure caps, wad and their identifications.
- Exhibition of food products at production centres.
- 3D presentation of primary, secondary and tertiary food packaging.

### **(ii)TRADE : GARMENT MAKING**

#### **12<sup>th</sup> VOCATIONAL**

**PAPER-I**

**DRESS MAKING**

#### **THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90 Marks**

## **Fashion**

Origin - Costumes From Medieval to Modern Period Sultanate Period, Mughal Period, Pre - British & British Period, Post Independence Period - Modern Period, Fashion - Definition

and Related Terminology - Style, Hi-Style, Classic, Fads, Chic etc, High Fashion, Mass Fashion, Knock Off, Design, Factors Favouring and Retarding Fashion, Fashion Cycle and its Stages - Introduction, Rise/ Increase in Popularity, Culmination/ Peak of Popularity, Decline in Popularity, Obsolescence/ Rejection of Style, Principles of Fashion, Costumes For Males and Females of Different States: Punjab, Rajasthan, Himachal Pradesh, Jammu and Kashmir, Maharashtra.

### **Fashion Designer**

Role of Fashion and Fashion Designer in The Garment Industry, Nature of Work of Fashion Designer, Types of Designers in Garment Industry, Industrial Designer, Graphic Designer, Textile Designer.

### **Silhouette**

Types and Knowledge of Current Silhouettes - A-Line, Ball-Gown, Empire, Sheath, Mermaid, Tulip, Slim, Pencil.

### **Special Dress Designs**

For Children and Adults with Special Emphasis on - Sleeves - Plain, Puff, Cap, Leg -O- Mutton, Bishop, Bell, Cowl, Raglan, Dolman, Petal, Kimono, Drop Shoulder, Cuffs - Band, Shaped Band, Cuff With Buttons, Elasticated, Draw-String, Cuff With Piping, Collars - Peter Pan, Sailor, Nehru/ Chinese, Bishop, Rippled, Shawl, Shirt, Convertible, Flat, Coat, Pockets - Patch, Cross, Kurta, Slit, Flap, Yokes - Rectangular, Round, Triangular, Square, U - Shaped, Saddle, Pointed, Asymmetrical.

### **Fitting Method**

Fitting Trial, Elements of Fitting, Types of Fitting - Trial Fitting & Final Fitting, Reasons of Wrong Fitting.

### **Traditional Embroideries**

Phulkari, Kasida, Chickan-Kari, Kantha, Dasuti, Kashmiri, Sindhi, Kutch and Chamba Rumaal.

### **Try Room**

Introduction and Advantages.

### **Wardrobe Planning**

How to Plan a Wardrobe for Different Activities and Life Styles.

### **DRESS MAKING**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Designing, drafting, layout, cutting, stitching, rectification and finishing of – Bu-Shirt, Salwaar - simple, Patiala, Kalidaar Kurta, Churidaar pyjami, Pant - cut Pyjama, Plazzo,

Ladies' Shirt, Blouse, Shirt top, Petticoat - four panel & six panel, Nighty, Party wear Dress (any style).

- Fitting - General fitting problems and their remedial measures.
- Ironing, folding and packing of finished garments/ fabrics according to size and design. Making gift packs with special emphasis to display the design/ features of the garments/ fabrics.
- Embroidery file - Samples of different embroideries (as mentioned in the theory) and other embellishments prevalent.
- Design and stitch one traditional costume of any one state using innovative traditional embroidery stitches and techniques on the garments designed and stitched.
- Prepare any one article (home furnishing) or garment using any five embroidery stitche

## **TRADE : GARMENT MAKING**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-II**

#### **COMMERCIAL CLOTHING**

#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

#### **Measurements**

Calculation of Standard Body Measurements from Chest/ Bust and Height Measurement - Children, Women and Men.

#### **Pattern Grading**

Importance and Methods, types of Pattern Grade, Terminology Related to Pattern Grading.

#### **Special Equipments**

Knowledge and use of Special Equipments for Button Hole Making, Buttoning, Overlocking, Embroidery, Pico, Eyelet, Embroidery Stitches and Button Covering, Introduction to Advanced Electrical Sewing Machines - Double Needle Machine, Fusing Machine, Bartack Machine, Disc Machine, Cord Machine, Zig Zag Stitch Machine.

#### **Estimation**

Estimation of - Fabric, Length of Lay, Raw Material and Accessories according to Design, Sizes, Order Size and Other Criteria, Points to Be considered while Estimation of Fabric, Raw Materials and Accessories, Make Estimations for A-Line Frock, Gathered Frock, Blouse, Ladies Shirt, Salwaar, Churidaar Pyjami, Nighty, Bushirt, Pant, Kalidaar Kurta, Pant - Cut Pyjama.

#### **Commercial (Bulk) Production**

Study of Processes and Stages of Commercial (Bulk) Production - Laying, Marking, Cutting, Fusing, Ticketing, Assembling and Distribution of Components, Stitching,

Assembling of Garments, Finishing of Raw Edges, Checking, Laundering, Ironing, Folding and Packing.

### **Finishing and Quality Control**

Checking at Various Stages, Purchases of Raw Material and Accessories, Drafting, Cutting, Stitching, Laundering, Finishing, Packing.

### **Sale Promotion Techniques**

Exhibitions, Displays - Window and Interior, Advertisements, Fashion Shows, Discount Sales, Sample Portfolio, Free Distribution of Samples, Coupons, Public Relations.

### **Readymade Garments**

Importance, Selection and Evaluation for - Appearance, Workmanship, Fabric, Cost, Merits and Demerits of Readymade Garments over Tailor Made/ Home Made Garments.

## **COMMERCIAL CLOTHING**

<b>Time: 3 hrs</b>	<b>PRACTICAL</b>	<b>Marks : 50</b>
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- Drafting of men's shirt & trouser.
- Drafting of formal ladies suit.
- Drafting of designed blouse, nighty - gown.
- Drafting of sleeves - puff, ruffle, cap, petal, magyar, flared.
- Drafting of collars - peterpan, cape, baby, Chinese, flat tennis, coat.
- Designing of home textiles products - pillow cover, cushion cover, bag, tray mat, dinning tale mat, table runner etc.
- Adjustment of pattern according to various body shapes e.g. Full bust, flat bust, steeping shoulders etc.
- Computerized/ manual grading of pattern one size up and one size below (for children, women and men).
- Costing of the finished garment: simple and fancy.
- Taking orders from the market for two garments each for men, women or children, and one from home textile products.

- Exercises in estimation of – fabric, length of lay, raw material and accessories according to design, size, order size and other criteria.
- Planning & organization of exhibitions, display, fashion shows, etc.
- Visit to commercial unit to observe stages of commercial production of garments.
- Prepare a pocket file of drafting with actual size garments (any six).
- Designing, drafting, pattern making, lay-out and cost estimation of any one women garment.

## **TRADE : GARMENT MAKING**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-III**

#### **UNIT MANAGEMENT**

#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

### **Unit Establishment**

Selection of Site for Factory Building/ Shop Personnel Requirement, Equipment Requirements, Raw Materials Procurement and Complete Budgetary Requirements.

### **Lay - Out Plans**

Efficient and Smooth Working of Units, Effective and Maximum Utilization of Space Available, Emphasis on Safety Measures: Cleaning and Safety Precautions for Self Protection, Causes and Prevention of Fire, Safety Precautions for Theft, Safety Precautions in Case of Natural Calamities e.g. Lightening, Rain, Earthquake etc, First Aid.

### **Care and Maintenance**

Care and Maintenance of Equipment and Machines, Effective Storage of Raw Material, Knowledge regarding the Working of a Garment Manufacturer/ Export Industry and the

Job Responsibility of the Persons Employed at different Levels, Knowledge and Management of Records Prevalent in the Garment Industry.

## **Merchandising**

Meaning and Types of Merchandise, Role of a Merchandiser in Garment Industry.

## **Terminology**

Industrial Raw Material, Tools and Equipments, Machinery, Personnel Management, Marketing, Franchise.

## **Job Prospects in Garment Industry.**

### **Retail Management**

Introduction, Importance and Scope

#### **Quality Control**

Meaning and benefits of Quality Control

#### **Inspection**

Introduction, Need and Role of Inspector in Garment Industry.

## **UNIT MANAGEMENT**

<b>Time: 3 hrs</b>	<b>PRACTICAL</b>	<b>Marks : 50</b>
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- Lay - out plans for factory.
- Lay - out plans for shops - traditional and modern.
- Lay - out plans for interior for the same.
- Using various cleaning agents and techniques for maintenance of various types of equipments in the unit.
- Different methods of storage for different types of garments.
- Visit to different related industries and reporting regarding lay-out, equipments, safety, storage and personnel etc.
  - Make a file with details of – (a) History of sewing machine. (b) Different types of advanced sewing machines used in garment industry.

**(iii) TRADE :  
TEXTILE  
DESIGNING 12<sup>th</sup>  
VOCATIONAL  
TEXTILE TESTING AND FINISHING**

## PAPER-I

## THEORY

Time : 2 Hrs

### Theory : 30 Marks

**InA : 10 Marks**

### **Practical : 50 Marks**

Total : 90Marks

- Water: Types and Uses in Textile Industry.
- Hard Water: Types of Hardness, Methods of Removing of Hardness of Water.
- Dis-Advantages of Hard Water on Boiler Stage, Pre Treatment, Dyeing/Printing, after Treatment (Printing, Finishing) Stages.
- Study of Various Kinds of Advanced Finishing Processes used in Textiles - Shearing, Raising, Decatizing, Sanforization. Mercerisation, Starching, Weightening Finish, Crease, Resistance, Calendering, Anti-Static their Importance and Uses.
- Study of Various Kinds of Finishing Process used in Textile- Fire Resist and Fire Proof Finish, Mildew Proof Finish, Moth Proof Finish, Water Proof Finish and Water Resist their Importance and Uses.
- Introduction to Dry and Wet Cleaning their Importance and Uses.
- Detailed Study of Spray Gun Machine, Vacuum Cleaner and Brushing Machine used for Dry Cleaning and Washing of Different Textiles.
- Detailed Study of Various Types Wet Cleaning Washing Machine(Rope Form,Open Width)
- Uses and Importance of Stenter Machine for Drying and Heat-Setting for Polyester.
- Cleaning of Carpets, Galicha, Sofa Sets and Wall Hangings.
- Quality Inspection of Unevenness and Strength Defects in Finished Goods
- Folding and Packing of the Finished Articles

## **TEXTILE TESTING AND FINISHING**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Detailed study of textiles fibres (by physical and chemicals methods) to identify the dye applicable to the given fibre.
- Qualitative and quantitative analysis of different blends-terry-cot, terry-wool, terry- viscose, cots-wool, cotton, cashmilon.
- Practice of dry cleaning woolen garments.
- Practice of wet cleaning.
- Practice of testing shrinkage of cotton.
- Colour fastness testing with grey scale.(light ,washing, rubbing).
- Practice of cleaning of cusion chairs.

**TRADE : TEXTILE  
DESIGNING 12<sup>th</sup>  
VOCATIONAL**

**PAPER-II**

**TEXTILE DESIGNING AND PRINTING - II**

**THEORY**

**Time : 2 Hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

- 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 and Dye and Chemical Resist Printing.
- Introduction to Digital Printing.
- Printing of Cotton Fabric using Direct Dyes, Rapid Fast Dyes, Reactive Dyes with Direct Style.
- Printing of Synthetic and Blended Fabrics with Pigment Colours, Disperse and Reactive Dyes.
- Printing Machinery: Flat Bed, Rotary and Roller Printing Machine, their Operations, Techniques, Advantages and Disadvantages.
- Making of Screens by Direct and Photographic Method and Printing with Screen on Various Textiles.
- After Treatment Given to Printed Textile Fabric -Drying, Steaming, Ageing and Washing.
- Machine used for after Treatment for Printing Fabric. Stenter M/C, Steamer, StarAger, Pressure Ager, Tumble Dryer Washing Machines.
- Introduction to Computer Aided Designing.
- Introduction to Computer Colour Matching.

## **TEXTILE DESIGNING AND PRINTING -II**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Practice of printing cotton fabric with batikstyle.
- Practice of chemical resist printing style on cottonfabric.
- Practice of tie and dye techniques for cotton fabric printing.
- Practice of printing direct dyes on cotton fabric with block, screen and spray printing method.
- Practice of printing rapid fast dyes on cotton fabric with block, screen and spray printing method.
- Preparation of screen for printing textile articles and material.
- Practice of printing a blended fabric-blended, terry-cot, cots-wool, with pigment colours with screen printing using different colours.
- One article to be worked out with a combination of two or more techniques e.g. tie and dye and block-printing; batik and fabric printing; spray and screen printing.
- Making printing designs with computer techniques/ aides.
- Make any one printed article using Tie and dye/ Block printing/ Spray printing/ Screen printing

**PAPER-III**

**TRADE :  
TEXTILE  
DESIGNING 12<sup>th</sup>  
VOCATIONAL  
TEXTILE DYEING -II**

**THEORY**

**Time : 2 Hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

- Scouring and Bleaching of Acetate Rayon, and Acrylic (Cashmilon), Cotton, Silk, Wool.
- Dyeing of Polyester with Disperse Dyes using Conventional Carrier and High Temperature/High Pressure Method.
- Properties and Applications of Basic Dyes on Cashmilon.
- Dyeing of Nylon with Acid Dyes and Direct Dyes.
- Application of Direct Dyes on Viscose.
- Dyeing of Blended Yarn (Poly/Wool, Terrycot) with Disperse Dye, Acid and Reactive Dye in Double Bath.
- Dyeing of Blended Yarn (Poly/Wool, Terrycot) with Disperse Dye, Acid and Reactive Dye in Single Bath.
- 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, Continuous Dyeing Range (CDR) Machine.
- Types of Hydroextractor used for Fibre, Fabric and Yarn.
- Radio-Frequency (R/F) Dryer for Yarn/Fibre.
- Reduction Cleaning (R/C) for Polyester.
- Introduction to Effluent Treatment Plant (ETP) Unit.

**TEXTILE DYEING -II**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Practice of scouring and bleaching of acrylic, viscose and terrycot.
- Practice of dyeing of polyester with disperse dyes using carrier method.
- Practice of dyeing cashmilon with basic dyes.
- Practice of dyeing nylon with acid and direct dyes.
- Practice of dyeing terrycot.
- Practice of matching shades with direct dyes.
- Prepare shade cards of primary colours with white colour.

## (iv)TRADE : TEXTILE WEAVING

### 12<sup>th</sup> VOCATIONAL

#### PAPER-I

#### FABRIC STRUCTURE AND DESIGNING

#### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

- 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, Honey Comb Weave.
- Weaving Defects and their Remedies, Defects - Broken ends, Miss Pick, Reed Effect, Double End, Float, Crack, Oil Stains, Temple Marks.
- Identification of Face and Back of Cloth, Warp and Weft.
- Cloth Analysis - Importance, Instructions, Procedure and Introduction.
- Introduction to Computer Aided Designing.
- Colour - Theory of Colour, Qualities of Colours, Colour Wheel, Colour Schemes, Psychological Impact of Colours and Factors Affecting Choice of Colours.
- Counting Glass – Definition, Introduction, Importance and Uses.
- Introduction to Indian Traditional Textile - Phulkari, Kullu Shawls, Chickenkari Work, Kashmiri Embroidery, Pashmina.

## FABRIC STRUCTURE AND DESIGNING

Time: 3 hrs

PRACTICAL

Marks : 50

- Preparation of warp, drafting, denting and drawing for plain, twill, mockleno, Bedford- cord and huck-a-back weaves on the power loom.
- Analysis of cotton, silk and worsted cloth samples with different weaves and patterns.
- Removal of cloth defects on the loom.
- Prepare a scrap file of cloth defects by collecting sample from market/ cloth shops.
- Introduction to computer aided designing.
- Colour - Wheel, tins and tones, combinations and schemes.
- Sketching of floral and geometrical motifs.
- Practice of counting glass for analysis of cloth.
- Visit to Museums, Art galleries, Craft Meals and report writing of the craft appraisal.
- Prepare minimum five design samples of 2/2 twill weave, Satin and Sateen on a frame of wooden frame 2x2 feet or on Graph Papers.

## TRADE : TEXTILE WEAVING

### 12<sup>th</sup> VOCATIONAL

#### PAPER-II

#### TEXTILE TESTING AND DYEING

#### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

- Importance and Objects of Textile Testing and Quality Control.
- Introduction to ISO 9000 (International Standards Organization) and TQM(Total Quality Management ) Concept.
- Define Fibre, Fineness, Fibre Length, Fibre Maturity, Moisture Content in Fibres and Humidity.
- 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.
- Chemical Testing for Damage to Cellulose and Animal Fibres, Colour Fastness to Washing, Sunlight, Rubbing, Bleaching and Crocking.
- Quantitative and Qualitative Analysis of Blends - Terricot, Terrywool, Viscos and Cots wool.
- Preparation of Material Before Dyeing i.e. Scouring, Boiling, Washing, Bleaching.
- 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 Suitability.
- Dyeing of Silk and Wool By Chrome and Procian Dyes, Dyeing of Polyester by Disperse Dyes.

## TEXTILE TESTING AND DYEING

Time: 3 hrs

PRACTICAL

Marks : 50

- Find the yarn count of given piece of cloth by Besseley's balance and by physical balance.
- Find the crease resistance angle of a given sample.
- Find the shrinkage percentage of a given sample.
- Find percentage of different fibres from a given sample.
- Preliminary treatment to cotton & woolen cloth or yarn before dyeing.
- Practice of sample dyeing on cotton yarn/ fabric with direct, vat, azoic and reactive dyes.
- Practice of sample dyeing on woolen yarns/ fabric with acid and reactive dyes.
- Practice of sample dyeing on silk and wool with chrome and procian dyes.
- Practice of sample dyeing on polyester with disperse dyes.
- Collect the samples of dyed clothes from market.

## TRADE : TEXTILE WEAVING

### 12<sup>th</sup> VOCATIONAL

#### PAPER-III

#### POWERLOOM MECHANICS & OPERATIONS

##### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

- History of Loom.
- Introduction to Parts of Power Loom and their Functioning, Types of Power Looms - Air Jet, Water Jet, Dornier, Automatic, Shuttle less and Computerized Looms.
- Passage of Warp on Power Loom Detail Study with Sketch.
- Timing and Working of Power Loom.
- Introduction to Different Types of Dobbies - Knowles' Positive Dobby, Negative Dobby, Single Chain, Double Chain and Hetter Sley.
- Introduction to Different Types of Jacquards - Single Cylinder, Single Lift Jacquard, Double Cylinder, Double Lift Jacquard.
- Introduction to Temple, Types of Temples and their uses.
- Different Motions of the Power Looms : Primary - Shedding, Pickling & Beating Up, Secondary - Taking Up and Letting Off, Auxiliary - Warp Stop Motion, Weft Fork Motion, Loose Reed Motion, Fast Reed Motion.
- Checking of Power Looms Before Operation and General Precautions.
- Maintenance Steps of Power Loom for Efficient Working.
- Making of Lattice and Pegging According to the Design of the Cloth to be Woven on a Dobby Power Loom.

- Sketching of Design on Graph Paper, Card Punching and Lacing to Make a Chain for the Jacquard, Introduction to Piano Cards Cutting Machine.

### **POWERLOOM MECHANICS & OPERATIONS**

<b>Time: 3 hrs</b>	<b>PRACTICAL</b>	<b>Marks : 50</b>
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- Identification of different parts of power loom.
- To prepare lattice as per given design or sample.
- To prepare chain for the jacquard as per given design.
- Draw outline of warp Gaiting up procedure.
- Creation of design using CAM (computer aided manufacturing) - strip pattern and check pattern.
- Draw patterns of NED Graphics.
- Make a file showing different parts of loom.
- Practice of weaving of cloth on plain, dobby and jacquard loom.
- Visit to reputed power loom industry, on the job experience and report writing for the same.

### **(v)TRADE : KNITTING**

#### **12<sup>th</sup> VOCATIONAL**

<b>PAPER-I</b>	<b>TEXTILE YARN CALCULATIONS AND GARMENT MAKING</b>
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#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

- **Definition of Count, Indirect System and Direct System of Yarn Count, Weight and Length Measure Chart for Different Systems.**
- Formulas for Production Calculation of Knitting Machines.
- Calculation to Find Gauge of Circular Knitting Machine and Flat Knitting Machine.
- How to find Courses and Wales per Inch/Stitch Density/Yarn Crimp.
- Brief Explanation of Machines used for Sewing Knitted Garments. (Over Lock, Flat Lock, Sewing Machine Etc.)
- Different Types of Garments Made from Knitted Fabrics.
- Different Sizes Charts of Garments.

- Brief Introduction of Taxes on Knitting Yarn and Hosiery Products.
- Profit and Loss Calculation Regarding Hosiery Products.
- How to Calculate the Cost Price of Finished Products.

**TEXTILE YARN CALCULATIONS AND  
GARMENT MAKING**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Adjustment of the knives of the over lock machine.
- Identification and functioning of different parts of over lock machine.
- Adjustment of the needle of over lock machine.
- Adjustment of the loops of the over lock machine.
- Method of calculation cost per piece in knitting industry.
- Drafting of Pull-over, Slipover, Cardigan and undergarments (Vests and Under-wears).
- Cutting and making of V-neck slip-over.
- Cutting and making of pull-over.
- Cutting and making of half-sleeve vest.
- Board pressing of knitted garments.
- Mending, pressing, labeling, folding and packing of finished product.

## TRADE : KNITTING

### 12<sup>th</sup> VOCATIONAL

#### PAPER-II

#### CIRCULAR KNITTING

#### THEORY

Time : 2 hrs

Theory : 30 Marks  
InA : 10 Marks  
Practical : 50 Marks  
Total : 90Marks

- Classification of Circular Weft Knitting Machine.
- Different Parts of Circular Knitting Machine and their Functions.
- Effects of Good Winding in Knitting and Importance of Lubrication in Knitting Industry.
- Different Types of Sinkers and their explanation with Diagram.
- Knitting Movements of Latch Needle and its synchronization with other loop forming knitting element.
- Cam Set of Simple Circular Knitting Machine.
- Explain Jacquard design in Knitting.
- Different Mechanism of Jacquard Designing (Wheel, Drum, Electronics)
- Explanation of Pattern Wheel Mechanism with Diagram.
- Difference Between Auto Stripper and Feeder Stripper Circular Knitting Machine.
- Introduction of Auto Stripper Circular Knitting Machine.
- Introduction of Two Track and Four Track Circular Knitting Machines.
- Importance and applications of Software for Knitting Graphic Designing.

#### CIRCULAR KNITTING

Time : 3 hrs

#### PRACTICAL

Marks : 50

- Identification of cams from a cam-system of a circular knitting machine.
- Formation of welt on a circular knitting machine.
- Dissembling and assembling of cam set/system.
- Jobbing-on and running on operations.
- Setting of stitch-length for stitch/loop setting.
- Transferring of loop stitch from one needle to another needle.
- Adjustment of centre and timing of dial and cylinder.
- Threading of yarn from bobbin stand/creel to yarn feeder and guide.
- Calculation of the designing area of two/four pattern wheel circular machine.
- Drafting of design on graph paper.
- Filling of bits in pattern wheels according to design.
- Setting of pattern wheels with cylinder and knitting a designed fabric.

- How to use machine tools for computerized knitting machines.
- Create graphic design on computer in ms paint software (bmp file)

## TRADE : KNITTING

### 12<sup>th</sup> VOCATIONAL

#### **PAPER-III**

#### **FASHIONED KNITWEAR**

#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

- Identification and Functions of Different Parts of Hand Flat Jacquard Knitting Machine.
- Operation of Hand Flat Jacquard Knitting Machine.
- Producing a Plain Knitted Fabric (Single Bed) on Hand Flat Jacquard Knitting Machine.
- Producing a 1x1 and 2x2 Rib on Hand Flat Jacquard Knitting Machine.
- Explain with Diagram the Loop-Formation of Latch-Needle on Hand Flat Jacquard Knitting Machine.
- Explain with Diagram the Tuck Formation of Latch-Needle on Hand Flat Jacquard Knitting Machine.
- Explain with Diagram the Cam Set of Hand Flat Jacquard Knitting Machine.
- Types of Knitted Fabric Produced on a Hand Flat Jacquard Knitting Machine.
  - Knitting of Fashion Garments
  - Narrowing
  - Widening
- Automation in Knitting Machines.
- Importance and application of Software for Knitting Graphic Designing.
- Introduction of Different Kind of Computerized Flat Knitting Machines.
  - Stoll Computerized Flat Knitting Machine.
  - Sheima Computerized Flat Knitting Machine.
  - Steiger Computerized Flat Knitting Machine.
  - Universal Computerized Flat Knitting Machine Etc.
- BMP Design Conversion Into Different Types of Software According to the Knitting Machine used.

## FASHIONED KNITWEAR

Time : 3 hrs

PRACTICAL

Marks : 50

- Identification and functions of different parts of Hand Flat Jacquard Knitting Machine.
- Dissembling and assembling of the parts of Hand Flat Jacquard Knitting Machine.
- Jobbing-On operation, Running-On operation and winding off operation.
- Starting sequence of the machine.
- Plain Knitting 1x 1 rib and 2 x 2 rib on hand flat machine.
- Adjustment of Stitch-cam for stitch setting.
- Adjustment of Brushes and Yarn Guides.
- Producing (i) Decca-Design (ii) Rack-Design. (iii) Jacquard-Design, (iv) Tuck-Design.
- Knitting-(i) Half cardigan (ribs) (ii) Full cardigan (ribs).
- Knitting-(i) Pull-over (ii) Slip-over.
- Use of machine tools for computerized Flat knitting machines.
- Graphic Designing on computer, create BMP (bitmap image file).
- BMP Design conversion into different types of Software according to the knitting machine used.

## IV ENGINEERING & TECHNOLOGY GROUP

### (i)TRADE : ELECTRICAL 12<sup>th</sup> VOCATIONAL

PAPER-I

ELEMENTS OF ELECTRICAL TECHNOLOGY

#### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

### Transformer

Working Principles, Constructions, Types of Transformer - Step Up and Step Down, Rating and Applications of Different Types of Transformer, Voltage and Current Transformer, Autotransformer, Rewinding of Transformers, Introduction to a Welding Transformer, Study of Star Connection and Delta Connection with Simple Derivation related to above Contents.

#### D.C. Motors

Constructions, Working Principles, Types of Motors - Series, Shunt, Compound and Applications of Different Types of Motors (Fractional Horse Power), Starting methods and need of Starters, 3 point Starters for D.C. Motors, Speed Control method and Speed Reverse Method of D.C. Motor, Common Faults, Their Causes, Testing and Repair (No Derivation).

### A.C. Motor (Single Phase)

Constructions, Working Principles, Types of A.C. Motors - Induction Motor (Split Phase and Repulsion Start), Capacitor Motor, Shaded Pole Motor, Universal Motor, Special Characteristics, and Applications of Different Types of Fractional Horse Power Motors, Rotation, Reversal and Speed Control of A.C. Motors, Installation of A.C. Motors, Common Faults and Causes, Testing and Repairs.

### Diodes

Types of Diodes, its symbols, Working and its V-I Characteristics of Diodes, Specifications and Ratings, Diode as Rectifier its types (Half wave and full wave), Zener diode and L.E.D.

### Power

Generation, Transmission and Distribution of Electrical Power, Sources of Electricity, Study of Hydro, Thermal, Diesel, Nuclear Power Plants, Introduction, Types of Substation, Types of Poles, Span, Classification of Cables As Per Voltage.

## **ELEMENTS OF ELECTRICAL TECHNOLOGY**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- To test and repair a defective cycle dynamo.
- Measurement of resistance of series, shunt field and armature and identification of terminals by multimeter.
- Measurement of insulation resistance of armature and field.
- Testing, fault finding and repair of a D.C. motor.
- Overhauling of a D.C. motor.
- Dismantling, studying and reassembling of a D.C. motor starters.
- To study D.C. series motor, its running, speed control, reversing rotation, measurement of current, voltage and speed.
- To study D.C. shunt motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
- To study D.C. compound motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
- To study D.C. universal motor, its running, speed control, and reversing rotation, measurement of current, voltage and speed.
- Identification of semi conductor diodes.
- Characteristics of diode.
- To observe the input and output wave shape of a half-wave rectifier circuit with and without filter Using CRO.
- To observe the input and output wave shape of a Full-wave rectifier circuit with and without filter Using CRO.
- To observe the input and output wave shape of a bridge rectifier circuit with and without filter Using CRO.
- To Study the connections of - Voltage transformer, Current transformer, Auto-transformer.
- Dismantling, studying and reassembling of an A.C. motor.
- Overhauling of an A.C. Motor.
- Dismantling, studying and reassembling of an A.C. motor starters.
- Testing, fault finding and repairing of an A.C. motor starters.
- Connecting, starting, running and reversing of an induction moto(Split phase/repulsion Start).

- Connecting, starting, running and reversing of an capacitor motor.
- Connecting, starting, running and reversing of a shaded pole motor.
- Connecting, starting, running and reversing of an A.C. universal motor.
- Study of different types of cables.

**TRADE :  
ELECTRICAL  
12<sup>th</sup>  
VOCATIONAL**

**PAPER-II**

**ELECTRICAL DOMESTIC APPLIANCES - II**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

**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 and Causes, Testing and Repairs, Installation of Bracket Fan and Exhaust Fan.

**Electric Mixer**

Constructions, Working Principles, Special Characteristics and Applications of Electric Mixer, Common Faults and Causes, Testing and Repairs, Servicing, Maintenance and Overhauling of Electric Mixer.

**Electric Washing Machines**

Constructions, Working Principles, Special Features and Applications of Different Types of Washing Machines, Common Faults and Causes, Testing and Repairs, Servicing, Maintenance and Overhauling of Washing Machines.

**Hair Dryer**

Construction and Working Principles of Hair Dryer, Common Faults and Causes, Testing and Repair.

**Room Cooler**

Construction and Working Details of Room Cooler, Common Faults and Causes, Testing and Repair, Installation of Room Cooler.

**Vacuum Cleaner**

Construction and Working Principles of Vacuum Cleaner, Common Faults and Causes, Testing and Repair.

**A.C. Voltage Stabilizer (Manual)**

Construction, Working Principles of Stabilizer, Common Faults and Causes, Testing and Repair.

## **Electric Hand Drill**

Construction and Working Principles of Electric Hand Drill, Common Faults and Causes, Testing and Repair.

## **Battery Charger**

Construction, Working, Common Faults and Causes, Testing and Repair, Specifications of a Battery Charger.

## **Fire Alarm**

Construction and Working Principles of Fire Alarm, Common Faults and Causes, Testing and Repair.

# **ELECTRICAL DOMESTIC APPLIANCES - II**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Testing, fault finding, repairing and overhauling electric fans.
- Testing, fault finding, repairing and overhauling electric mixer.
- Testing, fault finding, repairing and overhauling washing machine.
- Testing, fault finding, repairing and overhauling hair dryer.
- Testing, fault finding, repairing and overhauling room cooler.
- Testing, fault finding, repairing and overhauling vacuum cleaner.
- Testing, fault finding, repairing and overhauling voltage stabilizer (manual).
- Testing, fault finding, repairing and overhauling electric hand drill.
- Testing, fault finding, repairing and overhauling fire alarm.

**TRADE :  
ELECTRICAL  
12<sup>th</sup>  
VOCATIONAL**

**PAPER-III**

**MATERIALS & WORKSHOP PRACTICE - II**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

**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.

**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, Up keeping of Testing Laboratory.

**Repairing Shop**

Tools, Machines, Equipment and Instruments required for Repairing Shop, their Working and use, Planning, Layout and Setting of Repairing Shop, Rules and Methods of Repairing, Servicing and Overhauling Domestic Appliances, Safety Precautions and Measures in Repairing Shop, Up keeping of Repairing Shop.

**Winding Shop**

Tools, Machines, Equipment and Instruments required for Winding Shop, their Working and use, Planning, Layout and Setting of a Winding Shop, Safety Precautions and Measures in Winding Shop, Up keeping of Winding Shop.

**Estimating, Costing and Billing**

Elements of Estimation, Quantity and Specifications of required Materials, Knowledge of Waste and Extra Material Requirement, Performa for Estimation, Elements of Costing - Market Value of Materials, Labor Cost, Production Cost, Overhead Cost, Profit and Total Cost, Method of Costing, Costing Performa, Billing Methods and Terms of Payments.

## **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, Tariff, Estimation of a Bimonthly Electricity Bill.

## **MATERIALS & WORKSHOP PRACTICE - II**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Drawing layout of - Assembly shop, Testing laboratory, Repairing shop, Winding shop.
- Practice for making a card-board bobbin/ former.
- Practice for assembly of domestic appliances.
- Rotor winding of motor used in electric mixer.
- Estimating repairing, service and overhauling of domestic appliances, it's costing and billing.
- Study of a given project report.
- Preparation of a test report.
- Study of an electricity bill issued by electricity department.
- Estimating electricity bill of a given electrical installation.
- Study of different type of tools used in Assembly shop.
- Study of different types of meter used in testing lab.

## **(ii)TRADE : ELECTRONICS**

### **12<sup>th</sup> VOCATIONAL**

**PAPER-I**

**DIGITAL ELECTRONICS AND COMMUNICATION**

#### **THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

**Digital Electronics**

Digital and Analog Signal, Advantages of Digital System, Decimal Number System, Binary Number System, Logic Gates, OR Gate, AND Gate, NOT Gate, NAND Gate, NOR Gate, Introduction to IC, Types of IC- Analog & Digital, Advantages, Limitation, Application of IC.

### **TV Transmission and Pulse Circuits**

Basic Concept of TV Transmission system, Block Diagram of TV Transmitter

Camera Scanning, Types of Scanning, Standards and Synchronization, Composite Video Signal, Photo Electric Effect, Camera Tube, Types of Camera Tubes.

### **TV Reception**

Block Diagram of Monochrome TV Receiver, Block Diagram of Color TV Receiver, Working Principles of all Stages of Monochrome TV and color TV Receiver- Tuner Section, Detector, Sound Section, Sync. Section, Deflection circuit, AGC, AFC, EHT, Picture Tube and Power Supply, Fault Analysis, Test & Alignment of monochrome and Color TV Receiver, Adjustment Of Centering, Height, Width, Linearity, Pincushion, Convergence, Color Sensitivity, Deflection circuit, Focus etc. Alignment of Video IF, Tuner, AGC, AFC.

### **Transmitting Media**

Introduction of Satellite system, Optical Fiber System and RADAR System. Explain Block Diagram of Satellite system and Optical Fiber System. Advantages of Optical Fiber.

### **Mobile and Wireless Communication**

Basic of Cordless Phone, Introduction to Mobile Communication, Define GSM, CDMA, Dish Antenna, Yaggi Antenna, Impact of Mobile Phone on-Family, Health and Society, Precautions while using Mobiles.

## **DIGITAL ELECTRONICS AND COMMUNICATION**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Logic Gate With Truth Tables- OR Gate, AND Gate, NOT Gate, NOR Gate, NAND Gate.

- Demonstration of LED Seven Segment Display.
- Study of TV Transmitter System.
- Study of Monochrome TV Receiver.
- Voltage Measurement in various stages of Monochrome TV Receiver.
- Alignment of RF, IF, SIF sections of Monochrome TV.
- Testing of Power Supply Section in Monochrome TV Receiver.
- Draw and Explain Composite Video Signal.
- Study of Block diagram of satellite.
- 10. Study of Block Diagram of Optical Fiber System.
- 11. Testing of EHT.
- 12. Assembly, Installation and Testing of Yaggi Antenna.
- 13. Assembly, Installation and Testing of Dish Antenna.

## **TRADE : ELECTRONICS**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-II**

#### **TEST AND MEASURING INSTRUMENTS**

#### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30 Marks</b>
<b>InA</b>	<b>: 10 Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>: 90Marks</b>

#### **Testing Instruments**

Analog Multimeter, Front Panel of Analog Multimeter, Digital Multimeter, Front Panel of Digital Multimeter, Measurement of AC/DC Voltage, Current and different values of Resistance with Multimeter, Testing of - Resistor, Capacitor, Diode, Transistor, SCR and FET, Energy Meter, Watt Meter.

#### **C.R.O (Cathode Ray Oscilloscope)**

Cathode Ray Oscilloscope, Front Panel of CRO, Block Diagram Of CRO, CRT, Measurement of Voltage, Current, Frequency using CRO, Lissajous Figure on CRO.

### **Signal Generator**

Signal Generator, Types Of Signal Generator-AF Signal Generator, RF Signal Generator, Block Diagram, Operation Control, Uses and Applications of- AF/RF Signal Generator, Block Diagram, Operation Control, Uses and Applications of Pattern Generator, Color Bar Generator, Sweep Generator, Wobbuloscope.

### **Transducer**

Transducer, Types of Transducer-Passive Transducer, Active Transducer, Working Principle of Resistance Temperature Detector (R.T.D), Thermocouple, Thermistor and LVDT.

### **Power Supply**

Diagram, Working Principle and application of SMPS, Inverter and UPS, Types Of UPS-ON Line UPS, OFF Line UPS.

### **Repair and Maintenance**

Job Card, Service Card, History Sheet, Stock Keeping, Test Bench, Field Servicing, Job Scheduling.

## **TEST AND MEASURING INSTRUMENTS**

<b>Time : 3 hrs</b>	<b>PRACTICAL</b>	<b>Marks : 50</b>
<hr/>		
	<ul style="list-style-type: none"><li>• Study the Front Panel Control of Multimeter.</li><li>• Testing of Resistor, Capacitor Using Multimeter.</li><li>• Measurement of AC/DC Voltage and Current Using Multimeter.</li><li>• Study the Front Panel Control of CRO.</li><li>• Measurement of AC/DC Voltage, AC/DC Current, Frequency and Time Period using CRO.</li><li>• Measurement of AC/DC Voltage, AC/DC Current, Frequency and Time Period using CRO.</li></ul>	

- Measurement of Frequency and Time Period using CRO.
- Study the Lissajous Figure on CRO.
- Demonstration and use of AF/RF Signal Generator.
- 10.Demonstration and use of Pattern Generator.
- 11.Demonstration and use of Wobbuloscope.
- 12.Demonstration of composite video-signal on a CRO.
- 13.Study the RTD and Thermocouple.
- 14.Study the LVDT.

## TRADE : ELECTRONICS

### 12<sup>th</sup> VOCATIONAL

#### PAPER-III

#### ELECTRONICS DEVICES AND CIRCUITS

##### THEORY

**Time : 2 hrs**

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

#### **Multistage Amplifier**

Multistage Transistor Amplifier, R-C Coupled Amplifier, Transformer Coupled Amplifier, Direct Coupled Amplifier, Operational Amplifier, Comparison of Different types of Multistage Amplifier.

#### **Power Amplifier**

Introduction, Difference between Voltage and Power Amplifier, Classification of Power Amplifier—Class-A Amplifier, Class-B Amplifier, Class-C Amplifier, Class-AB Amplifier, Push-Pull Amplifier, Introduction of Heat Sink.

#### **Oscillator**

Transistor Oscillator, Types of Transistor Oscillators- Tuned Collector Oscillator, Hartely Oscillator, Colpitt's Oscillator, Phase Shift Oscillator, Wein Bridge Oscillator, Crystal Oscillator.

#### **Wave Shaping Circuits**

Different types of Wave Shapes, Multi vibrator ,Astable Multi vibrator, Mono stable Multi vibrator, Bi-Stable Multi vibrator, Differentiating Circuit, Integrating Circuit, Clipping Circuit- Positive Clipper, Negative Clipper, Biased Clipper, Combination Clipper, Clamping Circuit- Positive Clamper, Negative Clamper.

#### **Power Electronics**

Field Effect Transistor (FET), Silicon Controlled Rectifier ( SCR ), TRIAC, DIAC.

#### **Consumer Electronics**

Microphone, Loudspeaker, Microwave Oven, Photo state Machine, LCD, LED.

## **ELECTRONICS DEVICES AND CIRCUITS**

**Time : 3 hrs**

**PRACTICAL**

**Marks : 50**

- Study of R-C Coupled Amplifier.
- Study of Transformer Coupled Amplifier.
- Study of Operational Amplifier.
- Study of Hartley Oscillator.
- Study of Colpitt's Oscillator.
- 6. Study of Wein Bridge Oscillator.
- Study of Crystal Oscillator.
- Study of Differentiating Circuit.
- Study of Integrating Circuit.
- 10. Study of Multi vibrator circuit.
- 11. Study the V-I Characteristics of an SCR.
- 12. Study of Clipping Circuits.
- 13. Study of Clamping Circuits.
- 14. Study of Microphone.
- Study of Speaker.
- Study of Photo state Machine.

### **(iii)TRADE : ARCHITECTURE**

**12<sup>th</sup>VOCATIONAL**

**PAPER-I**

**ENGINEERING**

**DRAWING - II**

**THEORY**

**Time :2hrs**

**Theory : 30Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

#### **Pictorial Drawing**

Introduction of Projection, Types - Pictorial and Orthographical Projection, Difference between First Angle Projection and Third Angle Projection, Introduction of Isometric Projection, Isometric Drawing, and Isometric Scale.

#### **Sections**

Introduction Types of Sections - Full Section, Half Section, Offset Section, Broken Section.

#### **R.C.C Design**

Introduction of Beam, Types of Beam - Simply Supported Beam, Fixed Beam, Overhanging Beam, Cantilever Beam, Continuous Beam, Factor affecting the Bending Moment of Beam, Types of load on Beam, Introduction of Single and Double Reinforced Beam, Introduction of Slab, Types of Slab - One Way and Two Way Slab, Introduction of R.C.C. Column - Square and Circular, Definition of Long and Short Column, R.C.C. Lintel and R.C.C Chajjha, Form Work for different R.C.C Work, Requirements for good Form Work, Comparison of Steel Form Work with Wooden Form Work.

#### **Foundation**

Introduction, Objectives, Types - Shallow Foundation, Spread Footing Foundation, Grillage Foundation, Raft Foundation, Stepped Foundation, Deep Foundation - Pile and Well Foundation, Cause of Failure, Bearing Capacity of Soil, Safe Bearing Capacity of Soil.

#### **Brick Masonry**

Introduction of Bricks, Types of bricks - Burnt Clay Bricks, Hollow Bricks, Fire Bricks, uses of bricks, Characteristics of good bricks, technical terms - Header, Stretcher, Bat, Closer, King Closer, Queen Closer, Course, Joints, Lap, Classification of - brick masonry Bond, English and Flemish, Stecher, Header and Diagonal bond, Basket Weave Bond .

## **Water Supply and Sewerage System**

Introduction of Water Supply Engineering, Layout of Canal System, Classification - Fully in Cutting, Partly Cutting and Partly in Filling, Fully in Filling, Technical term - Sewer, Sewage, Sullage, Storm Sewer, Sewerage , Traps and its types, Ventilating Pipe, Waste Pipe, House Connection, Inspection Chamber, Introduction of Open Drain, Types - Semi circular Drain, Rectangular, V-Shaped, U- Shaped, Types of Sewer - Circular, Egg-Shaped, Semi circular, Rectangular.

**Commands of Auto CAD (2D)** – Introduction, Basic Commands

## **ENGINEERING DRAWING - II**

Time:3hrs

**PRACTICAL**

Marks :50

- Draw the drawing sheet of Isometric drawing/ projection of Square, Rectangle, Circle, Triangle, Cube, Cylinder and Cone.
- Draw the drawing sheet of Isometric drawing/ projection of Simple Blocks.
- Draw the drawing sheet of Orthographic drawing/ projection of Simple Blocks.
- Draw L and cross section of Different size of Single Reinforced Beam.
- Draw L and cross section of Different size of Double Reinforced Beam.
- Draw cross section of Cantilever Beam.
- Draw plan and cross section of R.C.C Slab.
- Draw plan and cross section of R.C.C Column.
- Draw plan and cross section of R.C.C Lintel.
- Draw important brick masonry bond, English Bond, Flemish Bond, Stretcher Bond, Header Bond, Diagonal Bond, Basket Weave Bond. (Plan, Elevation , Section)
- Draw section of Spread footing foundation of different foundation sizes.
- Draw section of Raft foundation.
- Draw section of Grillage Foundation.
- Draw section of Stepped Foundation.
- Draw section of pile and well foundation
- Draw cross section of Open Drains-Semi Circular, Rectangular, V-Shaped, U-Shape.
- Draw cross section of Sewers- Circular, Egg-Shaped, Semi circular, Rectangular.
- Draw cross section of different types of Gully and FloorTraps.

- Draw layout of Canal System.
- Draw the cross section of different Canal.
- Layout of Building working out material quantity calculations.
- Draw any 5 Sheets on AutoCAD listed above.

## **TRADE : ARCHITECTURE**

**12<sup>th</sup>VOCATIONAL**

### **PAPER-II**

### **WORKSHOP PRACTICE - II THEORY**

**Time :2hrs**

**Theory : 30Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

#### **Surveying**

Introduction of Survey Division of Surveying, Instruments used for Taking Measurements, Basic Principles of Surveying, Classification of Survey – on the basis of Purpose, Area, Instrument and Methods.

#### **Chain Survey**

Introduction, Instruments - Chain, Metric Chain, Gunter Chain, Revenue Chain, Engineer Chain, Arrows, Tapes Ranging Rods, Offset Rods, Pegs, Direct and Indirect Methods of Chaining, Error in Chaining, Chaining on Sloping and Flat Ground, Chain Lines - Base Line, Check Line, Tie Line, Numerical Related to Chaining, Recording of Field Book.

#### **Leveling**

Introduction, Objective, Principles, Level & their Types - Dumpy Level, Tilting Level and Y Level, Leveling Staff - Telescopic Staff, Folding Staff, Target Staff, Invar Staff, Technical Terms used in Leveling, Adjustments of the Level, Finding the Difference of Level of TwoPoints, Level Book, Errors in Leveling and their Prevention - Rise and Fall Method, Height of Collimation Method.

#### **Plane Table Survey**

Introduction, Advantages and Disadvantages, Instrument Used - Drawing Board, Drawing Sheet, Alidade, Tripod Stand, Spirit Level, Trough Compass, U-Folk, Waterproof Cover, Setting up and Working of Plane Table, General Instructions for Plane Table Surveying, Errors in Plane Tabling. Method - Radiation, Re-Section, Inter-Section, Traversing.

#### **Contouring**

Contour & Contouring, Characteristics, Contour Intervals, Horizontal Equivalent, Direct and

Indirect Methods of Contouring - Radial Line Method, Cross - Section Method, Square Method, Use of Contour Maps.

## **WORKSHOP PRACTICE - II**

**Time:3hrs**

**PRACTICAL**

**Marks :50**

- Folding and unfolding of chain.
- Adjustment/ Correction of the Length of Chain.
- Ranging a line for measuring the correct length of Survey Line.
- Chaining a line for measuring the Survey Area.
- Setting of Dumpy level to check the level of different points.
- Find the difference in elevation between far points.
- Setting of plane Table to prepare the plan of Survey Area.
- Draw a plan by Radiation method of Plan Table Survey.
- Draw a plan by Traversing method of Plane Table Survey.
- Drawing of contour sheets.

**TRADE :  
ARCHITECTURE**

12<sup>th</sup>VOCATIONAL

**PAPER-III**

**CONSTRUCTION MATERIAL AND ESTIMATE**

**THEORY**

**Time :2hrs**

**Theory : 30Marks**

**InA : 10 Marks**

**Practical: 50 Marks**

**Total : 90Marks**

**Bricks and Tiles**

Introduction of Bricks , Ingredients of Good Bricks, Weight and Size of Standard Bricks, Characteristics of Good Bricks , Manufacturing of - Preparation of Earth, Moulding, Drying Burning of Bricks, Classification of Bricks, 1st Class, 2nd Class, 3rd Class, Tiles - Introduction of Tiles, Roofing Tiles, Wall Tiles and FloorTiles, Concrete Blocks & Hollow Blocks.

**Cement and Lime**

Ingredients, Types – Natural, Artificial - Ordinary Cement, Early Strength Cement, Quick Setting Cement, Colored Cement and Low Heat Cement, Manufacturing of Cement - Dry and Wet Process, Flow Chart of Cement Manufacturing, Characteristics of Ordinary Cement, Precautions for Storage of Cement, Introduction of Lime, Types of Limes - Quick Lime, Hydrated Lime, Fat Lime, uses of Lime,

**Filler Material**

Introduction of Filler Material, Requirements of Good Filler Material, Sand and its Types - Fine and Course Sand, Characteristics of Good Sand, Bulking of Sand, Surkhi and its uses, Coarse Aggregate and uses of Coarse Aggregate.

**Timber**

Introduction of Important Indian Timber - Kail, Shisham, Deodar, Sal, Teak, Characteristics of Good Timber, Uses of Timber, Defects in Timber - Knots, Shakes, Twisted Grains, Rind Gall, Unsettled Grains, Seasoning of Timber - Natural, Water and Kiln Seasoning, Preservation of Timber By - Tarring, Painting and Polishing.

**Building Estimates**

Introduction of Estimates Types of Estimate - Approximate, Cubical Content, Plinth Area, Detailed, Revised, Maintenance Estimate, Standard Method - Centre Line Method, Separate Wall Method of Taking out Estimate of Quanlity, Labour and Material, Numerical about Estimate of Single Room, Analysis of Rates For Simple Items of Works, Specifications - Detail and Brief Specifications.

## **CONSTRUCTION MATERIAL AND ESTIMATE**

**Time:3hrs**

**PRACTICAL**

**Marks :50**

- Water absorption test of bricks of different class bricks
- Crushing strength test of bricks of different class bricks
- Shape and size test of bricks
- Fineness test of Cement to check the grinding of different grades of cement.
- Consistency test of Cement to check the water content for good mixture of cement.
- Soundness test of Cement to check the quantity of Lime in Cement.
- Test of Sand to check the silt content in Sand.
- Test of Sand for bulking of Sand
- Shape and Size test of different types of Aggregate.
- Identification of important Indian Timber.
- Market survey regarding Availability of different materials and their substitutes with approximate costing.
- Preparation of rough Estimates for single storey building.

## **(iv)TRADE : MECHANICAL**

**12<sup>th</sup> VOCATIONAL**

**PAPER-I**

**FITTING AND WELDING**

**Time : 2 Hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

## **FITTING**

### **Hand Tools**

Hammers, Pliers, Spanners, Torque & Other Wrenches, Punches, Files, Taps and Dies, Screw Drivers, Hacksaw, Try Squares, Marking Tools, V-Block, Surface Plate, Scriber, Steel Scale, Marking Gauge etc.

### **Mechanical Measurements**

Linear Measuring Instruments, Calipers, Vernier Caliper, Micrometer, Depth and Height Gauge, Angular Measuring Instruments, Bevel Protector, Combination Set Gauge, Feeler Gauge, Wire Gauge, Thread Gauge, Radius Gauge, Dial Gauge.

### **Limits, Fits and Tolerances**

Need for Limit Systems, Types of Fits - Clearance Fits, Transition Fits, Interference Fits, Elaborating of the above with Examples, Limit Gauges and their Applications, Limits and Tolerances, Correlation of Allowance with the Type of Fit.

## **WELDING**

### **Principles and Application**

Principles, Applications of Welding, Brazing and Soldering, Classification of Welding.

### **Oxy-Acetylene Welding**

Principle of Gas Welding, Gas Welding Equipment, Low Pressure and High Pressure Gas Welding, Flame - Parts of Flame, Types of Flames and uses, Gas Cutting, Fluxes - Composition and Application.

### **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.

### **Special Welding Techniques**

Electric Resistance Welding- Principle, Description and Working, MIG/MAG welding.

### **FITTING AND WELDING**

**Time: 3 Hrs**

**PRACTICAL**

**Marks : 50**

- Cutting, chipping, filing and use of measuring instruments.
- Prepare M.S. Rectangular flat with use of file.
- Fitting of male and female pieces.
- Make cube/ rectangular solids from round bar/ stock.
- Drilling, Reaming, Tapping and Spot Facing operations.
- Production of different flames for welding & cutting with Oxy -Acetylene welding equipment and accessories.
- Make a lap joint by arc welding.
- Make a butt joint by arc welding.
- Make a T Joint by arc welding.
- Make a sheet metal funnel and soldering of joints with a soldering iron.
- Repair of sheet metal stool or bench by gas welding/ arc welding.
- Repair of an article by gas as well as arc welding.

## **TRADE : MECHANICAL**

### **12<sup>th</sup> VOCATIONAL**

#### **PAPER-II**

#### **MACHINE TOOL OPERATION**

##### **THEORY**

**Time : 2 Hrs**

**Theory : 30 Marks**

**InA : 10 Marks**

**Practical : 50 Marks**

**Total : 90Marks**

### **Drilling Machine**

Classification, Specification and General Description of Drilling Machines, Types of Operations - Spot Facing, Counter Boring, Counter Sinking, Tapping and Reaming, Types of Drills, Tap and Reamers.

### **Milling Machines**

Types, Construction and Specifications of Milling Machines, Types of Milling Cutters, Profile - Job, Tool Holding Devices, Methods of Indexing - Simple, Compound, Differential and Angular Indexing, Milling Operations - Face Milling, Gang Milling, Spiral Milling, Gear Milling, Cutting Speed and Feed, Selection of Milling Cutters.

### **Power Hacksaw Machine**

Description, Working of Machine, Selection of Blades for Cutting Different Materials.

### **Grinding Machines**

Types of Grinding Operations - Cylindrical, Internal and External Surface Grinding, Magnetic and Self Centering Chucks, Types, Shape and Selection of Grinding Wheels, Grinding Wheels Balancing and Dressing, Use of Universal Tool and Cutter Grinder.

### **Lubricants**

Necessity of Lubrication, Types of Lubricants - Solid, Semi – Solid, 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.

## 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.

## Engine

Constructional Features of I.C. Engines and familiarization with Principle Parts, Principles of Operation and Salient Features of Four Stroke and Two Stroke Engines. **Simple Machines**

Definition of Terms - Load, Effort, Velocity Ratio (V.R.), Mechanical Advantage (M.A.), Mechanical Efficiency, Types of Levers, Pulleys, Fixed and Movable Pulleys, Simple Machines - Simple Wheel and Axle, Simple Screw Jack, Worm and Worm Wheel, Single Purchase Crab, Industrial Applications of the above Machines.

## Machine Shop Layout & Maintenance of Machines

Layout of Machine Shop, Maintenance of Different Types of Machines, General Instructions for Machine-Shop, Purpose and Importance of Maintenance, Reconditioning and Overhauling of Machines.

### MACHINE TOOL OPERATION

Time: 3 Hrs

PRACTICAL

Marks : 50

- Drilling countersinking on drilling machine.
- To perform Face milling.
- To perform Form milling.
- Grinding of twist drills.
- Drilling, Boring and Reaming on drilling machine.
- Prepare a sheet metal according to given drawing.
- Familiarization with various machine tools and machines used in maintenance & repair of tractors.
- Familiarization with different components, gauges & controls of tractors.
- General cleaning, oiling & greasing of tractors.
- Checking & tightening of nuts & bolts, checking of fuel, oil, cooling systems & battery in engine
- Identification of different parts of an engine.

## TRADE : MECHANICAL

### 12<sup>th</sup> VOCATIONAL

#### PAPER-III

#### MECHANICAL DRAWING - II

##### THEORY

Time : 2 Hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

#### Projection

Introduction, Types of Projection - First Angle Projection, Third Angle Projection, Difference between First Angle & Third Angle Projection, Introduction to Isometric Projection, Isometric View, Simple Diagram.

#### Section

Types of Section (Detail with Simple Diagram) - Full Section, Half Section, Off Set Section, Broken section, Uses of Section.

#### Fasteners

Fastening - Temporary fastener, Permanent Fastener, Rivets -

Introduction, Main Parts, Types - Lap Joint, Butt Joint, Nut and Bolt – Meaning, Use, Types.

#### Screw Thread

Introduction, Terms of Screw Thread, Main Parts of Screw Thread (only Definition with Fig.) - Major Diameter, Minor Diameter, Pitch Diameter, Pitch Line, Crest, Root, Flank or Side, Thread Angle, Pitch, Lead.

#### Assembly Drawing

Introduction, Details of Drawing - Assembly Drawing, Making Assembly Drawing, Main Parts of Assembly Drawing.

#### Auto Cad

Introduction, Concept, Toolbars in Auto CAD – coordinate system, Snap, Grid, ortho mode (Absolute, Relative & Polar), Drawing commands – point, line, arc, circle, ellipse, Editing commands – erase, copy, stretch.

## MECHANICAL DRAWING - II

Time: 3 Hrs

PRACTICAL

Marks : 50

### Isometric Drawings

- Concept of true length and isometric length.
- Conversion of orthographic views into isometric view of simple elements such as V-block, stepped block, hexagonal, bolt and nut.
- Freehand isometric sketches of simple mechanical elements.

### Sectioning

- Concept of sectioning.
- Cutting plane lines.
- Simple example of sectioning - a hollow shaft, pulley and shaft, flange coupling, simple journal bearing bracket.

### Screw Threads

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

### Development of Surfaces and Interpenetration of Solids

- Concept of solids - 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.

### Assembly Drawing

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

### Rivets and Riveted Joints

- Lap joint, Butt joint - Single riveted, double riveted.

### Auto CAD

- Applications of Toolbars in Auto CAD, coordinate system, Snap, Grid, ortho mode (Absolute, Relative & Polar), Drawing Commands – point, line, arc, circle, ellipse, Editing commands – erase, copy, stretch.

**(v)TRADE :**  
**COMPUTER SCIENCE**  
**12<sup>th</sup> VOCATIONAL**

**PAPER-I**

**DESKTOP PUBLISHING**

**THEORY**

**Time : 2 hrs**

**Theory : 30 Marks**

**InA : 10 Marks**  
**Practical : 50 Marks**

**Total : 90Marks**

**DTP**

**Introduction to DTP**

What is Desktop 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, WYSIWYG 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.

**MS-Power Point**

Introduction, Working with Power Point, Creating a New Presentation, Saving and Closing a Presentation, Opening an 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 - Lines, Arcs, Rectangles, Ellipses, Drawing Freeform Shapes, 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.

## **WORD PROCESSING**

### **MS-Word**

Starting, Introduction to Tabs and Ribbons, Creating a Document, Opening a Document, Saving a Document, Navigation of Cursor, Editing Text, Formatting Text, Viewing Documents.

### **Formatting Document**

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.

### **MS-Excel**

Starting MS-Excel, Opening a Worksheet, Saving a Worksheet, Spread sheet operations, Entering Numbers, Text, Dates and Time, Formulas, Editing the Worksheet - Inserting/ Deleting Cells, Rows, Columns, worksheet), Printing a Worksheet, Formulas and Functions, Cell Referencing, Using Text, Date and Time in a Formula, Arrays and Named Ranges, Charts, Creating a Chart, Editing a Chart, Macros - Creating and Running Simple Macros, Creating and Running Menu Macros.

## DESKTOP PUBLISHING

Time: 3 hrs

PRACTICAL

Marks : 50

### PAGEMAKER

- Installation of PageMaker.
- Create style sheets.
- Preparation of one page/ two columns.
- Generate the same page layout of today's Newspaper on your computer screen.
- Generate at least four page brochure of a company with its logo on each page.
- Use of header, footer, foot notes in designing of page layout.
- Designing of corporate logos and image rendering.

### CORELDRAW

- Creating an artistic sketch in CorelDraw.
- Linking and integrating the CorelDraw files in Web Pages.
- Make pattern/ draw a logo.
- Design a pamphlet.

### POWERPOINT

- Design simple presentation using colors and fonts.
- Design presentation advance features using animation and 3-D features.

### PHOTOSHOP

- Saving the pictures in various file formats.
- Practice of different tools on a image in a Photoshop.
- Application of Basic functions on images.
- File conversion and reducing the memory space.
- Pasting photographs and Images using Photoshop.
- Working with Text in Photoshop.

#### MS-Word

- Editing and formatting a document.
- Working on Tables in MS Word.
- Page Setup and Printing.
- Shortcut Keys for Microsoft Office.

#### MS EXCEL

- Format cells, rows, columns, and entire worksheets so they fit and match your data.
- Use formulas and functions for math, accounting, and totaling.
- Create charts and diagrams for your data.
- Working with Excel templates.
- Share and protect your worksheets and workbooks.

### PAPER-II

### OBJECT ORIENTED PROGRAMMING IN C++

#### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks  
Practical : 50 Marks

Total : 90Marks

#### C++ Language Features

Overview, History, How C++ differs from C, Program structure, namespaces, identifiers, variables, constants, enum, operators typecasting, control structures, IO Streams, cout, cin and cerr object, Comparison of cout and cin with print() and scan(), Basics of Console Input and Output, Constant Pointers, Dynamic Memory Allocation.

#### OOPS

Introduction OOP, Procedural vs Object Oriented Programming, Principles of OOP, Benefits and applications of OOP

#### Functions

Simple functions, Call and Return by reference, Inline functions, Macro Vs. Inline functions, Overloading of functions, default arguments, friend functions, virtual functions.

#### **Objects and Classes**

Basics of object and class in C++, Private and public members, static data and function members, constructors and their types, destructors, operator overloading, type conversion

#### **Inheritance**

Concept of Inheritance, types of inheritance - single, multiple, multilevel, hierarchical, hybrid, protected members, overriding, virtual base class

#### **Polymorphism**

Pointers in C++, Pointers and Objects, this pointer, virtual and pure virtual functions, Implementing polymorphism

#### **I/O and File Management**

Concept of streams, cin and cout objects, C++ stream classes, Unformatted and formatted I/O, manipulators, File stream, C++ File stream classes, File management functions, File modes, Binary and random Files

#### **Templates, Exceptions and STL**

What is template? function templates and class templates, Introduction to exception, try-catch-throw, multiple catch, catch all, rethrowing exception, implementing user defined exceptions, Overview and use of Standard Template Library

## **OBJECT ORIENTED PROGRAMMING IN C++**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Develop an object oriented application to perform all the basic operations like insert, delete, search on binary tree.
- Develop an object oriented application to compute the Income-tax for the salaried person.
- Develop an object oriented system “Visiting Card Management” which allows user to add, delete and update and search the visiting card details.

- Develop an object oriented system “Student Attendance Management” for recording and analyzing the student attendance.
- Develop a library for performing various Matrix operations.
- Use templates to make them generalized for any data type.

**PAPER-III****NETWORKING****THEORY****Time : 2 hrs****Theory : 30 Marks****InA : 10 Marks****Practical : 50 Marks****Introduction to Networking**

Classification of Networks - LAN, MAN, WAN.

**Networking Models**

Peer to Peer, Client/ Server, Internet, Intranet &amp; Extranet.

**The OSI Model**

Layer 1 - Physical, Layer 2 - Data Link, Layer 3 - Network, Layer 4 - Transport,

Layer

5 - Session, Layer 6 - Presentation, Layer 7 - Application.

**Terminologies and Technologies**

Signaling Methods, Multiple Signaling Methods, Data Transmission Methods, Channel Access Methods, Ethernet, CSMA/CD, CSMA/CA, Token Passing, Addressing Methods.

**Network Topologies and Access Methods**

Bus Topology, Star Topology, Ring Topology, Mesh Topology.

**Protocols**

TCP/IP, IPv4, IANA, Classful Network.

**Transport Layer Protocols**

TCP and UDP

**Server Operating Systems**

Servers - Microsoft Window Servers, Unix, Linux.

## NETWORKING

Time: 3 hrs

PRACTICAL

Marks : 50

- Network Hardware - Network Interface Card, Hub, Switch and Routers
- IP Address, IP Address Assignment
- Networking Commands – PING, IPCONFIG, IPCONFIG/all, Netstat, Getmac, Hostname, Pathping.
- Device Sharing - CD/DVD Sharing, Drive Sharing as C:, D: etc, Printer Sharing, Folder sharing, Setting permission of shared folder, File Sharing, Accessing Shared CD/DVD, Drives, Printer, Folder from other computer, Remote Desktop Sharing with mstsc command.
- Analyzing Network requirement for your school or office setup available close to your vicinity, If a network is already present, understand the purpose of it.
- Identify - Hubs, Switches, Connectors & Cables.
- Comparison - Straight - through & Crossover cables, Different models of wired network cards available from different vendors, Different models of unmanaged switches available from different vendors.
- Trouble Shooting Network - Network cable unplugged, Limited or No Network Connectivity, the Network Path cannot be found, Windows has detected an IP Address conflict, a duplicate name exists on the network.

## (vi)TRADE : AUTOMOBILE ENGINEERING

### 12<sup>th</sup>VOCATIONAL

#### PAPER-I

#### WORKSHOP TECHNOLOGY

##### THEORY

Time : 2 hrs

Theory : 30Marks  
InA : 10Marks  
Practical : 50 Marks  
Total : 90Marks

#### Safety Precautions

Use of Lathe, Grinding, Arc Welding & Gas Welding, Equipments to Put off Fire : Fire Extinguisher, Sand & Water, First Aid Kit & Importance of First Aid.

#### Lathe

Introduction, Classification and Constructional Features of Centre Lathe, Various types of Cutting Tools used in lathe and cutting tool materials, Attachments and Accessories of Lathe, Introduction to CNC (Computer Numerically Control) Lathe Machine, Classification of Lathe : Speed Lathe, Bench Lathe, Engine or Centre Lathe, Tool Room Lathe, Turret & Capstan Lathe, Automatic Lathe & Special Purpose Lathe, Purpose of all Type of Lathe Machines in brief, Labeled Diagram of Centre Lathe.

#### Main Parts of Lathe

Legs, Bed, Head Stock, Tail Stock, Carriage, Apron, Feed Shaft, Lead Screw, Tray, Chuck & Tool Post, Purpose of all Parts in brief with Diagram.

#### Lathe Operations

Sliding, Surfacing, Taper Turning, Plain and Step Turning, Facing, Chamfering, Drilling, Reaming, Boring, Parting off, Knurling & Threading.

#### CNC (Computer Numerically Control)

Introduction, Types of CNC in brief.

#### Welding

Principle of Welding, Classification of Welding Processes, Advantages and Limitations of Welding, Welding Symbols, Basic Principle of Gas and Arc Welding, Difference Between Gas and Arc Welding, Arc Welding Transformer Set, Arc and Gas Welding Equipments, Types of flames in gas welding, Introduction to Electrodes, Flux, Welding Joints, Soldering and Brazing.

#### GRINDING

Constructional Features of Bench Grinder and its Working.

## Drilling

Principle of Drilling, Classification of drilling machines, various operations performed on drilling machines, advantages and disadvantages of drilling, Labeled Diagram of Bench Drill, Types of Drilling Machine.

### WORKSHOP TECHNOLOGY

Time: 3 hrs

#### PRACTICAL

Marks : 50

- Use of tools, equipments in a welding shop.
- Various safety measures used in welding shop.
- Current setting of the transformer according to the thickness of the job and selection of welding rod accordingly, electric arc welding practice.
- Starting and stopping of flames of gas welding.
- Get the correct character of flames and to form the bead with gas welding.
- Centering of given job on central lathe machine.
- Two exercises each in plain turning, taper turning, thread cutting, drilling, boring, knurling, chamfering and parting off.
- Form the bead with gas welding.
- Drilling on given job on bench drilling machine.
- Drilling on given job on hand drilling machine.
- Visit to nearby workshops (make report).

### TRADE : AUTOMOBILE ENGINEERING

#### 12<sup>th</sup>VOCATIONAL

PAPER-II

#### GARAGE PRACTICE AND MANAGEMENT

#### THEORY

Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90 Marks

#### Auto Servicing

Study of Vehicle Maintenance, Maintenance Schedule and Repair, General Service Procedure for Four Wheelers, Servicing of Engine, Clutches, Gearbox, Propeller Shaft, Final Drive and Wheels.

#### Study of Faults

Engine : Does not Turn Over, Does not Start, Runs but Misses, Loses 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 - Worn - Out Cross, Less Bearing Life, Propeller Shaft Defect, Differential - Continuous Noise Growing while Rounding a Curve, Wheels - Tyre Wear Types, Tyre Cracks etc, Chassis & Body - Hard & Rough Ride, Vehicle Sway, Sagging Spring, Distortions in Frame and Body.

### **Engine Tuning**

Tuning Process & Compression Testing,

### **Steering, Suspension & Brake**

Hard Steering, Wheel Wandering, Wheel Pulling, Front Wheel Shimmy, Wheel Tramp, Excess Steering Play etc, Hard Brake, Paddle goes to Floor, Dragging and Noisy Brake.

### **Wheel Balancing and Wheel Alignment**

Check Wheel Balancing, Check Wheel Alignment, Toe - in, Toe - out, King Pin Inclination, Camber Angle Adjustment, Brake/ Clutch Adjustment.

### **Management**

Garage Location and Layout, Types, Scope, Selection of Site for Garage, Layout of Building and Machinery.

### **Maintenance of Shop, Safety and First Aid Facilities**

Safety ensured by Building Aspects, Safety ensured by Machinery and Equipments, Safety ensured based on the Human Attitude.

### **Book Keeping**

Registers to be Maintained, Method of Accounting Transactions, Profit and Loss Account.

### **Elements of Costing**

Meaning and Importance of Costing, Difference between Estimating and Costing, Direct Labour Cost, Material Cost, Overhead Cost.

### **Basic Inventory Control and Store Keeping**

Concept of Maximum Stock, Safety Stock, Lead Time, Economic Recorder Quantity, ABC Analysis, Duties of Store Keeper, Method of Keeping Store, Elements of Shop Act Regarding Working Hours, Holidays, Definition of Worker.

### **Insurance of Vehicles**

Meaning of Insurance and its necessity, Different types of insurance: Comprehensive and Third Party Insurance, Duties of Surveyor, Procedure to get accidental claim and compensation, Cashless Insurance.

## **Salesmanship**

Difference between marketing and selling, Duties of Salesman, Personal Qualities of Salesman, Advertising and Publicity as per New Motor Vehicle Act.

## **Motor Vehicle Rules as per New Motor Vehicle Act**

Motor Vehicle Act - main provisions, Salient features of Motor Vehicle Act, Light Duty Vehicle, Heavy Duty Vehicle, Stage Carriage, Public Carrier, Private Carrier, Invalid Carriage,

### **Rules**

Size of Letters and Background Color of Number Plates of Different types of Vehicles, Location of Lights and Masking, Minimum Space Required for Passenger, Gang Way, Floor to Ceiling, Front and Overhang, Safety Aspect in Terms of Condition of Tyre, Brakes, Steering, Exhaust, Traffic Signs Found Installed on the Road, Signaling by Driver and what it Communicates to other Road Users, Prescribed Forms for - Driving License, Registration, Permit, Fitness Certificate, Offences and Penalties of Driving Vehicle Without - Driving License, Registration, Permit, Fitness Certificate Euro/ Bharat Pollution Control Norms.

## **CARAGE PRACTICE AND MANAGEMENT**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Servicing of the fuel filter.
- Servicing of fuel injection pump.
- Servicing of fuel injector.
- To exercise air bleeding from fuel supply system.
- Study and sketch the mechanical governor mechanism of a multi cylinder fuel injection pump.
- Checking & adjusting of ignition timing.
- Dismantle a single cylinder diesel engine, clean components, inspect report on the condition of parts, suggest remedial measures, repair, reassemble and test.
- Dismantle a multi cylinder diesel engine of a four wheeler, clean components, inspect report on the condition of parts, suggest remedial measures, repair, reassemble and test.
- Checking of cylinder bore.
- Fitting of bearings, bushes and shells.
- Engine Tuning.

- Obtain all the prescribed forms by Directorate of Transport and fill up details for
  - (a) Driving license.
  - (b) Fitness certificate.
  - (c) Permit etc.
- Study and draw neat sketches of different road signals and signs.
- Inflate tyres with specified pressure and tighten all wheel nuts.
- Prepare a costing and estimate statement for a repair.
- Visit to a nearby automobile service station.
- To carry out road test and check exhaust for emission of carbon monoxide.
- Road Testing Procedure.
- Check wheel balancing and Wheel Alignment, toe-in, toe-out, camber angle adjustment, king Pin inclination.

## **TRADE : AUTOBILE ENGINEERING**

### **12<sup>th</sup>VOCATIONAL**

#### **PAPER-III**

#### **AUTOMOBILE SUSPENSION AND CONTROL**

##### **THEORY**

**Time : 2 hrs**

<b>Theory</b>	<b>: 30Marks</b>
<b>InA</b>	<b>: 10Marks</b>
<b>Practical</b>	<b>: 50 Marks</b>
<b>Total</b>	<b>:90Marks</b>

#### **Frames**

Function of Frames, Types of Frames for two, three and four Wheelers, Forces Acting on the Frames, Frames Alignment.

#### **Bodywork**

Types of Body and their Repair Procedures, Body Denting, Painting and Polishing, Body Accessories and Fittings, Trouble Shooting of Frame and its Maintenance.

#### **Suspension System**

Function of Suspension System, Desirable Characteristics of Suspension System, Types of Springs & Shock Absorbers and their Details, Suspension and their types, Independent Suspension System used on Front Wheels, Trouble Shooting of Suspension System and its Adjustments.

## **Front Axle and Steering**

Constructional Features of Front Axle, Front Assembly, Steering Wheel and Column, Steering Geometry, Camber, Castor, King Pin Inclination, Toe - in, Toe out on Corners, Trouble Shooting of Steering and Front Axle Units.

## **Brake System**

Functions of Brakes, Layout of Brake System, Stopping, Stopping Distance, Types of Brakes - Mechanical, Hydraulic, Disc Brake & 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 Adjustments, Bleeding of Brakes.

## **Wheels and Tyres**

Types of Wheel Discs and Rims and their Constructional Features, Tyre Pressure, Spoked Wheels, Casted Wheels, types of Tyres and their Constructional Features, Tubeless Tyres, Tyre Specifications, Tyre Rotation, Causes of Tyre Wear, Tyre Retreading, Trouble Shooting of Tyres and Maintenance.

## **Electrical System**

Lighting Circuits, wiring harness, Layout and its Function, Lamps, Functions of Head Light & Tail Light, Color Coding of Cables, Connectors, Switches, Wind Screen Wiper, Horn, Gauges (fuel level and temperature).

## **AUTOMOBILE SUSPENSION AND CONTROL**

**Time: 3 hrs**

**PRACTICAL**

**Marks : 50**

- Dismantle the front wheel, handle bar assembly of a two wheeler, clean inspect report on the condition of components, repair, reassemble, adjust and lubricate.
- Dismantle the components of rigid front axle beam of a four wheeler, clean inspect report on the condition, repair, reassemble and lubricate the parts.
- Dismount the leaf spring suspension of rear axle, dismantle, clean inspect report on the condition, repair, refit and lubricate.
- Dismount the telescopic shock absorber of front wheel of two wheeler, clean, inspect report on the condition and repair and refit.
- Dismount the wheel assembly from a two wheeler, dismantle, clean, inspect report on the condition of wheel, rims, tyre and tube, rectify defects of tube, refit and remount.

- 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.
- Dismantle the disc type brakes, clean inspect and assemble and remount.
- To exercise bleeding of brakes.
- Trouble shooting of lighting system.
- To exercise headlight, beam alignment & focusing.
- Driving practice and road testing.
- Changing of tie end rod.
- Check break oil and refilling.

## OR

### TRADE : MODERN OFFICE PRACTICES

12th VOCATIONAL

PAPER-III

SHORTHAND – II (ENGLISH)/ (PUNJABI)  
THEORY

- Time : 2 hrs

Theory : 30 Marks

InA : 10 Marks

Practical : 50 Marks

Total : 90Marks

- **Prefixes and Suffixes**
- Definition, Importance and its Uses.
- **Terminations and Special Contractions**
- Introduction, Importance and its Uses.
- **Circle S and Z**
- Define S and Z Circle, Use of Stroke S and Z.
- **Large Circle SW, SS or SZ**
- Define Circle SW, SS or SZ and their Uses.
- **Loop ST & STR**
- What is Loop ST & STR, Explain with Examples.
- **Hooks**
- Use of Initial and Final Hooks, Alternative Signs of Hooked Strokes, Circle and Loop with Initial and Final Hooks- 'Shun' and 'Sh' Upward.
- **Halving Principle**
- Describe its Properties & Examples.
- **Doubling Principle**
- Definition, Importance and its Uses.

- **Transcription**
- Introduction, Good Method/Arrangement of Transcription and its Importance.
- **Phraseography**
- Definition, Rules and Explain with Examples.
- **Evaluation of Paper**
- Evaluation Methods and its Properties.
- **Functions of a Steno**
- **SHORTHAND – II (ENGLISH)/ (PUNJABI)**
- **Time: 3 hrs PRACTICAL Marks : 50**
  - Weekly a lesson practice using newspaper of minimum 100 words in shorthand.
  - Practice shorthand for simple words including grammatical and phrases.
  - 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.
  - After an interval of two minutes, another passage of 200 words will be dictated in 2.30 minutes. Students will be required to transcribe both paras within 27 minutes on T/W.
  - Make a file of at least 100 pages during the session.
- **Same for Punjabi as well as Hindi Medium**