SENIOR SECONDARY SCHOOL CURRICULUM VOCATIONAL SUBJECTS

Class XII (2018-19)

LIST OF C.	IST OF CAREER ORIENTED VOCATIONAL COURSES OFFERED AT SENIOR SECONDARY LEVEL			
S. No.	COURSE	XII (2018-19)		
eering and	Technology			
1	Automobile Technology	Auto Engineering	627	
		Auto Shop Repair and Practice	628	
		Optional		
		Engineering Science	622	
2	Civil Engineering	Construction Technology	797	
3	Electrical Technology	Electrical Machines	787	
		Electrical Appliances	788	
4	Electronics Technology	Operation and maintenance of Communication devices	789	
		Troubleshooting and maintenance of Electronic Equipments	790	
5	Geospatial Technology	Geospatial Technology	740	
6	IT Application	Database Management Applications	795	
		Web Applications	796	
7	Transport System of Logistic Management	Logistics Operation & Supply Chain Management	750	
h and Welln	ess			
8	Studies	Beauty & Hair	745	
		Holistic Health	746	
9	Medical Diagnostics	Laboratory Medicine	741	
	Haalth Cana Saiamaa	Clinical Biochemistry & Microbiology	742	
10	Health Care Science	Basic Concepts of Health & Disease and Medical Terminology	729	
11	Fashion Design & Garment Technology	Basic Pattern Development	775	
		Garment Construction	776	
		Optional		
		Fabric Study	774	
12	Mass Media Studies & Production	⁵ Understanding the Evolution and Forms of Mass Media	738	

		The Creative and Commercial Process in Mass Media	739
13	Design & Innovation		
	5	Design and Innovation	772
14	Textile Design	Traditional Indian Textile	777
		Any one of the following	
		Printed Textile	778
		Textile Chemical Processing	779
	Horticulture		
15	Horticulture	Basic Horticulture	762
		Any one from the following	
		Olericulture	763
		Pomology	764
		Floriculture	765
	Food Production	Food Production III	734
			735
16		Food Production IV	100
16 17	Food & Beverage Services	Food Production IV Food Service	736
16 17	Food & Beverage Services This is two paper package	Food Production IV Food Service Food and Beverage Cost and Control	736 737
16 17	Food & Beverage Services This is two paper package and subject 736 and 737	Food Production IV Food Service Food and Beverage Cost and Control	736
16 17	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken.	Food Production IV Food Service Food and Beverage Cost and Control	736
16 17 18	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken. Travel and Tourism	Food Production IV Food Service Food and Beverage Cost and Control Introduction to Hospitality Management	736 737 737 756
16 17 18	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken. Travel and Tourism	Food Production IV Food Service Food and Beverage Cost and Control Introduction to Hospitality Management Travel Agency and Tour Operations Business	736 737 737 756 757
16 17 18	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken. Travel and Tourism	Food Production IV Food Service Food and Beverage Cost and Control Introduction to Hospitality Management Travel Agency and Tour Operations Business	736 737 737 756 757
16 17 18	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken. Travel and Tourism	Food Production IV Food Service Food and Beverage Cost and Control Introduction to Hospitality Management Travel Agency and Tour Operations Business	736 737 737 756 757
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16 17 18	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken. Travel and Tourism	Food Production IV Food Service Food and Beverage Cost and Control Introduction to Hospitality Management Travel Agency and Tour Operations Business	736 737 756 757
16 17 18 18	Food & Beverage Services This is two paper package and subject 736 and 737 are to be taken. Travel and Tourism	Food Production IV Food Service Food and Beverage Cost and Control Introduction to Hospitality Management Travel Agency and Tour Operations Business Front Office Operations	736 737 756 757 753

20	Security	Security		800
21	Accountancy & Taxation	Cost Accounting		781
	#Accountancy (055) and Financial Accounting (780) can't be taken together	Taxation		782
		Optional #		
		Financial Accounting		780
22	Banking & Insurance	Banking		785
		Insurance		786
				100
23	Business Administration	Business Operation & Administration		766
24	Financial Market Management	Capital Market Operations		793
		Derivative Market Operations		794
		Optional		
		Financial Accounting		780
25	Library and Information Sciences	Library Systems and Resource Management		747
		Information storage and Retrieval.		748
26	Marketing & Salesmanship	Marketing		783
		Salesmanship		784
27	Office Secretaryship	Office Procedures and Practices		604
		Typography & Computer Application (English)		607
		OR		
		Typography & Computer Application (Hindi)		609
28	Retail	Retail Operations		743
20				744
			L	144

29	Stenography & Computer Application ENGLISH	Typography & Computer Application (English)	607
		Shorthand (English)	608
		Optional	
		Office Procedures and Practices	604
	Stenography & Computer Application HINDI Package of 2 subjects and both 609 and 610 are to be taken together.	Typography & Computer Application (Hindi)	609
		Shorthand (Hindi)	610
		Optional	
		Office Procedures and Practices	604

RETAIL

CLASS-XII ELECTIVE RETAIL OPERATIONS (743) THEORY & PRACTICAL

Time: 3 Hours + 2 Hours

Marks: 100 (Theory 60 + Practical 40)

8+4

Unit-1: Inventory Management in Retailing

• Types in Inventory, Inventory Management, Inventory Management, Inventory Control System, Stock Valuation and Recording. 11+8

Unit-2: Security & Housekeeping Supervision in Retail Sector

• Functions and Points if Security, Safety and Surveillance Equipment, Handling of Material and Equipments in Housekeeping, Duties and Responsibilities of Supervisor. 11+8

Unit-3: Supply Chain Management in Retailing

Introduction to SCM, Principles of SCM, Participants in the Process of SCM, Step in SCM. **11+8**

Unit-4: Billing and Accounting Procedures in Retailing

Billing Procedure, Fundamentals of Accounting, Journal, Ledger and subsidiary Books, Trading, Profit & Loss Account and Balance Sheet.

Supplementary Reading Material

Unit-5: Retail Supply Chain

Characterizing the types of Retail Supply Chain.

Unit-6: Inventory Handling

Introduction, Understanding the Basics of Inventory Handling, Understanding the Process of Inventory Handling-I, Understanding the Process of Inventory Handling-II. 8+4

CLASS-XII ELECTIVE RETAIL SERVICES (744) THEORY & PRACTICAL

Time: 3 Hours + 2 Hours

Unit-1: Advances in Retailing

• Retail Organizational Structure, Retail Research, Retail Strategy, Retail Consumer Behaviour. 11+7

Unit-2: Display of Products and Satisfy Customer Needs

Display or Products and Satisfy Customer Needs, Sale and Delivery of Products, Maintenance of Store Areas and Communicate Effectively with Stakeholders, Duties & Responsibilities of State Supervisor. 12+8

Unit-3: Non-store Retailing

• E-Retailing Logistics, E-Marketing, Telemarketing, Internet Business. 10+8

Unit-4: Event Management in Retailing

Understanding Event Management, Documentation for Conducting Events, Logistics and Standard Operating Procedures (SOP), Supervising Events. 12+8

Supplementary Material

Unit-5: Visual Merchandise

Visual Merchandise - Ideas, Understanding Store Fixtures.

Unit-6: Retail Pont-of-Sale: An Overview

 Understanding Components of Point-of-Sales, Understanding the Process of Point-of-Sale, Learning Pointof-Sale Marketing.

Unit-7: Retail Information Systems (RIS)

 Knowing the Retail Information System, Understanding IT Application in Retail: Data mining & Warehousing.

CLASS-XII

GENERAL FOUNDATION COURSE (501)

(Common for Office Secretaryship, Stenography & Computer Application, Accountancy & Taxation, Marketing & Salesmanship, Retail, Financial Market Management and Business Administration)

LIST OF RECOMMENDED BOOKS

- 1. Dynamics of Retailing, Students Handbook, Class X, Published by CBSE.
- 2. Retail Operations–I, Students Handbook, Class XI, Published by CBSE.
- 3. Retail Operations–II, Students Handbook, Class XII, Published by CBSE.

Marks: 100 (Theory 60 + Practical 40)

5+3

IT APPLICATION

CLASS-XII ELECTIVE DATABASE MANAGEMENT APPLICATIONS (795) THEORY

Time: 2.5 Hours

Unit Code	Unit Title	Total Hours	Total Marks
ITDC-401	 Database Concepts – RDBMS Tool. Basics of RDBMS. SQL – Creating and Opening Database. Creating and populating tables. Modifying the content and structure of table. Ordering and Grouping. Operating with multiple tables. 	50	10
ITDC-402	 Operating Web Based Applications. Online Reservation Systems. E-Governance. Online Shopping and Bill payments. Online Tutorials and Tests. Project Management – Web Based Application development. Project essentials and tips. Case Study - Online Game. Case Study - Online Quiz. Case Study – Online Bill Calculator. 	30	15
ITDC-403	Fundamentals of Java programming, Introduction to Java, Object Oriented Programming, Java Language Elements, Operators, Control Flow, Array, Class Design, Exception Handling, Assertions, Threads, Wrapper Classes, String Manipulation.	30	15
ITDC-404	 Work Integrated Learning IT – DMA. Identification of Work Areas. Work Experience. 	14	10
		124	50

PRACTICAL

Tim	e: 2.5 Hours	Marks: 50
	Details	Marks Distribution
	Programs / Practical Questions.	30
	• SQL Queries (15 Marks).	
	• JAVA Programs (10 Marks).	
	• Operating Web Based Application (5 Marks).	
	Project / Practical File	10
	Viva Voce	10
	Total	50

CLASS–XII ELECTIVE WEB APPLICATONS (796) THEORY

Time: 2.5 Hours

Unit Code	Unit Title	Total Hours	Total Marks
ITDC-410	 Movie Editing Tools. Familiarization of interface components. Importing pictures. Importing Audio and Video Files. Splitting and Joining Movie Clips. Adding Titles and publishing. 	30	10
ITDC-411	 Customizing and Embedding Multimedia components in Web Pages. Compatible Multimedia file formats for Web Pages. Embedding Audio file. Embedding Video file. Embedding Flash file. 	40	15
ITDC-412	 Web Scripting – Java Script. Java Script review. Functions – user defined. String Object. Math Object. Array Object. Events. Case Studies. 	30	15
ITDC-413	 Work Integrated Learning IT – WA-II. Advanced Features of Web Design. Code view, Add-ins / Snippets and Page Transitions. Dynamic Web templates. SEO - Search Engine Optimization. Forms - Advanced. Publishing webpages or websites-I. Publishing webpages or websites-II. 	24	10

•	Authoring tools. CSS templates.		
		124	50

PRACTICAL

Marks: 50

Details	Marks Distribution
Programs / Practical Questions.	30
• Movie Editing Tools (15 Marks).	
• Customizing and Embedding, Multimedia Components in Web Pages (10 Marks).	
• Web Scripting - Java Script (5 Marks).	
Project / Practical File	10
Viva Voce	10
Total	50

CLASS–XII GENERAL FOUNDATION COURSE (501) (Common for Engineering & Technology Based Courses)

LIST OF RECOMMENDED BOOKS

- 1. Information Technology (IT) Student Handbook for level I, Published by CBSE.
- 2. IT Tools, Student Handbook, Level–III by CBSE.

Time: 2.5 Hours

- 3. Web Application–I, Student Handbook, Level–III by CBSE.
- 4. Database Management Application, Level–IV by CBSE.
- 5. Web Application–II, Student Handbook, Level–IV by CBSE.

MARKETING & SALESMANSHIP CLASS–XII ELECTIVE MARKETING (783) THEORY

Time: 3 Hours

Unit S. No. Sessions **Marks** Allotted 1. **Product** 10 • Meaning & Importance of Product. Classification of Product. Product Life Cycle - Concept & Stages. Role of Packaging & Labeling. . 2. **Price Decision** Meaning and Importance of Price. 10 . Factors Affecting Pricing. Types of Pricing. Place Decision: Channels of 3. 16 Meaning & Importance of Place. Distribution Types of Distribution. Factors affecting the choice of Channels of Distribution. Functions of intermediaries. 4. Promotion Meaning & Need of Promotion. 12 • Elements of Promotion Mix. Factors affecting the selection of Promotion. Trends 12 5. Emerging in • Service Marketing. Marketing Online Marketing. Social Media Marketing. •

PRACTICAL

Time: 2 Hours

Marks: 40

Note: Unit No. 4 is compulsory and any two units out of Unit No.1, 2 and 3 may be allotted for practical. In total only three units are to be allotted to a student.

- 1. Market survey of selected consumer products on the basis of brand name and package. Collection of data and preparing report on the popularity of different brands and popularity and quality of packages of the products, and reasons thereof.
- 2. Making enquiries from wholesalers and retailers to study and report on the channels of Distribution of selected products.
- 3. Visiting Departmental store/retail, shop or consumer co-operative store located nearby to Study and report on the functioning of the store or shop.
- 4. Screening advertisements in newspapers/magazines, and through radio and TV Programmes and reporting on the differences in appeal of different media of advertising.

CLASS–XII ELECTIVE SALESMANSHIP (784) THEORY

Time: 3 Hours

Marks: 60

S. No.	Unit	Sessions	Marks Allotted
1.	Sales Organization	 Introduction to Sales Organization. Functions and Factors affecting Sales Structure. Classification of Sales Organization. 	10
2.	Inside Selling / Store Based Selling	 Understanding In-store Selling Environment. Types of Stores. Salesman as a Facilitator. Sales Career In-store Based Selling. 	15
3.	Field Selling	 Sales Territories: Purpose and Design of Territories. Sales Quotas: Need and Types of Sales Quotas. Activities in Field Selling. Sales Career in Field Selling. 	20
4.	Motivation & Compensation for Salesperson	Components of Motivation.Compensation Rewards.Non-Compensation Rewards.	15

PRACTICAL

Time: 2 Hours

- 1. 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.
- 2. 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.
- 3. Ascertaining through interview of outdoor Salesman (living or working nearby) the important steps which they follow in sales presentation and preparation of report thereon.

FOOD PRODUCTION

CLASS–XII ELECTIVE FOOD PRODUCTION–III (734) THEORY

Time: 3 H	ours	Marks: 60
Unit–1:	Kitchen Organization and Layout	5
	• Kitchen organization.	
	• General layout of kitchen in various organizations.	
	• Layout of receiving areas.	
	• Layout of service and wash up.	
Unit–2:	Насср	5
	• Introduction.	
	• Importance of HACCP.	
	• Critical control points in HACCP.	
Unit–3:	Larder	6
	• Introduction.	
	• Functions of the larder.	
	• Sections of larder.	
	• Duties and responsibilities of larder chef.	
Unit–4:	Fish Cookery	10
	• Classification of fish with examples.	
	• Cuts of fish.	
	• Selection of fish and shell fish.	
	• Cooking of fish.	
Unit–5:	Meat Cookery	10
	• Introduction to meat cookery.	
	• Slaughtering of meat.	
	• Common poultry, lamb/mutton & cuts.	
	• Selection of meat products.	
	• Variety meats (offal).	
Unit–6:	Appetizers and Salads	6
	• Classification of appetizers with examples.	
	• Components of salad.	
	• Types of salad.	
	• Salad dressings.	
Unit–7:	Sandwiches	3
	• Parts of a sandwich.	
	• Types of sandwiches.	

• Types of bread and fillings used.

Unit-8: Introduction to Bakery and Confectionery

- Raw Materials used in Bakery & Confectionery.
- Method of:
 - (i) Bread Making.
 - (ii) Cake Making.
 - (iii) Pastry Making.
- Different Types of Cookies.

Unit–9: Culinary Terms

PRACTICAL

Time: 2 Hours

To formulate 20 sets of menus keeping in mind the following points

- 1. One menu may contain 3-4 dishes. Each student is required to prepare four portions of each dish in a menu.
- 2. 5 sets of menu to be formulated from the dishes covered in class XI Continental practical.
- 3. 10 sets of menu may be formulated from the traditional recipes.
- 4. 5 sets of menu should be based on the latest food trends in the hotel industry.

Bakery and Confectionery

- 1. Two varieties of breads.
- 2. Two varieties of cookies.
- 3. Two varieties of decorated cakes.
- 4. Jam tart, chocolate éclairs.

5

CLASS–XII ELECTIVE FOOD PRODUCTION–IV (735) THEORY

Time: 3 H	ours	Marks: 60
Unit–1:	Quantity Food Production (Bulk Cooking)	
	Institutional Catering.	
	• Railway/Airlines.	
	• Hospital Catering.	
Unit–2:	Menu Planning for Bulk Cooking	5
	• Types of menu.	
	• Principles of menu planning.	
	• Planning menus for various occasions (application).	
Unit–3:	Indenting	9
	• Introduction.	
	• Principles of indenting.	
	• Importance of indenting.	
	• Portion sizes of common food items.	
	• Indenting for menus (applications).	
Unit–4:	Purchasing and Storing	6
	• Purchasing.	
	• Storage.	
Unit–5:	Food Costing	10
	• Importance of food costing.	
	• Elements of cost (food cost, labour cost and over heads).	
	Calculation of food cost.	
	Calculation of labour cost.	
	• Calculation of overheads.	
	• Calculation of kitchen profit/gross profit, after wage profit and net Profit.	
	• Expressing each element as percentage of sales.	
Unit–6:	Food Cost Control	9
	• Importance of food cost control.	
	• Factors affecting food cost.	
	Portion control.	
	• How to control food cost.	
Unit_7:	Indian Regional Cuisine	9
	Introduction to Indian regional cuisipe	,
	Heritage of Indian cuisine	
	Eactors in fluencing the eating habits in different parts of the country	
	Common/popular racional cuicinas of India	
	• Common/popular regional cuisines of India.	

Unit-8: Indian Regional Cuisine of the following states on the following grounds

- Geo graphical Location.
- Staple Food.
- Festival.
- Features.
- Special Dishes.
 - (i) Kashmiri.
 - (ii) Punjabi.
 - (iii) Bengali.
 - (iv) Gujrati.
 - (v) Gaon.
 - (vi) Maharashtrian.
 - (vii) Hyderabadi.
 - (viii) South Indian.
 - (ix) Indian Breads.
 - (x) Indian Sweets.

PRACTICAL

Time: 2 Hours

Marks: 40

To formulate 20 sets of menus keeping in mind the following points

- 1. Each set of menu must have at least 4 items, including an Indian bread and/or sweet.
- 2. Minimum 40 portions to be prepared by the students, working in group of 3-4 students.
- 3. 5 sets of menu to be formulated from the dishes covered in class XII indian cuisine practical.
- 4. 10 sets of menu may be formulated from the traditional recipes.
- 5. 5 sets of menu should be based on the latest food trends in the hotel industry.

Tandoor

- 1. Introduction.
- 2. Woking of Tandoor.
- 3. Preparation of 3 Indian breads and two simple kebabs.

FOOD BEVERAGE SERVICES

CLASS–XII ELECTIVE FOOD SERVICE (736)

THEORY

Time: 3 H	ours	Marks: 60
Unit–1:	Breakfast Service	10
	Types of Breakfast	
	Continental Breakfast.	
	American Breakfast.	
	• English Breakfast.	
	• Indian Breakfast.	
Unit–2:	Simple Control System	8
	• Kot/Bill Control System.	
	• Special Kot (EnPlance, Nc Etc.).	
	Restaurant Sales Control Kot, Bill.	
Unit–3:	Room Service	8
	• Types of Room Service.	
	• Order Taking and Telephone handling.	
	Room Service Door Knob Card.	
Unit–4:		12
	Banquets and Buffet	
	• Introduction.	
	• Types of Banquets– formal/semi formal/informal.	
	Types of Buffets	
	• Finger Buffet.	
	• Fork Buffet.	
	• Break Fast Buffet.	
	• Sit Down Buffet.	
Unit–5:	Pantry Operations	14
	• Importance.	
	Organization chart.	
	• Layout.	
	Common equipments.	
	• Popular Dishes prepared in a pantry.	
Unit–6:	Kitchen Stewarding	4
	• Introduction.	
	• Importance.	
	• Machines used.	

• Care of inventory.

Unit–7: Situation Handling

- Handling complaints.
- Procedure during a Fire accident.
- Dealing with a bomb threat /terrorist attack.

PRACTICAL

Time: 2 Hours		Marks: 40
1.	Recap–Mise-en-Place.	4
2.	Recap & Practice of Silver Service.	8
3.	Recap & Practice of Tray & Salver Handling.	4
4.	Recap–Laying Table for Different Meals.	4
5.	Room Service Tray and Trolley Setup.	4
6.	Setting up Various Buffets.	2
7.	Service of Indian Regional Dishes.	6
8.	Dinning Etiquettes & Table Manners.	2
9.	Pantry Operations.	6
N T 4		

Note: Students to undergo practical Food Service training during lunch hour on rotational basis.

CLASS–XII ELECTIVE FOOD AND BEVERAGE COST AND CONTROL (737) THEORY

Time: 3 Hours

Unit-1: Food Cost Control

- Introduction to Control.
- Definition.
- Objective and Advantages of Cost Control.
- Obstacle to Food and Beverage Controls.
- Limitation of Cost Control.
- Methodology and Phases of Cost Control.
- Essentials of Cost Control.

Unit–2: Cost and Costing

•

- Elements of Cost:
 - (i) Food Cost.
 - (ii) Labor Cost.
 - (iii) Over Heads.
 - Break Even Point.

Unit-3: Introduction to Cost Control Cycle

8

Marks: 60

6

- Purchasing.
- Receiving.
- Storing.
- Issuing.
- Production Control.
- Sales Control.

Unit-4: Beverage Control

- Beverage Sales Control.
- Beverage Order Ticket (BOT).
- Beverage Cheque.
- Beverage Summary Sheet.
- Beverage Sales Summary Sheet.
- Visitors Tabular Ledger/NCR.
- Guest Weekly Book/Day Book/NCR.

Unit-5: Purchasing

6

• Definition.

- Aims of Purchasing.
- Purchasing Staff.
- Selection of suppliers.
- Types of food purchased.
- Quality Purchasing.
- Standard Purchase Specification (SPS).
- Purchase Methods.
- Controls in Purchasing.
- Purchase Order.

Unit-6: Receiving

- Introduction.
- Receiving Staff.
- Equipments for receiving.
- Documents provided by Suppliers.
- Quotation.
- Delivery Note.
- Bill/Tax Invoice.
- Credit Note.
- Records maintained in Receiving Department.
- GRB.
- Meat Tag.
- Controls in Receiving.
- Receiving Procedure.
- Blind Receiving.
- Frauds in Receiving.

Unit–7: Storage Control

- Aims and Objectives.
- Store Room Staff.
- Location and Layout.
- Arrangement of Food.
- Inventory Control.
- Stock Levels.
- Records maintained.
- Stock Taking.Controls in Storage.
- Unit-8: Issuing Control

 Indenting.
 Transfer Notes.
- Unit-9: Production Control 6 • Standard Recipe.
 - Standard Portion Size.

Unit-10: Sales and Revenue Control

- Process for receiving payments by various modes:
 - (i) Cash.
 - (ii) Travelers Cheque.
 - (iii) Credit Card.
 - (iv) Debit Card.
 - (v) Credit Sale (Companies).
 - (vi) Travel Agents, etc.
- ECR
- NCR
- POS

Time: 2 Hours

• Cash Handling.

PRACTICAL

Unit-1: Food Cost Control10Numerical on:• Food Cost (material cost).• Labor Cost.• Over heads.• Total Cost.• Food Cost Percentage.• Over Heads Percentage.• Total Cost Percentage.• Total Cost Percentage.• Total Cost Percentage.

6

8

Unit-2: Cost and Costing

Numerical on:

- Food and Beverage departmental Profit and Loss account.
- Profit and Loss account under the Net profit Method of Food and Beverage department.
- Trading and Profit and Loss account of Food and Beverage department.
- Profit /Volume (P/V) ratio.
- Break Even Chart.
- Break Even Point (in units).
- Break Even Point (in Rs).
- Margin of safety.
- Profit at Maximum Level.

Unit–3: Beverage Control

- Beverage Sales Control Chart .
- Bar Order Ticket (B.O.T.).
- Restaurant Check.
- Restaurant Sales Summary Sheet Numericalon.
- Guest Weekly Bill/DayBook.
- Visitor's Tabular Ledger (V.T.L).

Unit-4: Assignment: Preparation 'Beverage Control System Flow Chart' with each step explained in detail. 10

FRONT OFFICE OPERATIONS CLASS–XII ELECTIVE FRONT OFFICE OPERATIONS (753) THEORY

Time: 3 H	ours	Marks: 60
Unit–1:	Guest Cycle	10
	• Pre-arrival.	
	• Arrival.	
	• During Stay.	
	• Departure.	
	• Post-departure Activities.	
Unit–2:	Reception	8
	• Importance of Registration.	
	• Receiving of Guest.	
	Pre-registration Activities.	
	Registration Activities.	
	Post-registration Activities.	
	• Registration of a Foreigner Guest.	
	Room Selling Techniques.	
Unit–3:	Bell Desk	8
	• Functions.	
	• Equipment and Aids used in Bell Desk.	
	• Procedures of Bell Desk.	
Unit-4:	During the Stay Activities	8
	• Message Handling.	
	• Mail Handling.	
	• Key Handling.	
	• Complaint Handling.	
Unit–5:	Telephone	6
	Telephone Manners & Etiquettes.	
	• Telephone Equipment.	
Unit 6:	Information and Concierge	7
	Role and Importance.	
	Competencies required	
Unit_7.	Glossary	7
Unit Q.	Assignments	1
Umt-0 .	ABBIGHINUND	0

PRACTICAL

Time: 2 Ho	Marks: 40	
Unit–1:	Formats Used in Registration	4
	• Registration card.	
	• C-form.	
Unit–2:	Formats Used on Bell Desk	4
	• Errand card.	
	• VIP amenity voucher.	
Unit–3:	Role Play on Luggage Handling	4
Unit–4:	Chart for Bell Desk Equipments	4
Unit–5:	Role Play on Message and Mail Handling	4
	• Message.	
	Incoming Mail.	
	• Outgoing Mail.	
Unit-6:	Role Play on Receiving a Guest and Filling up Necessary Formats	4
	• Etiquettes and manners.	
	• Role play on complaint handling.	
Unit–7:	Role Play on Telephone Handling	4
	• Conversation between a caller and the Telephone Operator.	
Unit–8:	Role Play on up Selling Techniques	4
Unit-9:	Situation Handling at the Concierge	4
Unit–10:	Quiz based on Glossary Terms	4
	• Reception.	

- Bell desk.
- During the stay activities.
- Information & concierge.

CLASS–XII ELECTIVE ADVANCED FRONT OFFICE OPERATIONS (754) THEORY

Time: 3 Hours Marks: 60 Unit–1: Cashier 8 Role of Front Office Cashier. • Functions & Procedures. • Equipment used by Front Office Cashier. ٠ Unit–2: **Departure Procedure** 10 Step by Step Process of Guest Check-out Modes of Settlement of Guest Folio. ٠ Cash. • Credit card. •

	• Foreign currency.	
	Travel Agent Voucher.	
	Company Billing Letter.	
	Travellers Cheque.	
	• Express Check-out.	
	• Late Check-out.	
Unit–3:	Front Office Accounting	8
	• Basics of Accounting.	
	• Folio and its Types.	
	• Voucher and its Types.	
	• Ledger	
	(i) Guest Ledger.	
	(ii) Non-guest Ledger.	
Unit–4:	Formats used in Manual Accounting System	6
	• Guest Weekly Bill.	
	• Visitors Tabular Ledger.	
Unit–5:	Role of PMS in Front Office Department	5
	• Role of Property Management System.	
Unit–6:	Front Office Reports	6
Unit–7:	Introduction to Night Audit Procedure in Front Office	6
Unit–8:	Glossary	5
Unit–9:	Assignments	6
Referenc	- es:	

- Check-In Check-Out Managing Hotel operations: Gary K. Vallen, Jerome J. Vallen.
- Principles of Hotel Front-Office Opeartions: Sue Baker, Jeremy Huyton, Pam Bradley.
- Hotel Front Office Operations & Management: Jatashankar R. Tiwari.
- Front Office Management: Sushil Kumar Bhatnagar.

Time: 2 Hours

PRACTICAL

Marks: 40

Filling up and Practice on Formats of Different Vouchers used in Accounting System 7 Unit–1: • Paid-out vouchers. Correction vouchers. • Transfer vouchers. • Charge voucher. • Allowance voucher. • Unit–2: **Role Play of Express Check-out Process** 6 Express check – out form. • Manual Practice of Accounting Procedure in non- Automated System 7 Unit–3:

	• Guest weekly bill.	
	• Visitors tabular ledger.	
Unit–4:	Role - Play of Check out Procedure	7
	• By cash.	
	• By credit.	
	• Bill to Company.	
	• Foreign Currency.	
	• Travelers Cheque.	
Unit–5:	Role Play	7
	• Folio Postings.	
	• Night Auditing .	
	• Maintaining guest history.	
Unit–6:	Quiz based on Glossary Terms of Guest Accounting System	6

<u>GEOSPATIAL TECHNOLOGY</u> CLASS–XII ELECTIVE GEOSPATIAL TECHNOLOGY (740) THEORY

Time: 3 Hours

Chapter–1: Remote Sensing (RS)

- Introduction.
- Spectral Reflectance Signature.
- Digital Image Processing.
- Visual Interpretation of Satellite data.
- Aerial Photo and Its Interpretation.
- Advanced Remote Sensing Technologies.
- Advantages and Benefits of RS.

Chapter-2: Geographic Information System (GIS)

- Introduction.
- GIS Data Element and Data Structure.
- Fundamentals of Database Concept.
- Data Input to GIS System.
- GIS Data Editing.
- Attribute Data Linking.
- Spatial and Non Spatial data Analysis.
- Map Projection and Coordinate System.
- Digital Cartography.
- Advantages and Benefits of GIS.

Chapter-3: Global Positioning System (GPS)

- Introduction.
- GPS Accuracy and Accuracy factors.
- Types of GPS.
- List of Global Navigation System.
- GPS Today & Limitations of GPS.
- Uses of GPS Technology.

Chapter-4: Trends in Geospatial Technology

- Introduction.
- Remote Sensing Trends & Technology.
- GIS Trends & Technology.
 - (i) Web Based GIS.

Marks: 60

20

20

- (ii) Enterprise GIS.
- (iii) Mobile GIS.
- (iv) 3-D Visualization and Fly through.
- (v) Open GIS.
- GPS Trends & Technology.

Chapter-5: Applications of Geospatial Technology

- Water shed Studies.
- Flood Studies.
- Ground water Studies.
- Health Issues.
- Utility Studies.
- Security and Defense Studies.
- Urban and infrastructure Studies.

PRACTICAL

Tim	e: 2 Hours	Marks: 40	
1.	Projection of Data		
	• Georeferencing.		
	• Coordinating System and components.		
	• Image to map registration.		
	• Image to image registration.		
2.	Digitization	5	
	• Building Topology.		
3.	Digital Image Processing		
	• Image enhancement.		
	• Unsupervised classification.		
	• Supervised classification.		
4.	Geospatial Data Creation and Editing		
	• Querying (Location parameters, graphics etc.).		
	• Projection data.		
	• Building geo database.		
5.	Spatial Analysis & Thematic Mapping		
	Overlay analysis		
	• Geoprocessing of data intersection, union dissolve, merge, clip.		
	• Functional attribute and expression.		
	• Statistics and Report generation.		
6.	Symbology & Layouts		

- Map surfing.
- Preparing map and its layout.
- Indexing.
- Scale and annotation.
- Preparing maps for presentation.

7. On Job Training

- Preparation of maps for.
- Environment analysis.
- Urban area.
- Water bodies.
- Agriculture and Forest Collecting ground truth with GPS Overlaying of different maps in GIS.

AUTOMOBILE TECHNOLOGY CLASS-XII ELECTIVE AUTO ENGINEERING (627) THEORY

Time: 2.5 Hours+2.5 Hours

1. **Service Equipment**

- Construction, working and application of air compressor, hydraulic hoist, car washer, oil dispenser, grease • dispenser, tyre inflator, spark plug cleaner and tester, wheel balance (Dynamic), brake efficiency tester.
- Preventive, operative and breakdown maintenance schedules.

2. **Automobile Lubrication and Cooling System**

- Necessity of lubrication, different type of lubricants and their grades (SAE Number), type of lubrication system, function and working of different components (oil pump, oil filter) used in lubrication system, trouble shooting and remedies.
- Necessity of cooling system, different type of cooling system (water and oil cooling), their merits and demerits, function and working of different components (water pump, radiator, radiator pressure cap, thermostat valve etc.) used in cooling system, trouble shooting and remedies.

3. **Final Drive System**

- Function, type and working of universal joints, propeller shafts. •
- Principle and working of differential, rear axle.

4. **Front Axle and Steering**

Function, type and operational details of front axles and stub axles: Ackermann's principle of steering, toe-in, • toe-out, castor, camber, king pin inclination (steering axis inclination), steering gear box (rack and pinion, worm and nut with re-circulating balls) and steering linkages, power steering, trouble shooting and remedies.

5. **Frame and Suspension**

Frame and frameless construction, description of suspension system, leaf springs, coil springs and torsion bar. • Function and working of different types of shock absorbers, trouble shooting and remedies.

6. **Automobile Electrical System**

- Battery (lead acid type) construction, charging and discharging action, maintenance of batteries concept of • maintenance free batteries, different circuit diagrams (Charging circuit, starting circuit, lighting circuit, horn circuit, wiper circuit), Wiring diagram of car, functions of various components used in electrical circuits of automobile. Function and working principle of dynamo alternator, self-starter and three GC unit regulators.
- Ignition system (battery ignition and magneto ignition), Spark plug classification, ignition timing.

7. **Motor Vehicle Act 1983 and Rules**

- Provision regarding issue of driving licence, registration, insurance, transfer of ownership, fitness certificate, traffic signs, hand signals used by driver and traffic personnel.
- Emission, control, sources of emission/pollutants, Emission Norms in India.

Note: Practical will be based on aforesaid theory paper.

8

10

Theory: 50 Practical: 50

6

6

6

7

CLASS-XII ELECTIVE AUTO SHOP REPAIR & PRACTICE (628) THEORY

Tim	e: 2.5 Hours+2.5 Hours	Theory: 50 Practical: 50
1.	Service Manual	2
	• Reading of service manual.	
2.	Inspection and Repairs of the Fasteners	4
	• Identification of fasteners used in a vehicle.	
	• Various procedure used for removal of fasteners from the unit.	
3.	Measuring Equipments	10
	• Handling and Use of dial gauge, telescopic gauge and bore gauge.	
	• Handling and Use of Vernier caliper and tyre depth gauge.	
	• Handling and Use of micrometer.	
	• Handling and Use of hydrometer and bevel gauge.	
	• Handling and Use of torque wrench and filler gauge.	
	• Usage of various gauges in a dashboard in vehicle.	
4.	Suspension System	
	• Maintenance of suspension system.	
	• Service and replacement of leafs, cambering of leaf springs, shackle, shackle pin and centre	e bolt.
	• Replacement of strut/shock absorbers, inspection of steering linkages.	
	• Manual and Power steering systems, Air suspension system.	
	• Steering system adjustments.	
5.	Serviceability, Replacement or Repair of Components	10
	• Reconditioning of valve mechanism.	
	• Inspection and replacement of piston rings.	
	• Inspection and replacement of connecting rod and engine bearing.	
	• Testing of cooling system and replacement of defective component.	
	• Regular servicing of MPFI system.	
	• Servicing of CRDI / Non-CRDI system.	
6.	Transmission System	6
	• Servicing of propeller/drive shaft, universal and slip joints.	
	• Servicing of differential unit and adjustments.	
	• Introduction to automatic transmission system.	
7.	Auto Electrical System	8

- Reading of electrical symbol, circuit diagrams, colour codes and specification of cables and wiring hardness. •
- Multi meter, timing light (stroboscope) and oscilloscope and its application.
- Battery and its maintenance. •
- Circuit diagram for battery charging.
- Checking of electrical connections and lights in a vehicle.
- Lighting system, application and replacement of fuses.
- Horn assembly, electrical fuel gauge and fuel pump their application and maintenance.
- Circuit diagram for starter circuit. •
- Circuit diagram for ignition circuit.
- Servicing of wiper system.
- Introduction of HVAC System in a vehicle. •

Note: Practical will be based on aforesaid theory paper.

CLASS-XII **OPTIONAL ENGINEERING SCIENCE (622)**

THEORY

Time: 3 Hours

Engineering Drawing Α.

- Section of Solids: Concepts of sectioning. Projection of sections of poly-Hedron including their true shapes. (a) 0
- Development of Surfaces: Development of Poly-Hedron and solids of revolution including their sections.8 (b)
- Fasteners: Introduction of temporary and permanent fasteners, riveted joints and welded joints. Types of (c) screw threads, conventional symbols for Internal and External threads, ISI specifications. Drawing of Bolts, Nuts, studs and locking devices. Their application in Engineering field. Q
- Keys and Cotters: Different types of keys, sleeve and cotter joints, socket and spigot joints, knuckle joints. (d)
- Couplings: Solid and split coupling, flanged coupling, simple and protected. (e)

Workshop Technology **B**.

Welding: General characteristics of welded joints, Principle of welding, Types of welding processes and their (a) brief description e.g. gas welding and arc welding, high pressure gas welding and low pressure gas welding. DC welding and AC welding, brief description of resistance welding, spot welding, butt welding, seam welding, submerged arc welding, thermit welding, inert gas welding, tungsten inert gas welding, mig. atomic hydrogen welding.

Gas welding and AC welding tools and equipments, selection of electrodes, fluxes, currents, torches and equipments. Specifications of tools, equipment and materials according to BSI. Different types of flames and their application in welding, Defects in welding and their detection. 15

- Metallic and Non-Metallic Coatings: Necessity of metallic and non-metallic coatings. Principle and (b) processes of electroplating and galvanising, their applications. Properties and uses of varnishes, paints including primers and enamels. 6
- Plastics Technology: Introduction to thermoplastic and thermo-setting plastics, general properties, injection (c) moulding, compression moulding-process and equipment, other plastic moulding methods, Machining plastics. 9

Marks: 70

40

30

PRACTICAL

Time: 2 Hours

Marks: 30

1. **Welding Shop:** Are welding-introduction to tools and equipments, safety precautions, use of welding transformer/ welding machine, method of selecting current, choice of electrode. Exercise involving surface and edge preparation, making of simple welding joints.

Gas Welding: Introduction to gas welding equipment, safety precautions, selection of gas pressure, welding toruch type of flame, flux, welding rod and welding technique. Exercise involving job preparation and making Single Joints, Brazing practice of brazing by gas.

2. **Machine Shop:** Introduction to various types of Drilling machine (portable Drilling Machine, Pillar type, Bench type, Radial drilling machine).

Simple Exercises involving the use of above machines.

Introduction to Lathe (Job mounting, Tool holding Devices).

Simple exercises on Lathe (Turning, Facing, Parting, Step Turning, Chamfering, Knurling, Groove cutting by Form tool).

3. **Painting and Polishing:** Introduction to paints and allied materials, exercises on surface, preparation, varnishing, spirit polishing painting-using brush and spray, casual painting.

List of Experiments

Machine Shop

- 1. Drilling at specified position using a bench drilling machine.
- 2. Drilling holes upto 40 mm diameter, using a radial drilling machine.
- 3. Use of pillar type drilling machine for drilling hole upto 25 mm diameter.
- 4. Mountaining a job on a lathe machine in the four jaw chuck.
- 5. Setting of various types of cutting tools in tool post of a lathe machine.
- 6. Facing, centering, plain turning and chamfering on a lathe machine.
- 7. Step Turning and parting of job on a lathe machine.
- 8. Knurling and growing of job on a lathe machine with the help of forming tool.

Welding Shop

- A. Arc Welding
 - 1. Introduction of tools and welding transformer for electric arc welding.
 - 2. Safety precautions of arc welding.
 - 3. Introduction to various types of electrodes for arc welding and selection of current.
 - 4. Edge preparation and making a Butt-joint.
 - 5. Making a lap joint with the help of arc welding.
 - 6. Making a T-Joint with the help of arc welding.
 - 7. Making a corner-joint with the help of arc welding.

B. Gas Welding

- 1. Demonstration of gas welding equipment including.
 - (i) Selection of gas pressure welding torches.
 - (ii) Various types of welding rods, flames and fluxes.
- 2. Safety precautions in gas welding.
- 3. Edge preparation and making Butt joint with help of ages welding.

- 4. Making a lap-joint with the help of gas welding.
- 5. Making a T-joint with the help of gas welding.
- 6. Making a Corner-joint with the help of gas welding.
- 7. Brazing practice with the help of welding-toruch.

Painting and Polishing Practices

- 1. Filling or putty application.
- 2. Staining.
- 3. Sand preparing.
- 4. Varnish Polishing.
- 5. Spirit Polishing.
- 6. Brush Painting.
- 7. Spray Painting.

Note: Each student should perform all the experiments and Practices during the session.

List of Experiments

- 1. To test safety and operating controls such as Relay, Thermostat, L.P. cut-out, H.P. cut-out, Over-load protector, solenoid valve, oil pressure, Failure Control etc.
- 2. To carry out electric wiring of Refrigerator and Bottle Cooler.
- 3. To carry out electric wiring of window type Air Conditioner.
- 4. To test compressor for efficiency and earthing etc.
- 5. To service a window type Air Conditioner.
- 6. To find fault in Refrigerator and Bottle cooler.
- 7. To find fault in Air Conditioner.
- 8. To Check Comfort Conditions such as air, temperature, humidity, Air Motion etc.
- 9. To adjust the Automatic System.
- 10. To study compressor capacity control methods.

Note: Each student should perform all the experiments during the session.

CLASS-XII OPTIONAL MECHANICAL ENGINEERING (626)

THEORY

Time: 3 Hours

- Transmission of Power: Uses of belts and ropes (without including their materials), pulleys different types of pulleys. Chain drive, its comparison with belt drive. Gear drive, types of gears, simple gear trains and velocity ratio. Description of single plate disc. clutch.
- Steam Biolers: Coch boiler, Lancashire boiler, Bibcock and Wilcox boiler, Baby Vertical boiler, their mountings and accessories.
 12
- Turbines: Classification and application of turbines. Elementary study of different types of turbines-construction and working of D' Level and Parson's turbine, pelton wheel, Francis and Kaplan turbine.
 12
- 4. I.C. Engines and Compressors: Classification and application of I.C. engines commonly used, spark ignition and compression ignition engines, working principles of two stroke and four stroke Petrol and Diesel engines Ignition

engines, working principles of two stroke and four stroke Petrol and Diesel engines. Ignition systems in Petrol engines. Construction and working of a simple reciprocating compressors. 12

Material Handling: Brief treatment of bulldozer, shovel, road roller, concrete mixer, crane, travelling gantry crane, screw Jack, hydraulic Jack.

PRACTICAL

Time: 2 Hours

- 1. To study various devices for transmission of power, models of belts, pulleys, gears and chains.
- 2. To study baby vertical boiler with the help of model.
- 3. To study Lancashire boiler with the help of model.
- 4. To study Bibcock and Wilcox boiler with the help of model.
- 5. To study simple steam turbine with the help of model.
- 6. To study 4 stroke petrol and diesel engines with the help of model.
- 7. To study 2 stroke petrol engine with the help of model.
- 8. To study ignition system of petrol engine.
- 9. To study cooling system of IC engine.
- 10. To study simple reciprocating air compressor.
- 11. To study Hydraulic Jack and screw-Jack.

Guidelines for Examiners

(Common for Practical Paper II & III)

Examiner will evaluate the candidate as per the following guidelines:

- 1. Systematic approach to the problem.
- 2. Dismantling, assembling and replacing of components etc.
- 3. Safety precautions.
- 4. Initiative taken by individual candidate.
- 5. Proper use of tools.
- 6. Special consideration be given for skill, workmanship and finish.
- 7. Records of on-job-training.

Note: Each student may be allotted two experiments from the list and he/she may perform any one out of the two.

General Instructions to the Students/Candidates

(Common for Practical Paper II & III)

- 1. It is essential for each student to complete every Practical himself and not merely watch others doing it.
- 2. The student should make simple line diagram of the assembly components/circuit and note the provisions for important points adjustments therein.
- 3. After completing the practical exercise, he must write in his Practical note book using the following heading:
 - Title to include objective of Practical exercise.
 - Tools-Equipments and Materials used (if possible, with specifications).
 - Procedure of performing the Practical including any special precautions to be taken during Dismantling or Reassembling.
 - Examination of Parts, noting methods of adjustments and recording reason for service ability of amount of wear.

- Conclusion: A report on the general condition of the assembly components including a list of new parts fitted/replaced or recommendation to make the component fit for further service.
- Safety precautions to be taken while performing the Practicals.

4. In case of any difficulty while performing the Practicals, the Examinee must approach his teacher without hesitation.

FINANCIAL MARKETS MANAGEMENT

CLASS–XII ELECTIVE CAPITAL MARKET OPERATIONS (793) THEORY

Time: 3 Hours			Marks: 60
Chapter-1:	An (Overview of the Indian Securities Market	10
	1.1	Market Segments.	
	1.2	Key Indicators Of Securities Market.	
	1.3	Products and Participants.	
	1.4	Market Segments and their Products.	
	1.5	Reforms in Indian Securities Markets.	
Chapter-2:	Tra	ding Membership	15
	2.1	Stock Brokers.	
	2.2	NSE Membership.	
	2.3	Surrender of Trading Membership.	
	2.4	Suspension & Expulsion of Membership.	
	2.5	Declaration of Defaulter.	
	2.6	Authorised Persons.	
	2.7	Sub-Brokers.	
	2.8	Broker-Clients Relations.	
	2.9	Sub-Broker-Clients Relations.	
	2.10	Investor Service Cell And Arbitration.	
	2.11	Code of Advertisement.	
Chapter-3:	Tra	ding	15
	3.1	Introduction.	
	3.2	Neat System.	
	3.3	Market Types.	
	3.4	Trading System Users Hierarchy.	
	3.5	Local Database.	

- 3.6 Market Phases.
- 3.7 Logging On.
- 3.8 Log Off/Exit from the Application.
- 3.9 NEAT Screen.
- 3.10 Invoking an inquiry Screen.
- 3.11 Order Management.
- 3.12 Trade Management.
- 3.13 Auction.
- 3.14 Limited Physical Market.
- 3.15 Block Trading Session.
- 3.16 Retail Debt Market (RDM).
- 3.17 Trading Information downloaded to Members.
- 3.18 Internet Broking.
- 3.19 Co-location.
- 3.20 Wireless Application Protocol (WAP).

Chapter-4: Clearing, Settlement and Risk Management

- 4.1 Introduction.
- 4.2 Key Terminologies used in Clearing and Settlement Process.
- 4.3 Transaction Cycle.
- 4.4 Settlement Agencies.
- 4.5 Clearing and Settlement Process.
- 4.6 Securities and Funds Settlement.
- 4.7 Shortages Handling.
- 4.8 Risks in Settlement.
- 4.9 Risk Management.
- 4.10 International Securities Identification Number.
- 4.11 Data and Report Downloads.

Chapter-5: Legal Framework

- 5.1 SEBI (Intermediaries) Regulations, 2008.
- 5.2 SEBI (Prohibition of Insider Trading) Regulations, 1992.
- 5.3 SEBI (Prohibition of Fraudulent And Unfair Trade Practices Relating to Securities Market)
- 5.4 Regulations, 2003.
- 5.5 The Depositories Act, 1996.
- 5.6 Indian Contract Act, 1872.
- 5.7 Income Tax Act, 1961.

Chapter-6: Fundamental Valuation Concepts

- 6.1 Time value of Money.
- 6.2 Understanding Financial Statements.

DERIVATIVE MARKET OPERATIONS (794) THEORY

Time: 3 Hours

1000. 5 11000	,	Marks: 60		
Chapter-1:	Intr	oduction to Derivatives	!	5
	1.1	Types of Derivative Contracts.		
	1.2	History of Financial Derivatives Markets.		
	1.3	Participants in a Derivative Market.		
	1.4	Economic Function of the Derivative Market.		
Chapter-2:	Und	erstanding Interest Rates and Stock Indices	:	5
	2.1	Understanding Interest rates.		
	2.2	Understanding the Stock Index.		
	2.3	Economic Significance of Index Movements.		
	2.4	Index Construction Issues.		
	2.5	Desirable Attributes of an Index.		
	2.6	Applications of Index.		
Chapter-3:	Futu	res Contracts, Mechanism and Pricing	:	5
	3.1	Forward Contracts.		
	3.2	Limitations of Forward markets.		
	3.3	Introduction to Futures.		
	3.4	Distinction between Futures and Forwards Contracts.		
	3.5	Futures Terminology.		
	3.6	Trading Underlying vs. Trading Single Stock Futures.		
	3.7	Futures Payoffs.		
	3.8	Pricing Futures.		
	3.9	Pricing Stock Futures.		
Chapter-4:	App	lication of Future Contracts	:	5
	4.1	Understanding Beta (β),		
	4.2	Numerical illustration of Applications of Stock Futures,		
	4.3	Hedging using Stock Index Futures,		
Chapter-5:	Opti	ions Contracts, Mechanism and Applications	!	5
	5.1	Option Terminology.		
	5.2	Comparison between Futures and Options.		
	5.3	Options Payoffs.		
	5.4	Application of Options.		
Chapter-6:	Pric	ing of Options Contracts and Greek Letters	:	5
-	6.1	Variables affecting Option Pricing.		
	6.2	The Black Scholes Merton Model for Option Pricing (BSO).		
	6.3	The Greeks.		
Chapter-7:	Trac	ding Of Derivatives Contracts	10	0

	7.1	Futures and Options Trading System.	
	7.2	The Trader Workstation.	
	7.3	Futures and Options Market Instruments.	
	7.4	Criteria for Stocks and Index Eligibility for Trading.	
	7.5	Charges.	
Chapter-8:	Clea	ring and Settlement	10
	8.1	Clearing Entities.	
	8.2	Clearing Mechanism.	
	8.3	Settlement Procedure.	
	8.4	Risk Management.	
	8.5	Margining System.	
Chapter-9:	Regu	ılatory Framework	5
	9.1	Securities Contracts (Regulation) Act, 1956.	
	9.2	Securities and Exchange Board of India Act, 1992.	
	9.3	Regulation for Derivatives Trading.	
	9.4	Adjustments for Corporate Actions.	
Chapter-10	:Acco	ounting for Derivatives	5
	10.1	Accounting for futures.	
	10.0		

- 10.2 Accounting for options.
- 10.3 Taxation of Derivative Transaction in Securities.

PRACTICAL

Time: 2 Hours

To develop the practical skills of students they will also practice on various modules of NSE to Learn to Trade Software as per details given below.

Marks: 40

S. No.	Name of NSE - NLT Module	Class
1.	Numeric Speed Accelerator (NSA).	XI
2.	Function Key Accelerator (FKA).	XI
3.	Trading Skill Accelerator (TSA).	XI
4.	Now Simulation Mutual Fund Service System (NSM).	XI
5.	Arithmetic Skill Accelerator (ASA).	XII
6.	Now Simulation Equity Shares (NSS).	XII
7.	Now Simulation Equity Derivatives (NSD).	XII

COST ACCOUNTING & TAXATION

CLASS–XII ELECTIVE COST ACCOUNTING (781) THEORY

Tim	ne: 3 Hours Marks: 60	
1.	Single or Output Costing.	10
2.	Job Costing and Batch Costing.	10
3.	Contract Costing.	10
4.	Process Costing.	10
5.	Operating Costing or Service Costing.	10
6.	Reconciliation of Cost and Financial Accounts.	10
1.	Single or Output Costing	10
	Components of Cost for Output Costing.	
	• Cost Sheet.	
	Production Account.	
	• Treatment of Stock and Scrap.	
2.	Job and Batch Costing	10
	• Job Costing.	
	• Objectives.	
	• Procedure.	
	• Batch Costing.	
	• Nature and Use of Batch Costing.	
	• Determination of Economic Batch Quantity.	
3.	Contract Costing	10
	• Specific aspects of Contract Costing.	
	• Profit on Incomplete Contracts.	
	• Profit on Completed Contracts.	
4.	Process Costing	10
	General Principles.	
	• Process Losses and Wastage.	
	• By-Products and Joint-Products.	
5.	Operating or Service Costing	10
	• Meaning of Operating Costing.	
	• Determination of Unit of Cost.	
	Transport Costing.	
	• Power House Costing.	

• Canteen Costing.

6. Reconciliation of Cost and Financial Accounts

- Causes of Difference.
- Preparation of Reconciliation Statement or
- Memorandum Reconciliation Account.

PRACTICAL

Time: 2 Hours

Marks: 40

(30 marks for report and 10 marks for viva-voice)

- I. Prepare a Project Report on Operating Costing or Service Costing of any organization viz., transport, hotel, canteen or any other service organization.
- II. Visit a Manufacturing Organization to report based on actual data.
 - Treatment of Process Losses.
 - Reconciliation of Costing and Financial Profit.

CLASS-XII ELECTIVE TAXATION (782) THEORY

Time: 3 Hours	Marks: 60
Unit-1: Deductions from Gross Total Income.	10
Unit-2: Computation of Tax Liability of an Individual.	20
Unit-3: TDS and Advance Payment of Tax.	10
Unit-4: Goods & Service Tax (GST)	20

PRACTICAL

Time:	: 2 Hours	Marks: 40
1.	Filling of Income Tax Returns.	10
2.	Filling of Service Tax Returns.	10
3.	Viva.	20

CLASS–XII OPTIONAL

FINANCIAL ACCOUNTING (780)

(Common for Accounting & Taxation and Financial Market Management)

THEORY

Time: 3 Hours		
1.	Fundamentals.	7
2.	Reconstitution of Partnership Firms-I.	8
3.	Reconstitution of Partnership Firms-II.	8

4.	Dissolution of a Partnership Firm.		
5.	The Joint Stock Company.		
6.	Shares and Share Capital.		
7.	Debentures.		
8.	Company Final Accounts.	7	
9.	Financial Statements: Analysis and Interpretation.	7	
10.	Funds Flow Statement.	7	
11.	Cash Flow Statement.	7	
	SECTION – I: PARTNERSHIP ACCOUNTS		
1.	Fundamentals	7	
	• Meaning of Partnership.		
	• Essential Characteristics of Partnership.		
	Partnership Deed.		
	• Final Accounts.		
	Adjustments after Closing Accounts.		
	• Fixed and Fluctuating Capitals.		
	• Good will.		
	• Joint Life Policy.		
	Change in Profit Sharing Ratio.		
2.	Reconstitution of Partnership Firms – I	8	
	• Admission of a Partner.		
	Accounting Problems.		
3.	Reconstitution of Partnership Firms – II (Retirement, Death and Amalgamation)	8	
	• Retirement of a Partner.		
	• Death of a Partner.		
	Amalgamation of Partnership Firms.		
4.	Dissolution of a Partnership	8	
	• Distinction between Dissolution of Partnership and Dissolution of a firm.		
	• Modes of Dissolution of a Firm.		
	• Settlement of Accounts.		
	Accounting Entries.		
	• Insolvency of Partners.		
	SECTION – II: COMPANY ACCOUNTS		
5.	The Joint Stock Company	7	
	• Introduction.		
	• Meaning and Definition of a Company.		
	• Essential Characteristics of a Company.		
	• Kinds of Companies.		

- Difference between Company and Partnership.
- Distinction between Private and Public Limited Companies.

- Formation of Company.
- Allotment of Shares.

6. Shares and Share Capital

- Shares.
- Share Capital.
- Accounting Entries.
 - (i) Full Subscription.
 - (ii) Under subscription.
 - (iii) Oversubscription.
- Calls in Advance.
- Calls in Arrears.
- Issue of Shares at Premium.
- Issue of Shares at Discount.
- Forfeiture of Shares.
- Surrender of Shares.
- Issue of Two Classes of Shares.

7. Debentures

- Classification of Debentures.
- Issue of Debentures.
- Different Terms of Issue of Debentures.
- Writing Off Loss on Issue of Debentures.

8. Company Final Accounts

- Books of Account.
- Introduction to Company Final Accounts.
- Formats of Financial Statements: Schedule III (Companies Act 2013).
- Familiarity with the Items of Financial Statements.
 - (Preparation of Company Financial Statements is not required).

9. Financial Statements: Analysis and Interpretation

- Meaning and Types of Financial Statements.
- Nature of Financial Statements.
- Limitations of Financial Statements.
- Analysis and Interpretation of Financial Statements.
- Steps involved in the Financial Statement Analysis.
 - (i) Methodical Classification.
 - (ii) Ratio Analysis.
- Advantages of Ratio Analysis.
- Limitations of Ratio Analysis.

10. Funds Flow Statement

• Meaning of Funds Flow Statement.

7

7

7

- Uses of Funds Flow Statement.
- Funds Flow Statement vs Income Statement.
- Treatment of Provision for Taxation and Proposed Dividends.

11. Cash Flow Statement

- Meaning of Cash Flow Statement.
- Uses of Funds Flow Statement.
- Treatment of Provision for Taxation and Proposed Dividends.

PRACTICAL

Time: 1 Hour		Marks: 20
Visit	a Sole Proprietary Firm and present Reports regarding:	
Colle	ect and go through.	
•	A Partnership Deed.	5
•	Share Certificate & Debenture Certificate of a Company.	5
•	Annual Accounts of a Company.	10

BANKING & INSURANCE

CLASS-XII ELECTIVE BANKING (785) THEORY

Time: 3 Hours		Marks: 60
1.	Ancillary Services of Banks	10
	• Safe custody of valuables.	
	• Lockers.	
	• Remittances – RTGS/NEFT/Drafts.	
	• Fee based services- Issuing Guarantees and letters of credit.	
	• Selling Third Party Products- Insurance and Mutual fund units.	
	Credit Cards, Debit Cards.	
	• Brokerage and Demit Services.	
2.	Innovations in Banking Technology	10
	• Bank Computerization.	
	• Core Banking.	
	• Online Banking.	
	• Mobile Banking.	
	• Internet Banking.	
	• ATMs.	
3.	Organization of a Bank Branch	10
	• Bank Branch Set up, Strong Room.	
	• Front Office, Back Office.	
	• Security Arrangements in Bank.	
	Clearing Houses.	
4.	Basics of Business Mathematics	10
	• Calculation of simple interest and Compound Interest.	
	• Calculations of interest on fixed rate and Floating rate.	
	• Calculation of EMIs.	
	Calculations of interest on Savings Accounts.	
	• Calculations of date of maturity of bills of exchange.	
5.	Reserve Bank of India Regulations on Banks	10
	• Cash Reserve Ratio.	
	• Statutory Liquidity Ratio.	
	• Bank Rate.	
	• Repo Rate.	
	• Reverse Repo Rate.	

• Base Rate.

6. Performa of Final Accounts of Banking Companies

• Profit & Loss Account and Balance Sheet.

PRACTICAL

Time: 2 Hours

1. Visit any nearest Bank branches which is nearer to your residence.

- (a) Collect details of different modes of transferring funds from one person to another. Collect samples documents forms for each of such modes of transfer.
 10
- (b) Tabulate the advantages and disadvantages of each mode of the payment system.

2. Download the Balance Sheets of a Public Sector Bank and a Private Sector Bank as on 31st March of the current year from their websites.

- (a) Compare the composition of their Deposits Percentage of demand deposits to the total deposits, and percentage of Time Deposits to the total deposits, cost of deposits in % in both the banks and comment which bank is better managed from profit point of view.
- (b) Composition of their loans, total interest earned on loans and comment on the profitability of the banks.

3. Viva

CLASS-XII ELECTIVE INSURANCE (786) THEORY

Time: 3 Hours

•

Unit-1: General Insurance

- Meaning and importance of General Importance.
 - Different types of General Insurance.
 - (i) Fire Insurance.
 - (ii) Marine Insurance.
 - (iii) Motor Vehicle Insurance.
 - (iv) Medi-Claim Insurance.
 - (v) Accident Insurance.
 - (vi) Burglary and Theft Insurance.
 - (vii) Present Organizational set up of General Insurance companies in India GICI its subsidiaries, Private Companies.
 - (viii) Principles of General Insurance Insurable Interest, Indemnity, subrogation, good faith.

Unit-2: Fire Insurance

- Types of Fire insurance Polices Their main features and clauses.
- Meaning & Significance of Average Clause.
- Procedure for taking Fire Insurance Policies and settlement of claims.

Unit-3: Marine Insurance

• Three types of Marine insurance - Cargo Insurance, Hull Insurance and Freight Insurance.

Marks: 60

15

10

10

10

10

10

Marks: 40

	•	Types of Policies.	
	•	Clauses of a Marine Insurance Policy.	
	•	Marine losses.	
Unit-4:	Motor Vehicle Insurance		
	•	Types of Polices and Risks Covered therein.	
	•	Procedure for obtaining motor Insurance Policy.	
	•	Settlement of claims.	
Unit-5: Medi-Claim and Accident Insurance		i-Claim and Accident Insurance	
	•	Important conditions of such Polices and Benefits available therein, Procedure for claims.	
Unit-6:	Burg	glary and Theft Insurance	
	•	Need for such Insurance.	
	•	Information to be furnished and procedure to be follow.	
	•	Recovering the claims.	

PRACTICAL

Marks: 40

10

5

10

1. Create detailed profiles of five of your neighbours and friends, in terms of their demographics, risk appetite and insurance requirements. 10

2. Prepare a comprehensive report for each of these individuals covering the following:

- (a) Insurance products best suited for their requirements and give the rationale for the same.
- (b) Detail the regulatory aspects of each of the recommended types of insurance from an investor protection point of view.
- (c) List the documents to be submitted for applying for each type of insurance and help them fill out the application form. You can obtain sample application forms from the websites of any of the leading general insurance providers in India.
- (d) Explain the procedure along with requirements for claiming insurance at the time of occurrence of the insured event. 20
- 3. Viva

Time: 2 Hours

BUSINESS OPERATIONS & ADMINISTRATION

CLASS–XII ELECTIVE BUSINESS OPERATION & ADMINISTRATION (766) THEORY

Time: 3 Hours

Marks: 60

	Content	Topics	Marks
1.	Introduction to Management	 Meaning and Definition of Management. Importance of Management. Characteristics of Management. Functions of Management. Difference between Management and Administration. 	10
2.	Concept of Management	 2.1 Principles of Management. 2.2 Nature of Management. 2.3 Concepts and Thoughts of Management. 2.4 Classical, Neo Classical and Scientific Management. 	8
3.	Functions of Management	 3.1 Meaning and Significance of Functions of Management. 3.2 Planning. 3.3 Organising. 3.4 Staffing. 3.5 Directing. 3.6 Coordinating. 3.7 Controlling. 	10
4.	Communication	 4.1 Meaning and Definition of Communication. 4.2 Significance of Communication. 4.3 Types of Communication. 4.4 Features of Effective Communication. 4.5 Hurdles of Communication. 	5
5.	Motivation	 5.1 Meaning, Definition and Significance of Motivation. 5.2 Types of Motivation. 5.3 Motivational Theories. 5.4 Difference between Motivation and Inspiration. 	8
6.	Leadership	 6.1 Meaning, Definition and Importance of Leadership. 6.2 Types of Leaders. 6.3 Characteristics of a Good Leader. 6.4 Leadership Styles. 	7
7.	Social Responsibility of Business	 7.1 Business and Society. 7.2 Concept of Social Responsibility. 7.3 Importance of Social Responsibility. 7.4 Corporate Social Responsibility. 	5

8. Information	0 n	8.1	Meaning, Definition and Importance of Information Technology.	
Technolog	gy and	8.2	Information Technology in Functional Areas of Business.	7
Business		8.3	Meaning and Scope of E-business.	1
		8.4	Merits and Demerits of E-business	

PRACTICAL

Time: 2 HoursMarks: 401.Prepare a project report on the online retail business firms in India.102.List out in detail the environment hazards caused by the firms in your nearby/local areas.103.Role play on comprehending the concept of Motivation based on a case study.104.Viva10

<u>CIVIL ENGINEERING</u> CLASS–XII ELECTIVE CONSTRUCTION TECHNOLOGY (797) THEORY

Time: 2.5 Hours

1. Building Construction

- Site Selection for construction, various components of a building (sub structure and super structure with elaboration of technical terms).
- Foundations: Need and function of foundation, different types of foundations and their uses.
- Masonry: General principles of bricks masonry, types of bonds.
- Floors: Types of flooring and their uses.
- Stairs: Need and types of stairs.
- Doors and Windows, Purpose of each and their classification.

2. Concrete Technology

- Definition of concrete, different types of concrete and their uses, Ingredients of Concrete.
- Preparation of concrete:
 - Batching, Mixing, Transportation, Placement, Compaction, Curing, Finishing.
- Properties of Concrete:

Properties in plastic stage: workability, segregation, bleeding.

- Properties of hardened concrete: strength, durability.
- Introduction to standard concrete mixes.

3. Formwork, Scaffolding and Steel Fixing

- Introduction and purpose of formwork.
- Timber joints, cutting and drilling of plywood.
- Shuttering for beam, column and slab floor.
- Codal provisions on formwork.
- Introduction and purpose of scaffolding, Component parts, Types of scaffolding.
- Types of ties and their uses.
- Making and placing reinforcement for slab & foundation.
- Codal provision on steel fixing.

4. Services & Utilities

- Introduction to plumbing, plumbing tools and their uses.
- Water distribution system, material for service pipes, service connection, valves.
- Aim and principles of house drainage, Pipes and traps.
- Sanitary fittings.
- House wiring: Types of wires used, tools used for house wiring, Circuit diagram for tube light, bulb, fan and switches & sockets.
- Fire protection: Fire hazards, characteristics of fire resisting materials, general fire safety requirements for buildings, fire alarms, fire extinguishing equipment.

Marks: 50

10

10

10

5. Construction Work Supervision

- Roles and responsibilities of construction work supervisor.
- Record keeping: Muster roll, measurement book, register for material receipt and issue, logbook for construction equipment.
- Site Registers: site diary, site order book, inspection register, cement register, steel register, register for approval of other materials, material requisition and issue records.
- Register for scrap material, POL records, register for construction equipment.
- Check list (Dos and Don'ts) for construction work supervision.

PRACTICAL

Time	2.5 Hours	Marks: 50
1.	Laying of bricks in different layer using English bond.	5
2.	Laying of bricks in different layer using Flemish bond.	5
3.	To determine workability of concrete by slump test.	5
4.	Test for compressive strength of concrete cubes.	5
5.	To make T-joint and dove tail joint in timber.	5
6.	Cutting of plywood in different patterns.	5
7.	Drilling in plywood.	5
8.	T- joint in service pipes.	5
9.	Wiring from MCB to switch board having a three pin socket, switches for fan and tube light.	5
10.	Making entries in the measurement book for small piece of construction work.	5

DESIGN & INNOVATION (772) CLASS–XII ELECTIVE THEORY

Time	: 3 Hours	Total: 100 Marks Theory: 60 Marks Practical: 40 Marks
Unit–1:	Three Dimensional Design	10
	Seesion-1: Introduction to Fundamentals of 3-Dimensional Design	
	• Differentiate 2-dimentional and 3-dimensional design.	
	• Explore and apply the creative design process to 3D forms.	
	• Produce Sculpture using Three Dimensional.	
	• To apply creative design process to the development of 3-dimensional forms.	
	Session-2: Three Dimensional Design Workshop	10
	• Project 1: 3D Design hand cutting tool.	
	• Project 2: 3D Design Maquette Construction.	
	• Project 3: 3D Design Bridge Design.	
	• Project 4: 3D Design Shop Refit.	
Unit–2:	Three Dimensional Design Applied	15
	Session-1: Introduction to Spatial Design	
	• Principles and Elements of 3-D Design Applied.	
	• Research and apply techniques for application to spatial design.	
	• Explore the use of colour in 3-D Design.	
	Session-2: Spatial Design Workshop	
	• Project 1: Exploration and use of 3-D Elements of Design.	
	• Project 2: Colour Sphere Model to explore Hue and Value	
	• Project 3: To create a Exhibition Design on any theme; Examples part A: Unity, Harr	mony
Unit–3:	Design Tools and Techniques – Digital	10
	Session-1: Introduction to 3-D Design Digital Tools	
	• Methods of developing 3-dimensional design.	
	• Brief study on software applications like Photoshop, AutoCAD, Flash, Corel and Ma	ya
Unit–4:	Digital Workshop	15
	• Apply techniques to produce digital images.	
	• Digitise images for reproduction.	
	• Project 1: Digital workshop Animorph.	
	• Project 2: Magazine Cover.	

• Project 3: The World's Greatest Poster.

FASHION DESIGN & GARMENT TECHNOLOGY CLASS–XII ELECTIVE BASIC PATTERN DEVELOPMENT (775)

Objective of the Course

- To introduce students to the world of fashion designing through pattern development.
- To explain important skill that enable the designer to convert a design sketch into a three dimensional form.
- To develop basic blocks for bodice, sleeve and Indian garments.
- To understand and implement the concept of test fits and to convert paper patterns into muslin.

Learning Outcome

After finishing the course, the students shall be able.

- To understand the basic skill of pattern making.
- To understand and appreciate the concept of fit and balance.
- To develop basic blocks from measurement charts.
- To test fit the pattern.
- To develop patterns for simple designs using basic blocks.

THEORY

Time: 2.5 Hours	1arks: 50
Chapter–1: Introduction to Pattern Making	
• Understanding of body & its measurements.	
• Methods of measuring body and dress form.	
Chapter–2: Methods of Measuring	10
• Relationships of sizes and measurements.	
• Measurement charts.	
Chapter–3: Tools and Terminology of Pattern Making	5
• Tools of pattern making.	
• Common terms used in pattern development.	
Chapter–4: Garment Details	5
• Garment details – Neckline/collar/sleeve/pocket/placket.	
Chapter–5: Pattern Making of Indian Garment	5
• Introduction to Indian Garments.	
Chapter–6: Pattern Development from Drapes and Measurement	5
• Difference of pattern from drape and measurements.	
Chapter–7: Garment Fit	10

• Introduction to Pattern Development for women wear - how patterns are made and developed, the importance of fit and balance and methods of achieving it.

PRACTICAL

Time: 2.5 Hours	Marks: 50
Practical No. 1:	3
• Basic Bodice.	
Practical No. 2:	3
• Dart Manipulation.	
Practical No. 3:	4
• Salwar.	
Practical No. 4:	4
• Churidar Pyjamas.	
Practical No. 5:	4
• Saree Blouse.	
Practical No. 6:	3
Sleeveless Saree Blouse.	
Practical No. 7:	3
Choli Blouse.	
Practical No. 8:	3
• Necklines.	
Practical No. 9:	4
• Kameez.	
Practical No. 10:	3
• A-line Kameez.	
Practical No. 11:	4
• Kalidar Kurta.	
Practical No. 12:	4
Two Kali Kurta.	
Practical No. 13:	4
• Sleeve.	
Practical No. 14:	4
• Collar.	

Final Product

Student will learn to develop patterns for Indian garments like salwar kameez, churidar-kalidar kurta, sari blouse and choli blouse also using basic blocks develop patterns for simple designs of skirts and blouses.

Evaluation Criteria

- Theory Written Exam for 50 marks- 2.5 hour paper.
- Practical 50 marks- Exam for 30 marks, File work to be marked 5 marks external and 5 marks internal faculty, 10 marks viva.

Prescribed Reference Text

• Basic Pattern Development, Students Handbook & Practical, Class XII, Published by CBSE.

CLASS-XII ELECTIVE GARMENT CONSTRUCTION (776)

Objective of the Course

- To assemble a garment.
- To construct a bodice using different seams.
- To make a placket for bodice opening.
- To finish a neckline by both piping and facing and attaching a collar.
- To set in a sleeve in the arm hole and finish by attaching the cuff.
- To put gathers or pleats in the skirt and finish the waist with a waist band or attach a bodice.
- To stitch Indian garments using appropriate seams and finishes.

Learning Outcome

After finishing the course, the students shall be able.

• To join various parts of the garment and construct a complete garment.

1 . 1 .

- To finish a bodice with neckline & Armhole using both piping and facing.
- To set in the sleeve.
- To stitch a skirt.
- To stitch a salwar.
- To stitch a Churidar.
- To stitch a kameez.
- To stitch a kalidar kurta.
- To stitch a sari blouse.
- To stitch a choli blouse.

THEORY

Time: 2.5 Hours		Marks: 50
•	Garment Assembly systems.	20
•	Garment finishing machines (button hole/button attach, bartack etc.	15
•	Fabric consumptions and estimations.	15

PRACTICAL

Marks: 50

Time: 2.5 Hours

•	Concept of placket, various kind of plackets – continuous, diamond, shirt placket with facing, pleated shirt blouse placket, kurta placket.	3
•	Concept of slit and seam.	3
•	Concept of collar and Collar attachment - peter pan, Chinese, shirt.	3
•	Pocket – Application of pocket, patch pocket, inserted pocket, structured pocket, bound pocket, welt pocket, pockets etc.	inseam 3
•	Assembling of bodice.	4
•	Yoke attachment.	3
•	Sleeve attachment.	3

•	Waist band attachment.	3
•	Constructing a skirt and blouse using pattern template.	5
•	Constructing a salwar-kameez.	5
•	Constructing a Churidar-kalidar kurta.	5
•	Constructing a Sari blouse.	5
•	Constructing a choli blouse.	5

Methodology of Teaching

• Illustrated lectures with slides, visuals and demonstrations where ever required.

Evaluation Criteria

- Theory Written Exam for 50 marks- 2.5 hour paper.
- Practical 50 marks- Exam for 30 marks, File work to be marked 10 marks external and 10 marks internal faculty.

Prescribed Reference Text

- Garment Construction, Handbook & Practical Manual, Class–XI & XII, Published by CBSE.
- Encyclopaedia of dressmaking by Marshall Cave.
- Readers Digest book of Sewing.
- Encyclopaedia of Sewing.

CLASS-XII OPTIONAL FABRIC STUDY (774)

Objective of the Course

- To acquire an elementary understanding of fibres.
- To understand yarns and fabric structures along with their end uses.
- To develop understanding of basic techniques of value addition.
- To learn appropriate surface design of fabrics.

Learning Outcome

After finishing the course, the students shall be able.

- To use appropriate terminology used in fabrics.
- To understand the various techniques of fabric structure.
- To appreciate the traditional textiles of India.
- To be able to develop basic surfaces on textiles through embroideries and dyeing techniques.

THEORY

Time:	: 2.5 Hours	Marks: 50
•	Introduction to fibre and yarn - definition, terminologies, properties, end users.	10
•	Fabric structures- woven, knitted, non wovens - definition, terminologies, properties.	10
•	End users of fabrics- Fabrics for apparel, home furnishing, special purposes.	5
•	Surface value addition on textiles- Embroidery techniques, printing, resist dyeing techniques- Tie ar Block Printing, Stencil Printing.	nd Dye, Batik, 10

•	Traditional textiles of India – Embroideries of states of India.	5
•	Traditional textiles of India – Resist dye techniques in traditional Indian textiles.	10

PRACTICAL

Time: 2.5 Hours	Marks: 50
Practical No. 1:	5
• Fiber, Yarn and Fabric.	
Practical No. 2:	7
Basic Embroidery Stitches.	
Practical No. 3:	7
• Tie and Dye.	
Practical No. 4:	7
• Batik.	
Practical No. 5:	7
• Block Printing.	
Practical No. 6:	7
• Stencil Printing.	
Practical No. 7:	10
Indian Traditional Embroideries.	
Methodology of Teaching	

- Lectures, Practical, Demonstrations.
- Industry/field visits to craft centres, embroidery/tie-dye units.

Evaluation Criteria

- Theory Written Exam for 50 marks 2.5 hour.
- Practical 50 marks- Exam and documentation for 20 marks (2.5 hrs), File work to be marked 5 marks external and 5 marks internal faculty.

Prescribed Reference Text

- Fabric Study, Students Handbook and Practical Manual, Class XII, Published by CBSE.
- 'Textiles' by Sara Kadolph & Anna Langford.
- Essentials of Textiles, by Marjorie Joseph.

HEALTH CARE

CLASS–XII ELECTIVE BASIC CONCEPTS OF HEALTH & DISEASE AND MEDICAL TERMINOLOGY (729)

THEORY

1. Definition of Health & Concepts Related to Health

- Primary Health Care, Secondary Care, and Tertiary Health Care.
- Promotive Health Care, Preventive Health Care, Curative Health Care, and Rehabilitative Health Care, Spiritual Health Care.
- Concepts of Social medicine, Preventive medicine and Community medicine and Public Health.

2. Concepts Related to Diseases

Time: 3 Hours

- Different kinds of diseases: Infectious/communicable/non-communicable & degenerative diseases.
- How interaction between disease causing agents (Physical, Chemical, Biological,) host and environment results in diseases.
- Modes of transmission of communicable diseases:
 - Diseases of Contact transmission.
 - Air-borne diseases.
 - Water borne diseases.
 - Vector borne diseases.

3. Promotion of Healthy Environment

- At individual level.
- At family level.
- At Community level.

4. Prevention & Control of Diseases

- Water safety.
- Food safety.
- Environmental sanitation (including safe disposal of solid & liquid wastes).
- Personal hygiene.
- Safe disposal of human excreta.
- Safe disposal of Bio Medical wasted (BMW) Management.
- Control of vectors and pests (control of house files, mosquitoes, rats, cockroaches etc.).
- Healthy housing & preventing of air pollution.
- Isolation procedures.

5. Medical Terminology

5.1 Basics of Medical Terminology

• Words, Prefixes & suffixes used in medical terms (Symptomatic, Diagnostic and Operative terminology).

Marks: 70

15

20

15

1

- 5

- Origin of medical terminology.
- Terminology to identify basic body systems, and vital signs.
- Distinction between the symptoms, signs and specific diseases.
- Determining the specialty by identifying the meaning of the word root.

5.2 Basic Word Roots, Prefixes and Suffixes

5.3 The Human Body in Health and Disease

- Terms related to pathology of cells, tissues, and glands.
- Types of diseases.
- Recognize different medical specialties and specialists.
- Terms used in different Departments of the hospital (Symptomatology, diagnostic entities, intervention methodology, equipment used etc.):
- Orthopaedics & traumatology.
- Digestive system.
- Circulatory and lymphatic system.
- Respiratory system.
- Gynaecological system.
- Obstetrics & Maternal & child care.
- Neurology & Psychiatry.
- Internal Medicine.
- General Surgery.
- ENT & Ophthalmology.

5.4 Coding of Diseases

- Introduction to coding & classification of Diseases.
- Introduction to Volume I & II of International Code of Diseases (ICD).

PRACTICAL

Time	: 2 Ho	urs Marks:	30
1.	A.V.	Aids – Making charts, Models, Pamphlets etc.	10
	•	Water Safety.	
	•	Food Safety.	
	•	Healthy Housing and Prevention of air pollution.	
2.	Safe	Disposal of Biomedical Waste Management	10
	•	Demonstration with different specimen and color coded containers i.e. General waste, Sharps, contaminated Swabs, Swabs or materials contaminated with any body fluids, Plastic wastes, Broker	Blood n Glass

10

pieces. 3. Medical Terminology

• Practical setting exposure to procedure and tests used in hospitals.

Note:

Additional (Optional)

Please refer the concerned year Senior Secondary Curriculum of CBSE.

LIST OF RECOMMENDED BOOKS

- 1. Basic Concepts of Health & Diseases and Medical Terminology, Practical Manual, Class–XII, Published by CBSE.
- 2. Basic Concepts of Health & Diseases and Medical Terminology, Text Book, Class–XII, Published by CBSE.
- 3. Food Nutrition & Dietics Theory, Class–XI, Published by CBSE.
- 4. Food Nutrition & Dietics Practical, Class–XI, Published by CBSE.
- 5. NCERT, Anatomy (for MLT): NCERT, New Delhi. 1988.
- 6. NCERT, Physiology (for MLT) : NCERT, New Delhi 1988
- 7. World Health Organization (WHO), International Classification of Diseases (WHO).
- 8. Health Information of India Ministry of Health & Family Welfare, Government of India.

MEDICAL DIAGNOSTICS CLASS-XII

ELECTIVE LABORATORY MEDICINE–II (741) THEORY

Time: 3 Hours

Unit-1: Investigation Urine & Faces Analysis

- Introduction.
- Maintenance & Equipments of Pathology Lab.
- Preparation of Reagents.
- Urine.
- Formation and composition.
- Collection Preservation Gravity & PH.
- Examination–Physical.
- Examination– Chemical.
- Sugar.
- Ketone Bodies, Bile.
- Blood, Crystals.
- Parasites & Abnormal Cells.
- Feces–Formation, Physical & Chemical Examination.
- Preparation of stool sample for microscopic examination.
- Sputum Examination.
- Assessment.

Unit-2: Body Fluids

- Body Fluids.
- Cerebro spinal fluid. Synovial fluid and Pleural fluid Pericardial fluids Peritoneal fluids.
- Other fluids collected stransudateor exudates.
- Semen Analysis–Collection, Physical & Chemical examination.
- Sperm count Microscopic examination & Motility.
- Assessment.

Unit-3: Process & Investigations

- Reagents Preparation and their uses.
- Personnel care and protection Disposal of Bio-Medical waste Smear Making.
- Staining Methods.
- Osmotic fragility test.
- Differential Counts.
- Cellcounts RBC, WBC, and Platelets Eosinophil & Reticulocyte count ESR.
- LE Cell.
- Haemopoeisis Erythrocytes Hemoglobin Estimation Packed Cell Volume, Indices Hematocrit and Red

Marks: 60

10

10

cellindices Anemia.

- Leukocytes.
- Coagulation Factors.
- Coagulation disorders Bleeding & Clotting Time.
- Bone marrow study.
- Assessment.

Unit-4: Blood Bank & Transfusion

- Blood Bank.
- Material & equipment Reagents preparation Protocols.
- Storage & Preservation.
- Records in Blood bank.
- ABO System.
- Subgroups in ABO System.
- Practical importance of Other blood groups.
- Rh System.
- Antibody titers.
- Blood grouping techniques Problems in blood grouping Donor Motivation.
- Donors election & Registration.
- Blood Collection.
- Storage, Preservation & Processing of blood.
- Quality control.
- Investigation of transfusion, reactions.
- Grouping & cross matching Direct and Indirect Coombs test Mandatory Test.
- Assessment.

Unit-5: Lab Process

- Materials, Equipment & Techniques.
- Biopsy, Autopsy.
- Collection, Preservation & Labeling of Slides, Blocks, Specimens.
- Techniques.
- Grossing Methods.
- Fixatives.
- Processing of the tissues including Bone.
- Embedding Section Cutting Staining & Mounting Special Stains.
- Preservation of reports & records.
- Assessment.

Unit-6: Cytology

- Techniques Equipment & Procedures FNAC, Imprintssmear.
- Vaginal & Buccalsmear, Swabs.
- Staining procedure and Mounting.
- Preparation of fluids for Cytological Examination.

- Immuno histo chemistry.
- Assessment.

PRACTICAL

Time: 2 Hours

Unit-1: Urine & Feces Analysis

- Introduction.
- Maintenance & Equipment of Pathology Lab.
- Preparation of Reagents.
- Urine.
- Formation and composition.
- Collection Preservation Gravity & PH.
- Examination–Physical Examination Chemical Sugar.
- Ketone Bodies.
- Bile, Blood, Crystals.
- Parasites & Abnormal Cells.
- Feces–Formation, Physical & Chemical Examination Preparation of stool sample for microscopic examination Sputum Examination.
- Assessment.

Unit–2: Body Fluids

- Body Fluids.
- Cerebrospinal fluid, Synovial fluid.
- Pleural fluid.
- Pericardial fluids.
- Peritoneal fluids.
- Other fluids collected stransudateor exudates.
- Semen Analysis Collection, Physical & Chemical examination.
- Spermcount Microscopic examination & Motility.
- Assessment.

Unit-3: Hematology Process & Investigations

- Smear Making Staining Methods Osmotic fragility test.
- Differential Counts.
- Cellcounts RBC, WBC, Platelets.
- ESR.
- LE Cell.
- Hemoglobin Estimation.
- Hematocrit and Red cellindices.
- Coagulationdis orders Bleeding & Clotting Time.
- Bone marrow study Demo.
- Assessment.

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Unit-4: Blood Bank & Transfusion

- Blood Bank.
- ABO Blood grouping cell and serum grouping.
- Rh typing.
- Anti body titers.
- Blood grouping techniques Other methods.
- Donor selection & Registration Demo.
- Blood Collection Demo.
- Storage, Preservation & Processing of blood Demo.
- Quality control Demo.
- Investigation of Transfusion, reactions.
- Cross matching.
- Direct and Indirect Coombs test.
- Mandatory Test Screening Tests Demo.
- Assessment.

Unit-5: Histopathology Lab Process

- Histopathology.
- Introduction.
- Materials, Equipment & Techniques.
- Biopsy, Autopsy.
- Collection, Preservation & Labeling of Slides.
- Blocks, Specimens Techniques.
- Grossing Methods.
- Fixatives.
- Processing of the tissues including Bone.
- Embedding.
- Section Cutting.
- Staining & Mounting.
- Special Stains.
- Preservation of reports & records.
- Assessment.

Unit–6: Cytology

- Cytology.
- Techniques Equipment & Procedures FNAC.
- Imprintssmear, Vaginal & Buccalsmear, Swabs.
- Staining procedure and Mounting.
- Preparation of fluids for Cytological Examination.
- Immuno histo chemistry.
- Assessment.

CLASS–XII ELECTIVE CLINICAL BIOCHEMISTRY & MICROBIOLOGY–II (742) THEORY

Time: 3 Hours

Unit–1: Concepts Instruments & Procedures

- Introduction scope of biochemistry and clinical biochemistry objectives and scheme of clinical biochemistry teaching.
- Basic Biochemistry over view of biomolecules, biochemical transformations. Biochemical organization of cell, tissues, organs and human organism.
- Ethics and Discipline Laboratory ethics and discipline. Patient management, Reception, Registration, Biochemical parameters investigations, protocols, documentation.
- Hazards and safety physical, chemical and biological hazards, self & patient & equipment safety. Disposal of laboratory waste and the hazardous material.
- First Aid Measures.
- Instruments, Principles & Procedures: Basis, uses, parts, installation, glass ware & plastic ware colorimeters, balances, centrifuges, refrigerators, hot air ovens, water baths, thermometers, vortex, mixers, magnetics stirrers, UV lamp.
- Cleaning & Maintenance of Equipment.
- Assessment.

Unit-2: Investigations Separation Procedures & Analysis

- Separation techniques: basic principles, different types, general techniques and clinical applications of different types of electrophoresis and chromatography.
- Automation: Basic Principles, different components and general principles of usage and applications.
- Calcium and Phosphorus: Outlines of mineral metabolism. Principles of estimation of serum calcium and inorganic phosphate and their clinical importance.
- Urine Proteins: requirements of quantisation of proteins in the urine. Different samples used Principles of samples collection, preservation and analysis.
- Lipoproteins: Principles of estimation of different lipo protein fractions of lipase, & LDH.
- Acid–Base balance.
- Immuno as says.
- Sample identification and labeling.
- Types and mechanisms of actions of various anti coagulants and preservatives used Principles of Spectrophotometry and Turbidoemetry.
- Quantitative analysis.
- Calorimetery- applications in clinical biochemistry.
- Units of measurement.
- Assessment.

Unit–3: Functional Test & Profile

- Glucose tolerance test: Concept of tolerance tests. Definition, patient preparation, performance, reporting and interpretation of GTT.
- Liver functions tests: bilirubin, total proteins, albumin and prothrombin time, turbidity tests and serum enzyme estimations (SGPT, ALPA and GT).

Marks: 60

10

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- Kidney functions tests: Concept of clearance tests, Use of serum NPN substances creatinine clearance, concentration and dilution tests and urine examination.
- Gastric function tests: Principles of analysis of gastric juice, Concept of basalandmaximal acid outputs, Principles of stimulation tests & tubeless gastric analysis.
- Thyroid function tests: Principles underlying estimations of various thyroid hormones and their interpretations.
- Profiles: Concepts of Profile testing.
- Cardiac Profiles.
- Lipid Profile.
- Assessment.

Unit-4: Fundamentals of Microbiology

- Personal Care.
- Infection Control.
- Sterilization Techniques Autoclave, Hotair oven, Tyndallization & Pasteurization.
- Equipment Handling & Maintenance.
- Assessment.

Unit-5: Bacteriology

- Bacteriology.
- Applied Anatomy and Physiology of the Bacterial Cell.
- Pathogenic organisms.
- Identification & Isolation of Staphylococcus, Streptococcus, Pneumococcus, Gonococcus, eningococcus, C. diptheria, Mycobacterium tuberculae and M. Leprae, Clostridia, E. Coli, Klebseilla, Salmonella, Shigella, Proteus, Vibrio, Pseudomonas.
- Anthrax, Plague, Dengue, Japanese encephalitis.
- Assessment.

Unit-6: Mycology Immunology & Serology Parasitology Virology

- Introduction & Classification.
- Enumeration of pathogenic & opportunistic fungi.
- Introduction.
- Antigens, Antibodies & Reactions.
- Hypersensitivity.
- Introduction.
- Pathogenic parasites in blood, stool and urine.
- Viruses Classification, Cultivation & Enumeration.
- Study of the laboratory animals Sheep, Rabbit, Mice & Guinea Pig.
- Assessment.

PRACTICAL

Time: 2 Hours

Unit–1: Instruments & Procedures

Lab Equipment – Identification, Use & Cleaning of Glass & Plastic ware.

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- Pipettes: Use of Pipettes/automated.
- Sample collection Blood, urine and body fluids, Containers Appropriate usage for different samples.
- Centrifuge Preparation and separation of plasma, serum protein.
- Storage of sample.
- Filters Filter Papers & Filtration.
- Drying of chemicals.
- Weighing Appropriate Balances.
- Solutions Preparation, Reagents Preparation.
- Usage-Thermometer, Vortex Mixers & Magnetic Stirrers.
- Buffers.
- Colorimeters Beer Lambert's Law Experiment.
- Assessment.

Unit–2: Investigations

- Glucose: Orthotoluidine and glucose oxidase methods.
- Urea: DAM method and urease Berthelot reaction.
- Serum Creatinine: Jaff's method end point and kinetic analyses modes.
- Serum total proteins: Biuret method.
- Serum Albumin: Dyebinding (BCG) method.
- Serum Bilirubin.
- Malloy Evelyn method, Vandenberg reaction.
- Total and conjugated bilirubin estimation.
- Amino transferases: AST and ALT Reitman Frankel method.

Unit-3: Separative Procedures & Analysis

- Estimation of serum: sodium, potassium and Lithium by Flame.
- Photometer.
- Estimation of serum bicarbonate by titration method.
- Acid base parameters using blood gas analyzers.
- Estimation & Standardization of Glucose, Urea, Creatinine, Chloride, Proteins & Transaminases.
- Standardization of pipettes and photo metric instruments Demo and Analysis of Gastric juice, Demonstration of stimulations tests.
- Separation Techniques.
- Electrophoresis serum proteins, hemoglobin Demo.
- Paper chromatographic aminoacids and carbohydrates Demo.
- Oral glucose tolerance test.
- Estimation of 24 Marks urine proteins by turbid metric method.
- Assessment.

Unit-4: Personal Care, Sterilization & Equipment

- Personal Care, Sterilization & Equipment cleaning the equipment and glass ware Universal precautions.
- Methods of Sterilization Autoclave, Hotair oven.

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- Tyndallization & Pasteurization, Filtration, Disinfection & Antiseptics.
- Sterilization of Syringes, Needles & Slides.
- Sterilization of Cultureroom & Work Benches.
- Maintenance of the Equipment Indications & Contra Indications for Sterilization in a equipment.
- Uses of equipment.
- Refrigerators.
- Deep Freezers.
- Incubators & Water baths Different microscopes Preparation of wire loops Preparation of Pasture pipettes Preparation of smears.
- Assessment.

Unit-5: Bacteriology

- Staining procedures.
- Simple, Grams, Acid fast Albert, Fontana's Negative.
- India Ink & Negrosin.
- Hanging drop preparation.
- Preparation of media, pH adjustment, Sterilization, storage and disposal after use of Solid, liquid and special media.
- Disposal of specimens and contaminated material.
- Sample collection, labeling, registering and maintenance of records and statistics.
- Processing Techniques Sputum, Blood, Urine & Stool, Pus, CSF. Swab Wounds, Skin, Throat, Clippings, Spore, Strips.
- Assessment.

Unit-6: Mycology Immunology & Serology Parasitology

- Fungi Identification, Collection & Labeling.
- Microscopy.
- KOH preparation.
- Staining methods & Culture methods.
- Lactophenol blue.
- Negative Indian Ink Negrosin.
- Culture, Slide Culture.
- Collection of specimen.
- Labeling, separation of Sera and Storage.
- Inactivation of serum.
- VDRL Test qualitative and semi-qualitative & quantitative.
- Widetest principle and procedure.
- Latex tests R.A. factor.
- Stool examination saline, iodine staining & Concentration.
- Preservation of samples.
- Disposal of infected material.

6

- Peripheral bloods mear preparation and staining techniques.
- Leishman, Giemsa's & JSB stain.
- Assessment.

HEALTH & BEAUTY

CLASS–XII ELECTIVE BEAUTY & HAIR (745) THEORY

Time: 2.5 Hours

SECTION-I: BEAUTY

Unit–I: Make-Up

Introduction

(a) Brief history of Make-up.

(b) Objectives of make-up application.

(c) Cosmetics for make-up.

(d) Make-up brushes and other tools.

(e) Makeup colour theory.

(f) Contraindications.

(g) Health & Safety Precautions.

Unit-II: Basic Make-Up Application

- (a) Client Consultation.
- (b) Determining Skin Type and Colour.
- (c) Preparing the workspace.
- (d) Selecting make-up colours.
- (e) Preparation of Client.
- (f) Preparation for make-up.
- (g) Application of make-up

Unit–III: Corrective Make-Up

- (a) Ideal face proportions and features.
- (b) Analyzing features and face shape.

(c) Techniques of corrective make-up application for face, eyes, eyebrows, lips, skin tones, wrinkles.

Unit-IV: Special Make-Up Techniques

- (a) Day make-up.
- (b) Evening make-up.
- (c) Bridal make-up.
- (d) Fantasy Make-up.
- (e) Ramp make-up.
- (f) Theatre and Television make-up.
- (g) Photographic Make-up.
- (h) Makeup for mature skin.
- (i) Basic Body Art/Tattooing.

Marks: 50

5

5

6

SECTION-II: HAIR

Unit–I: Disorder of Hair and Scalp

- (a) Hair loss Types, reason and treatments.
- (b) Canities (grey hair).
- (c) Pediculosis.
- (d) Dandruff.

Unit–II: Advanced Cutting & Styling

- (a) Study of Facial Shape, Bone Structure, Body Structure, Profession, Age, Occasion.
- (b) Hair Cutting and Styling as per Facial Shape.
- (c) Selection of Tools.
- (d) Procedures for latest trends and cuts (Short and Long both).

Advance Hair Styling

- (a) Evening Hair styles, party hair style, bridal hair style and ramp hair styles.
- (b) Styling on Artificial Aids.

Permanent Waving/Straightening

Unit–III: Permanent Waving

- (a) Meaning of permanent waving.
- (b) Principle of perming.
- (c) Examination of the scalp.
- (d) Perming techniques preparation and procedure wrapping techniques.
- (e) Maintaining the record card & client's history.
- (f) Test curl.
- (g) Factors responsible for failure of perming and their solutions.

• Straightening/Relaxing

- (a) Meaning of relaxing.
- (b) Principles of relaxing.
- (c) Examination of the scalp.
- (d) Strand test of relaxer.
- (e) Preparation & procedure of relaxing.
- (f) Record card & client's history.

Unit–IV: Hair Colouring and Lightening

Hair Colouring

- (a) Purpose of hair coloring.
- (b) Law of colors primary, secondary & complimentary.
- (c) Types of Hair Coloring.

Temporary, Semi Permanent, Permanent

- (a) Strand Test.
- (b) Patch Test.
- (c) Procedure of Hair Coloring.
- (d) Precautions and contraindication.

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Unit-V: Bleaching and Lightening

- (a) Definition of bleaching.
- (b) Chemistry of Bleaching.

Activating the Bleach

- (a) Causes of over Bleach.
- (b) Choice of Bleach.

PRACTICAL

Time: 2.5 Hours

SECTION-I: BEAUTY

Unit–I: Make-Up

Practice in Facial Make-ups

- (a) Trolley setting.
- (b) Planning the make-up.
- (c) Blending techniques for colors.
- (d) Choosing make-up colors as per skin/hair, eye, clothing.
- (e) Analysis of facial shape before make-up.
- (f) Practice of make-up under different lights.

• Corrective and Camouflage Make-up

Special Make-up Techniques

- (a) Day make-up.
- (b) Evening make-up.
- (c) Bridal make-up.
- (d) Make-up for mature skin.
- (e) Theatre and T.V. make-up.
- (f) Practice in Body Art/Fantasy Make-up.

SECTION-II: HAIR

Unit–II: Disorders of Hair and Scalp

- (a) Herbal Treatments for Dandruff.
- (b) Falling Hair.
- (c) Greying Hair.
- (d) Pediculosis groups and work.
 - (i) Labourer.
 - (ii) Sedantory worker.
 - (iii) Pregnant /lacting mother.
 - (iv) Diet for healthy skin and hair.
 - (v) File-projects-charts.

Unit–III: Advanced Cutting & Styling

• Advance Hair Cuts (Short & Long)

Hair Cutting and Setting as per:

- (a) Facial Shape.
- (b) Body structure.

25

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6

Marks: 50
- (c) Profession.
- (d) Age.
- (e) Occasion.
- (f) Fashion Trend etc.

• Advance Hair Styling

- (a) Evening Hair styles, party hair style, bridal hair style and ramp hair styles.
- (b) Styling on Artificial Aids.

Unit-IV: Permanent Waving/Straightening

Permanent Waving

- (a) Basic preparation of trolley for perming.
- (b) PH testing knowledge of acidic / alkaline.
- (c) Hair analysis.
- (d) Preparing & planning the perm.
- (e) Strand test.
- (f) Sectioning & sequence of winding.
- (g) Winding techniques basic, spiral, directional, staggered (brick winding), Weave binding, double winding, piggy back winding processing & developing.
- (h) Testing curl.
- (i) Neutralization.
- (j) Practice in other type of perming rods chop sticks, u-stick, foam rollers etc.

• Straightening/Relaxing

- (a) Preparation of trolley for relaxation.
- (b) Analysis of Hair.
- (c) Relaxing method & procedure kinky/curly/coarse.
- (d) Strand test for relaxing.
- (e) Neutralization.
- (f) Cleansing & conditioning.
- (g) Contraindications.

Unit–V: Hair Colouring and Lightening

Hair Colouring

- (a) Selection of color -Study of color depth & tone.
- (b) Application of different types of colors.
 - (i) Chemical.
 - (ii) Vegetable.
- (c) Patch test (skin test, color test, priority test, incompatibility test strand test).

Bleaching and Lightening

- (a) Chemistry of bleaching.
- (b) Color variants-high lightened, low lightened.
- (c) Tipped, frosted scrunching, comb technique.

Unit-VI: Preparation of Herbal Cosmetics

- (a) Face Pack.
- (b) Hair Packs.
- (c) Creams.

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6

- (d) Shampoos.
- (e) Hair Oils.
- (f) Nail Polish Remover.
- (g) Depilatory Wax.
- (h) Exfoliating Mask and Scrub.

CLASS-XII ELECTIVE HOLISTIC HEALTH (746)

THEORY

Time: 2.5 Hours

Unit–I: Anatomy & Physiology

Brief Study of Various Systems

- (a) Nervous system.
- (b) Endocrine system.
- (c) Circulatory/lymphatic system.
- (d) Digestive system.
- (e) Excretory system (kidneys).
- (f) Disorders in brief (joint, hormone, basic physiological).

Unit–II: Diet and Nutrition

- (a) Methods of Cooking and effect on food by dry heat, moist heat and use of oil.
- (b) Technologies to improve the quality of food germination, fermentation and fortification.
- (c) Body Mass Index (BMI), BMR, expected height and weight for ages.
- (d) Diet for life style related disorders: Obesity, underweight, Hypertension.
- (e) Diet for summer, winter and rainy season.
- (f) Diet for healthy skin and hair.
- (g) Diet for weight loss.
- (h) Sample diet for different age groups.

Unit–III: Yoga and Health

- (a) Surya namaskar (mantra and exercises 1-12).
- (b) Shat kramas (1-6).
- (c) Bhavshudhi.
- (d) Asana.
 - Suptvajrasana.
 - Paschimutanasana.
 - Ardhmatsendrasana.
 - Konasan.
 - Matsyasana.
 - Virasana.
 - Makrasana.
 - Sinhasana.

Marks: 50

5

5

- Chakrasana.
- Savasana.
- Sarvangasana.
- Halasana.
- (e) Pranayama (1-8).
- (f) Sthulvyamyas.

Unit-IV: Indian and International Body Therapies

- (a) Detail knowledge and study of shirodhara.
- (b) Detail study of.
 - hydro therapy.
 - colour therapy.
 - mud therapy (lepa).
 - body wrap (hot & cold treatment) to detoxify the body.
- (c) Jacuzee hydro massage.
- (d) Modern trends in spa, medi–tourism, medi–spa.
- (e) Acupressure massage.
- (f) Shiatsu.
- (g) Reiki.
- (h) Detail knowledge of reflexology massage.

Unit–V: Basic Health and Safety

To meet minimum occupational standards.

• Disease caused by Unhygienic practices.

Unit–VI: Business Studies

- Planning and establishing of a Spa/salon.
- Spa menu.
- Stock control.
- Communication in Spa & beauty Industry.

PRACTICAL

Time: 2.5 Hours

Unit–I: Yoga and Health

15

- (a) History and consultation of patron.
- (b) Demo and practice of sthulvyamya.
- (c) Demo and practice of suryanamaskar.
- (d) Demo and practice of shat karma.
- (e) Practice of all asanas as in theory.
- (f) Practice of mudra and bandha.
- (g) Practice of prayanama as in theory (1-8).
- (h) file-project work.

Marks: 50

15

5

Unit-II: Diet and Nutrition

- (a) Various method of cooking to protect nutritive value of food.
- (b) Diet plan for various age groups and work.
 - Labourer.
 - Sedantory worker.
 - Pregnant /lacting mother.
 - Diet for healthy skin and hair.
 - File-projects-charts.

Unit-III: Indian and International Body Therapies

- (a) Demo and practice of shirodhara.
- (b) Demo and practice of hydro therapy, colour therapy, mud therapy for various ailments (joint pain, high B.P, thyroid, diabetic).
- (c) Body wrap (hot & cold).
- (d) Spa treatments (head to toe).
- (e) Demonstration and practice of reflexology massage.

LIBRARY & INFORMATION SCIENCE CLASS-XII ELECTIVE LIBRARY SYSTEMS AND RESOURCE MANAGEMENT (747) THEORY

Time: 3 Hours

and Weeding out.

Marks: 60

10

•	Library Governance, Security, Finance & Budget	10
	Infrastructure of Library Dhysical Infrastructure Library space Computing Infrastructure	10
•	infastructure of Elorary - Thysical infrastructure, Elorary space, Computing infrastructure.	10
•	Acquisition - Policies, Type of materials – books, non - book, non-print, digital selection criteria, acquisition (traditional, online), accessioning, records maintenance.	methods of 10
•	Serials Management - Policies, selection criteria, methods of subscription and procurement, e-journals periodicals, access to back volumes of e-journals, records maintenance.	, binding of 10
•	Circulation-policies, issue/return systems, reservation.	10
•	Storage and Maintenance - Binding, Preservation - Electronic preservation, Inventory control, Stock	Verification,

PRACTICAL

Time: 2 Hours		Marks: 40
•	Online Procurement of books and periodicals.	10
•	Book Accessioning.	10
•	Registering the periodical issues and sending reminders for missing issues.	10
•	Do's and Don'ts for Preservation of Library Materials.	5
•	Preparing practical diary.	5

CLASS-XII ELECTIVE INFORMATION STORAGE AND RETRIEVAL (748) THEORY

Time: 3 Hours		Marks: 60
Unit-1:	Library Automation: Planning and Implementing	10
	• Understanding Library Automation.	
	Library Automation Planning.	
	• Implementing Library Automation.	
Unit-2:	Library Automation Software	10
	• Understanding Concepts of Software.	
	Library Automation Software.	
	• Function of LAS.	
	• Types/Kinds of Library Automation Software Packages.	

• KOHA: A Library Automation Software.

Unit-3: Introduction to Networking

- Understanding Networking.
- Types of Networking and Utility.
- Understanding Server.
- Networking and Communication Protocols.
- Networking Topology.

Unit-4: E-Resources

- Introduction.
- Categories of E-resources.
- Advantages of E-resources.
- Disadvantage of E-resources.

Unit-5: Information Retrieval System

- Information Retrieval System: Concept.
- Search Strategy: The Action Plan.
- Search Query Formulation Process for Information Retrieval in Internet.
- Search Technique and Methods Used.

Unit-6: Web Tools used for Promoting Library Services

- Web Tools: The Concept.
- Web 2.0/(Library 2.0): Concept and Characteristic.
- Web Tools and their Applications.
- Information Access Devices.

PRACTICAL

Time: 2 HoursMarks: 40• Prepare a project of library automation specially planning and implementation using KOHA.12• Hands on practice on blogging, social networking, etc.8• Preparing specifications for Ipad, Ipod, Book Kindle, using Internet and other resources.6• Collection of information on specific topic using various search engines.8• Preparing practical diary on E-resources.6

CLASS-XII GENERAL FOUNDATION COURSE (501)

Time: 3 Hours		ours	Marks: 100
		Part-I: (Compulsory to all Vocational Courses)	Marks: 50
A.	Bus	iness Management and Entrepreneurship	30
	Mar	nagement of Business	
	Elen	nentary treatment/exposure to basic conceptual frame work of the topic listed below:	
	(a)	Basic Function.	6
	(b)	Marketing Management.	6
	(c)	Financial Management.	6
	(d)	Production Management.	6

10

10

	(e)	Perso	onnel Management.	6
B.	Con	iputa	tional Skills	10
	1.	(a)	Solution of linear equations and their application to problem of commercial mathematics.	5
		(b)	System of linear equations and in equation in two variables. Applications in formation of s programming problems.	imple linear
	2.	Statis and I etc. I	stics: Raw data, bar charts and Histogram; Frequency Tables; Frequency Polygon; Ogive; Me Mode of ungrouped and grouped data; Standard Deviation; Introduction to Mortality tables; ntroduction to Computers.	enu, Median Price Index 5
C.	Env	ironn	nental Education & Rural Development	10
	1.	Envi	ronmental Education	5
		(a)	Modernization of agriculture and environment, irrigation, water logging, use of fertilisers soil erosion, land degradation (desertification and deforestation), silting and drying of water r	, pesticides, esources.
		(b)	Rational utilisation, conservation and regeneration of environmental resources (soil, air, v energy, minerals).	vater, plant,
	2.	Rura	al Development	5
	Principles and goals of rural development, major problems/constraints in rural development in India.			l.
			Part–II Ma	vrks: 50
1.	Туре	s of Li	braries.	8
2.	Orga	nisatio	onal set-up of libraries.	8
3.	Libra	ry Ext	ension Activities.	8
4.	Book	Clubs	3.	5
5.	Libra	ry Coo	operation, library network.	8
6.	Libra	ry pro	fessional ethics.	8

7. Qualities and qualification of librarian.

MASS MEDIA & MEDIA PRODUCTION

CLASS–XII ELECTIVE UNDERSTANDING THE EVOLUTION AND FORMS OF MASS MEDIA (738)

THEORY + PRACTICAL

Time: 3 Hours + 2 Hours

Theory: 60 Marks Practical: 40 Marks

Unit-1: Understanding the Language of the Medium Chapter-1: Media Literacy

24+16

- Introduction to Media Literacy.
- Introduction to Mass Media.
- Audience Theories.
- Media Ownership.
- Media Representation.
- Media & Violence.

Chapter-2: Aspects of Film Language

- The concept of missing scene.
- Film Analysis:
 - 1. Short film fiction.
 - 2. Short film non-fiction.
 - 3. Feature film.

(10)

Chapter-3: Content Analysis of TV Programmes

- The concept of a soap opera Daily soap, Weekly soap, Genres of Soap Opera.
- Primary audience of each genre, the segmented nature of the audience.
- Gaze of the audience, concept of a flow, continuous interruption.
- Culture of Film based programmes.
- Culture of Music based programmes.
- Educational TV, Non-fiction on TV.

Chapter-4: Content Analysis of Radio programmes

- News- the format, the language, frequency talks, magazine programmes unidirectional nature.
- Feedback with a time phase difference.
- Dramas the unique nature of radio plays.
- Interactive programmes-phone in, live interaction, music, experiences, memories as content of these programmes.

Chapter-5: Content Analysis of Newspapers and Periodicals

Newspapers:

- The macro composition of a daily various sections like the front page, edit page, sports page, business page.
- The micro composition of a daily proportion of visual and text, language, highlighting.

Periodicals:

- The macro composition of a periodical-various sections like the cover page, cover story, features, columns, business page.
- The micro composition of a periodical–proportion of visual and text, language, highlighting.

Chapter-6: Features of the Internet

- **Emails**: Personal, business communication between individuals and organizations, changing characteristics of the same.
- Websites: Educational sites, Entertainment sites, Information sites, Social networking sites, Business sites.
- Blogs.
- Web Advertising.
- The changing nature of communication and perception of interpersonal and social communication due to the various developing possibilities of the Internet.

24 + 16

Unit-2: Evolution of the Media [Global]

Chapter-1: The Evolution of International Cinema

The Silent Era [1895t o 1927].

- Primitives and Pioneers in UK, France and USA.
- Establishment of Hollywood, D.W Griffith and Slap stick comedy.
- Expressionism in Germany.
- Socialist Realism in USSR.

The Sound Era [1927 to the present day, transition from black and white to colour].

- The British, American and European documentary movement.
- Genres in Hollywood.
- Neorealism in Italy.
- The decade of Classical Cinema 1950-1960.
- European Cinema.
- Asian Cinema.
- African Cinema.
- Latin American Cinema.
- Post- Globalization– Hollywood and other cinemas.

Chapter-2: The Evolution of International Television

- Early beginnings from 1926.
- Post World War II.
- Commercial transmission- Local networks.
- National and trans-national networks.
- Live and recorded transmission.
- Video and Cable Networks.
- Satellite communication.
- Evolution of Fiction and Nonfiction programmes.

• Television as a part of the Internet.

Chapter-3: The Evolution of Print Medium

- Journalism as a 17th and 18th century phenomenon.
- Role of Industrial Revolution in the spread of print media.
- Local newspapers, Chain of newspapers.
- Some features of Journalism in Europe and America.
- On line editions.

Chapter-4: The Evolution of Radio

- Technically a combination of wireless and telegraph technology.
- Bell, Marconi, Jagdish Chandra Bose, Tesla created the possibilities of transmission.
- From Military use to the Civil one in the 1920s.
- Establishment of BBC in 1922, also Federal Commission in USA.
- News and commercial messages.
- By 1940 a universal and round the clock companion.
- 1955 onwards the invention of the transistor making radio portable.
- National/Regional Network: AM, FM, Stereo Broadcasts.
- Radio as a part of web communication.

Chapter-5: Evolution of the Internet

- The internet becomes are reality in the1970s.
- Till 1991, internet is limited to the military and industrial circles and is closed to others.
- Development of WWW in 1991 opens up internet.
- The phenomenal growth after that.

Unit-3: Convergence of the Media

Chapter-1: Independence and Inter-Convertibility of the Media

- Nature of audio-visual signals and messages Optical/Electronic.
- Live/Recorded.
- Analogue/Digital.
- Nature of media Print Text.
- Film: Optical Image.
- Television: Electronic Image: Radio- wireless communication.
- Accommodation of text, sound, image into Film.
- Accommodation of Film into Television.
- Internet as the meeting point of all the mass media.

Chapter-2: Convergence and the New Possibilities of Communication

Earlier models of communication.

- Broadcasting.
- Mass communication model of a few transmitting to a vast number of receivers.
- Gigantic organization.
- Huge technical infra-structure.

• Large scale revenue.

The changed paradigm due to the Internet.

- Empowering an individual to post data on the Internet.
- Information, message in one medium triggering off activity in the others.
- Many sources of the same information.
- Distribution of the information between individuals on an unprecedented global scale.
- Rapidity of opinion generation on a local, national and global scale.
- The socio-political implications of the new information order.
- The strengthening of democracy.

CLASS–XII ELECTIVE THE CREATIVE AND COMMERCIAL PROCESS IN MASS MEDIA (739) THEORY + PRACTICAL

Time: 3 Hours + 2 Hours

Theory: 60 Marks Practical: 40 Marks Theory: 30

Unit-1: Graphic Design-Multimedia Applications

Chapter-1:

• Introduction to multimedia.

Chapter-2:

• Text.

Chapter-3:

• Still image.

Chapter-4:

• Video Applications.

Chapter-5:

• Sound.

Chapter-6:

• Creating a Multimedia project.

Unit-2: Production Skills

Chapter-1:

• Project Tour of the campus of a training institute with some practical experience/ observation.

Chapter-2:

• Project – Non-Fiction.

Unit-3: Selling/Marketing/Exhibiting A Product Through Advertising: The Case Study Approach

Theory: 30

Practical: 40

Chapter-1: Profile of a Product

- Product specifications.
- Targeted.
- Buyers.

Chapter-2: The Task of Advertising

- Promotion of product.
- Drive sales.
- Build a brand identity.
- Increase the buzz.

Chapter-3: The Available Media

- Print-newspapers, magazines, brochures, fliers, sposters.
- OOH-bill boards kiosks trade shows events.
- Broadcast advertising Radio TV Digital Internet + Mobile.
- 'In film' promos.
- Celebrity endorsements.
- Cross promotions.
- Merchandise.
- Games (Mobile and computer) Covert advertising.

Chapter-4: Forms of Advertising

- Product Advertising.
- Institutional Advertising (Corporate).
- Social Service PSA Advocacy Advertising.
- Comparative Advertising Cooperative Advertising Direct Mail.
- A Point-of-Purchase Advertising.
- Informational Advertising.

TRAVEL & TOURISM

CLASS XII ELECTIVE INTRODUCTION TO HOSPITALITY MANAGEMENT (756)

THEORY

Time: 3 Hours

Unit-1: **Introduction to Hospitality Management**

- Meaning, concept, origin and development of hospitality industry. Importance of customer care in hospitality & Eco friendly practices in hospitality.
- Concept of Ecotels. Famous hotel chains in India and worldwide. Role of hospitality industry in tourism.

Unit-2: **Organisational Structure of Hotel**

The important functional departments of the hotel, their functions, Organizational chart of hotels (Large, Medium, Small) Facilities provided in hotels.

Unit-3: **Classification of Hotel**

Room Types & Tariffs - Types of rooms, Food/Meal plans, Types of room rates. (Rack, FIT, crew, group, corporate, weekend etc.), Classification of hotels (based on various categories like size, location, clientele, length of stay, facilities, ownership) Registration and gradation of hotels.

Distribution Channel Unit₄:

Meaning and definition of hospitality distribution channels, functions and levels of distribution channels, basics of major hospitality distribution channels-travel agents, tour operators, consortia and reservation system.

Unit-5: **Introduction to Front Office Division**

Front Office department and its functions, Sections and layout of Front Office, Organizational chart of front office department (small, medium and large hotels), Duties and responsibilities of various staff, The guest cycle, Property management systems, Attributes of front office personnel, Co-ordination of front office with other departments of the hotel. The organization structure of rooms division.

Unit-6: **Front Office Services**

Equipments used (Manual and Automated), Role of Front Office- Key control and key handling procedures, Mail and message handling, Paging and luggage handling, Rules of the house (for guest and staff), Black list, Bell Desk and Concierge

Unit-7: **Front Office Communication and other Attributes**

Communication Fundamentals- Telephone etiquettes, Important terminology used in hotels Professional Attributes- Attributes- Attributes your job, Personal Hygiene, Uniforms, Care for your own health & safety.

Unit-8: Front Office and Guest Safety and Security

Safety practices & procedures- Accidents, types, nature, classification, Preventive measures for each type of accident, Reporting accidents, First aid - meaning, importance, and basic rules. Fire Prevention.

8

6

Marks: 60

7

8

8

8

8

PRACTICAL

Time: 2 Hours

Front Office (Identification of various vouchers): The students will have to draw one or two of the following vouchers and according to the case study fill up the vouchers (desk work). 10

- Registration Card.
- Reservation Form.
- Amendment Slip.
- Cancellation Slip.
- Arrival/departure notification slip.
- VIP amenities voucher.
- Miscellaneous charge voucher.
- Allowance voucher.
- Paid out voucher.
- Message slip.
- Guest Folio.
- (i) Telephone etiquettes and manners.

10

- Front desk grooming and other essentials body language, speech modulation which includes articulation, variation (ii) control of pitch and tonal quality. 10
- Role play: Guest Check-in and check-out procedures for FIT's/GIT's/Crews etc. (The student should be able to (iii) handle the entire procedure independently), Luggage handling procedures on guest arrival/departure, Scanty Baggage procedures, Left Luggage procedures, Safety locker procedures, Calculation of various occupancies & revenue. 10

CLASS-XII ELECTIVE TRAVEL AGENCY AND TOUR OPERATIONS BUSINESS (757) THEORY

Time: 3 Hours		Marks: 60	
Unit–1:	Introduction to Travel & Tourism Business	8	
	• Evolution of Travel Business.		
	• Travel Trade in India.		
	(i) Meaning and Concept of Travel business.		
	• Travel Agency.		
	(i) Types of travel agencies.		
	• Tour operator.		
	(i) Types of tour operators.		
	• Difference between Travel Agency and Tour Operator.		
		Organizational structure of a travel/tour company.	
	• Market Trends and TA business scenario.		
	Business Integration.		
Unit–2:	Operations of Travel Agency	8	

Agent.

Marks: 40

- Origins of travel agency.
 - (i) Operations of travel agency.
 - (ii) Organization of travel agency.
- Commissions.
 - (i) Types of agencies.
- Travel agencies in the 21st Century.

Unit–3: Transport Network

- Transportation.
 - (i) Tourism and Transport.
- Air Transport.
- Rail Transport.
- Road Transport.
- Shipping.
- Mass Transportation.

Unit–4: Itinerary Planning

- Itinerary planning.
 - (i) Importance of travel itinerary.
 - (ii) Types of tour itinerary.
 - (iii) Pre-requisites of itinerary preparation.
 - (iv) Things to be considered while preparing itinerary.
 - (v) Step by step procedure.
 - (vi) Do's and don'ts of itinerary preparation.
- GIT and FIT.
- Package or inclusive tours.

Unit–5: Tour Packaging & Programming

- Meaning and Classifications of Tour Packages.
- Components of Package.
- Customized and Tailor-Made Package.
- Tour Formulation & Designing Process.
- Tour Brochure Designing.
- Tour Programming and its Importance.

Unit-6: Package Tour Costing

- Meaning and Types of Cost.
- Concept of Tour Costing.
 - (i) Types of cost.
 - (ii) Preparation of Cost Sheet.
- Components of Tour Cost.
- Pricing package tour.
- Pricing strategies.

7

8

10

Unit-7: Government and Professional Bodies

- Components of tourism.
- Integration between government and professional bodies.
- Rules for Setting up Travel Agencies & Tour operator.
- Department of tourism (DoT) Different schemes and policies.
- Professional bodies and their activities.

Unit-8: Global Distribution System

- Global distribution system (GDS).
- Evolution of GDS.
- Amadeus and GDS.
- Display Airlines Schedules & Availability.

PRACTICAL

Time: 2 Hours

- 1. Plotting on World Map countries and Cities.
- 2. Plotting on World Map Air Routes.
- 3. Visit to Travel Agency- Prepare a report.
- 4. Visit to local tourist attraction- Prepare a report.
- 5. Preparation of package tour.
- 6. Report writing on current events of Tour and Airway Business.

Marks: 40

TEXTILE DESIGN CLASS-XII ELECTIVE TRADITIONAL INDIAN TEXTILE (777)

Preamble

India boasts of a rich textile and craft heritage. These traditions not only give meaning to the existence of India's people, but also provide domestic, social and religious framework. Hence textile crafts serve a dual role as they signify cultural values and at the same time is an important source of livelihoods for economically challenged marginalized sections of the society. Crafts including weaving are the second largest employer after agriculture in India and provide livelihood to over 200 million artisans.

The course on 'Traditional Indian Textiles' will initiate students to the world of textile crafts of India, through an appreciation of its unfolding through the ages in order to make them understand finer nuances of painted, printed & woven traditional textiles crafts.

THEORY + PRACTICAL

Time: 2.5 Hours+2.5 Hours

Unit-1: Embroidered Textiles

Objectives of the Unit

- To introduce the technique of embroidery for value-addition.
- To create awareness about the different embroidered textiles of India.
- To initiate identification of regional embroideries developed by various communities.
- To understand the origin of technique and design with reference to colours, motifs, layouts of different embroidered textiles.
- To learn about the evolution of embroidered textiles over a period of time.

Learning Outcomes

After completing the unit, the students shall be able to.

- Appreciate the finer nuances of embroideries.
- Classify the regional embroideries of India.
- Identify a specific embroidery style of India on the basis of colours, motifs and layout.
- Identify the influencing factors for development and evolution of a specific embroidered textile.

Course Content

- Introduction to traditional embroidered textiles from different regions of India.
- Categorization of embroidery styles on the basis of region:
 - (a) North India:
 - (i) Kashida from Kashmir.
 - (ii) Phulkari from Punjab.
 - (iii) ChambaRumal from Himachal Pradesh.
 - (b) Western India:
 - (i) Embroidery from Gujarat.
 - (ii) Parsi embroidery.
 - (c) Central India:

Theory: 50 Marks + Practical: 50 Marks

10+10

- (i) Chikankari from Uttar Pradesh.
- (ii) Patti kaKaam from Uttar Pradesh.
- (iii) Zardozi from Uttar Pradesh.
- (d) Southern India:
 - (i) Kasuti from Karnataka.
 - (ii) Lambadi embroidery from Andhra Pradesh.
- (e) Eastern India:
 - (i) Kantha from West Bengal.
 - (ii) Sujani from Bihar, Pipli appliqué from Orissa.
- Study of the above mentioned regional embroideries with reference to origin, technique, raw material, colours, motifs and layout.
- Overview of the historic embroidered textiles and the contemporary scenario.

Methodology of Teaching

- Illustrated lectures.
- Visit to local museums/Haats/exhibitions of craft based products.

References

• Traditional Indian Textiles, Students Handbook & Practical Manual, Published by CBSE.

Unit-2: Resist Dyed Textiles

Objectives of the Unit

- To introduce the technique of resist dyeing for value-addition.
- To create awareness about the different resist dyed textiles of India.
- To initiate differentiation between yarn resist dyed (Ikat) and cloth resist dyed textiles (Bandhej).
- To understand the origin of technique and design with reference to resist dyed textiles.
- To learn about the evolution of resist dyeing over a period of time.

Learning Outcomes

After completing the unit, the students shall be able to.

- Understand the finer nuances of resist dyed textiles.
- Classify the regional tie-dyed textiles of India.
- Identify specific ikat textiles of India on the basis of technique, colours, patterns and layout.
- Identify specific tie-dyed textiles of India on the basis of technique, colours, patterns and layout.
- Identify the influencing factors for development and evolution of a specific resist-dyed textile.

Course Content

- Introduction to traditional resist-dyed textiles from different regions of India.
- Categorisation of ikat styles on the basis of region:
 - (a) Patola from Gujarat.
 - (b) Bandhas from Odisha.
 - (c) Pochampalli & Telia Rumal from Andhra Pradesh.

15 + 15

- Categorisation of tie-dyed textiles on the basis of region:
 - (a) Bandhani from Gujarat.
 - (b) Bandhej & Leheriya from Rajasthan.
- Study of the above mentioned resist-dyed textiles with reference to origin, technique, raw material, colours, patterns and layout.
- Overview of the historic resist-dyed textiles and the contemporary scenario.

Methodology of Teaching

- Illustrated lectures.
- Visit to local museums/haats/exhibitions of craft based products.

References

• Traditional Indian Textiles, Students Handbook & Practical Manual, Published by CBSE.

Unit-3: Printed Textiles

15+15

Objectives of the Unit

- To introduce the technique of hand block printing for value-addition.
- To create awareness about the different printed textiles of India.
- To initiate differentiation between direct and resist style of printing.
- To understand the origin of technique and design with reference to block printed textiles.
- To learn about the evolution of block printing over a period of time.

Learning Outcomes

After completing the unit, the students shall be able to.

- Understand the finer nuances of block printed textiles.
- Classify the regional block printed textiles of India.
- Identify specific block printed textiles of India on the basis of technique, colours, motifs and layout.
- Identify the influencing factors for development and evolution of a specific block printed textile.

Course Content

- Introduction to traditional block printed textiles from different regions of India.
- Categorization of block printing styles on the basis of region:
 - (a) Bagru prints from Rajasthan.
 - (b) Sanganer prints from Rajasthan.
 - (c) Kalamkari from Andhra Pradesh.
- Study of the above mentioned block printed textiles with reference to origin, technique, raw material, colours, motifs and layout.
- Overview of the historic block printed textiles and the contemporary scenario.

Methodology of Teaching

- Illustrated lectures.
- Visit to local museums/haats/exhibitions of craft based products.

References

• Traditional Indian Textiles, Students Handbook & Practical Manual, Published by CBSE.

Unit-4: Hand-Woven Textiles

Objectives of the Unit

- To introduce the technique of handloom weaving in India.
- To create awareness about the different handlooms used for weaving.
- To initiate identification of regional variations practiced by various weaving communities.
- To understand the origin of technique and design with reference to colours, motifs, layouts of different hand-woven textiles.
- To learn about the evolution of hand-woven textiles over a period of time.

Learning Outcomes

After completing the unit, the students shall be able to.

- Appreciate the finer nuances of handloom weaving.
- Classify the regional weaves of India.
- Identify the different handlooms used in India.
- Identify a specific hand-woven textile of India on the basis of technique, raw material, colours, motifs and layout.
- Identify the influencing factors for development and evolution of a specific hand-woven textile.

Course Content

- Introduction to traditional hand-woven textiles from different regions of India.
- Categorisation of weaving styles on the basis of end product:
 - (a) Saris.
 - (i) Benaras Brocades.
 - (ii) Bauchari, Jamdani.
 - (iii) Paithani.
 - (iv) Kanjeevaram.
 - (v) Chanderi, Maheshwari.
 - (b) Shawls.
 - (i) Kashmir shawl.
 - (ii) Kullu & Kinnaur.
 - (iii) Wraps of North-east.
 - (c) Floor coverings.
 - (i) Carpets.
 - (ii) Durries.
- Study of the above mentioned hand-woven textiles with reference to origin, technique, raw material, colours, patterns, layout and end product.

• Overview of the historic hand-woven textiles and the contemporary scenario.

Methodology of Teaching

- Illustrated lectures.
- Visit to local museums/haats/exhibitions of craft based products.

References

• Traditional Indian Textiles, Students Handbook & Practical Manual, Published by CBSE.

CLASS–XII PRINTED TEXTILE (778) (ANYONE FROM PRINTED TEXTILE OR TEXTILE CHEMICAL PROCESSING)

Preamble

Textile printing or printed Textiles is as old as mankind. The earliest examples can be found as early as fifth century. Various records show that printed fabric did exist about 2500 B.C. It is believed that people of China and India were the first to make simple blocks for the printing of cotton cloth, and it is certain that Textile printing was a fairly established Industry in India during the earliest of the Christian era.

Textile prints have played an important role in developing various surfaces. Each region has its own intrinsic style, color and pattern. In India, printed textiles are very popular and are printed in various styles and methods depending on the geographical region.

The prints are now visible in various products like bags and lifestyle accessories.

The purpose of the course "Printed Textiles" is to inform students about the fundamentals of Textile prints. The course will give an overview of History of printed Textiles, Categories of Printed Textiles, Styles and Methods of Printing Textiles and Basic print Design Techniques.

THEORY + PRACTICAL

Time: 2.5 Hours+2.5 Hours

Unit-1: Introduction to Print Design

Objectives of the Course

- To introduce and understand Print Design development.
- Relevance of Reference material.
- Understanding Textile Design, repeat and layout.

Learning Outcome

After finishing the unit, the students shall be able to.

- Understand the basic requirement for print Design development.
- List the historical printed textiles.
- Identify the pattern, repeat and layout.
- Identify the influencing factors for design development.

Course Content

- History of printed textiles.
- Understanding the similarity and difference between art and design.
- Various aspects of Textiles Design: Reference material, color, layout and repeats.

Theory: 15

Theory: 50 Marks + Practical: 50 Marks

Methodology of Teaching

- Illustrated lectures.
- Visit to Museum.

Reference Books

• Printed Textile, Students Handbook & Practical Manual, Published by CBSE.

Unit-2: Categories of Printed Textiles

Objectives of the Course

- To develop an understanding for surface design development.
- To sensitize students towards various types of Prints.
- To understand forms, shape and color combinations for various categories.
- To sensitize students towards specific influencing forms, objects and shapes.
- To develop an ability to recognize the design in each type of print.

Learning Outcome

- After completing the unit, the students shall be able to.
- Understand forms and colour combinations.
- Develop an understanding for various categories of prints.
- Identify the types of prints.

Course Content

Introduction to various types of Design and their categories.

- Toile prints.
- Pucci prints.
- Geometric prints.
- Graphic prints.
- Floral prints.
- Conversational prints.
- Liberty prints.
- Country inspired prints.
- Nautical prints.
- Victorian prints.
- Scenic prints.
- Animal prints.
- Ethnic prints.
- Folklore prints.

Methodology of Teaching

• Illustrated lectures.

Theory: 15 + Practical: 10

• Demonstration and Practical Assignments.

Practical Assignments

- Collection of prints as per specified categories and preparation of swatch book.
- Development of one print in each categories 8"x8" block.

Reference Books

- Printed Textile, Students Handbook & Practical Manual, Published by CBSE.
- S. Meller, J. Elfers Thames and Hudson Ltd. Textile designs 200 years of patterns for Textiles.
- Carol Joyce Watson- Guptill publication 1997, the complete Guide to Printed Textile for apparel and Home Furnishing.

Unit-3: Basic Print Design Techniques

Practical: 30

Objectives of the Course

To develop an Interest and confidence for creating Print designs.

- To explore various art media for developing interesting design.
- To develop the ability to choose the most appropriate technique for creating interesting designs.

Learning Outcome

After completing the unit, the students shall be able to.

- Create interesting design by using various art media.
- Appreciate the techniques involved in developing interesting textures.
- Use art media more appropriately and confidently.
- Develop interesting colour combinations and designs.
- Understand the relation between forms and background.

Course Content

Use of following innovative techniques for development of interesting surfaces.

- Etching.
- Stencil.
- Collage.
- Inter-cutting.
- Resist (Bleach/Wax).
- Dry-brush.
- Photocopy.
- Sponge.
- Stamping.

Methodology of Teaching

- Illustrated lectures.
- Demonstration and Practical Assignments.

Practical Assignments

• Preparation of Textile designs using different techniques.

• Development of thirty 8x8 swatches in different techniques and mix media.

Reference Books

• Printed Textile, Students Handbook & Practical Manual, Published by CBSE.

Unit-4: Style & Methods of Printing Textiles

Theory: 20 + Practical: 10

Objectives of the Course

- To introduce styles and Methods of Printed Textiles and its effect of design.
- To learn the process involved in Printing Textiles.
- To gain Knowledge of evolution of printing process.
- To understand the origin and history of styles and methods.

Learning Outcome

- After completing the unit, the students shall be able to.
- Understand the different styles and methods involved in printing Textiles.
- Identify the correct method and style for printing Textiles.
- Recognize the difference between different kinds of prints.
- To get an overview of printing methods.

Course Content

Study of Styles and Methods involved in printing Textiles.

- Direct, Resist and Discharge Methods.
- Block Printing Style.
- Screen Printing Style.
- Roller Printing Style.
- Digital Printing Style.
- Transfer Printing.
- Foil Printing.
- Hand Printing.
- Sublimation.

Printing of designs using different methods and styles of printing.

Methodology of Teaching

- Illustrated lectures.
- Demonstration and Practical Assignments.

Practical Assignments

• Printed Textile, Students Handbook and Practical Manual, Published by CBSE.

CLASS-XII

TEXTILE CHEMICAL PROCESSING (779) (ANYONE FROM PRINTED TEXTILE OR TEXTILE CHEMICAL PROCESSING)

Objectives of the Course

- To gain an overview of processes involved in Dyeing, Printing and Finishing of Textile materials.
- To familiarize students about chemical processing and its role in fabric Manufacturing.
- To introduce preparatory process of major Textile fibers.
- To study dyeing printing and finishing of Natural fibers.

THEORY

Time: 2.5 Hours Marks: 50 Unit-1: Introduction to Chemical Processing-Pretreatments 15 Course Content • • Textile Chemical processing for fibers. • Impurities present in the Natural and Synthetics Fibers. • Elementary knowledge of processing. • Different processes e.g., singeing, de-sizing, scouring, bleaching & mercerizing. Learning Outcome After finishing the course, students will be able to understand.

- Various technical terminology used in the industry.
- Various types of impurities presents in the Substrates.
- The processes involved in removing impurities.

Teaching Methodology

• Illustrated Lectures with Power Point presentation and Slides.

Unit-2: Textile Dyeing

Content

- Suitability of Dyes and dyeing methods, important classes of dyes for natural and man-made fibers e.g., direct, acid, basic, vat, azoic, sulfur and disperse dyes.
- Important features of dyes.
- Dyeing machines & special dyeing effects.

Learning Outcome

After finishing the course, students will be able to.

- Dye all kind of Textile Fabrics.
- Select dyes as per the type of fabrics.
- Identify dyeing methods used in the Industry.

Teaching Methodology

Illustrated Lectures with Power Point presentation and Slides.

Unit–3: Textile Printing

Content

- Printing paste ingredients.
- Introduction to various methods of printing, specific features and limitations of various methods, Such as Hand Block Printing, Hand Screen printing, Automatic Flat Bed Screen Printing, Rotary Screen Printing, Heat Transfer Printing.
- Style of Printing (Direct Prints, Discharge Prints, Resist Prints, Pigment Prints, Blotch Prints, Flock Prints, Burnout Prints, Duplex Prints, Engineered Prints, Warp Prints) & their Specific feature for their Identification.

Learning Outcome

After finishing the course, students will be able to understand.

- Various terminology used in textile printing.
- Styles and methods involved in printing.
- Various effects produced by various styles of printing.
- Limitation of the printing methods.

Teaching Methodology

10

Illustrated Lectures with Power Point presentation and Slides.

Unit-4: Textile Finishes

Content

- Classification of the finishes.
 - (i) According to Designer/Merchandiser /Sales Persons.
 - (ii) According to Textile Chemist.
 - (iii) According to Degree of Performance.
- Objectives of the various finishes.
 - (i) Types of Calendaring and its objective.
 - (ii) Napping.
 - (iii) Emerizing.
 - (iv) Parchmentising.
 - (v) Shape Retention Finishes.
 - (vi) Shrinkage Control Finishes.
 - (vii) Sanforizing.
 - (viii) Decatizing.
 - (ix) Soil Release /Stain Repellent Finish.
 - (x) Water Repellent & Water Proofing.
 - (xi) Anti Microbial Finish.
 - (xii) Flame Retarding Finish.
 - (xiii) Garment Washing.

Learning Outcome

After finishing the course, students will be able to understand.

• Types of finishes and their performance.

Teaching Methodology

• Illustrated Lectures with Power Point presentation and Slides.

PRACTICAL

Time: 2.5 Hours Marks: 50 **Experiments :** 1. Desizing of cotton Fabrics by Acid Desizing method and calculate the weight loss in the Process. 2 Scouring of cotton by Sodium Hydroxide and measure water permeability of the process. 2. 2 Bleach the cotton fabric with the bleaching powder or Sodium Hypo chlorite. 2 3. 2 4. Bleach the cotton fabric by hydrogen Peroxide. 5. Degumming of the Silk. 2 Bleaching of the silk with the Hydrogen Peroxide. 2 6. 2 7. Dyeing of cotton with Direct Dyes. 8. Dyeing of cotton with Reactive dyes. 2 Dyeing of cotton with Vat dyes. 3 9. 3 Dyeing of cotton with Sulphur dyes. 10. Dyeing of cotton with Az dyes. 2 11. 12. Dyeing of wool with Acid Dyes. 2 Dyeing of wool with Reactive Dyes. 2 13. 3 Dyeing of Silk with Acid Dyes. 14. 15. Dyeing of Nylon with Acid Dyes. 3 Tie and dye of cotton with Direct dyes (Resist Print). 2 16. Batik Print on the Cotton Fabrics (Resist Print). 3 17. Printing on the polyester fabrics by Pigment colour. 3 18. Printing on cotton fabrics by Naptholcolours. 3 19. 20. Printing on cotton fabric with natural colours. 3 21. Collect the sample of finished fabrics and describe the type of finishes it may have. 2

SECURITY (800) CLASS–XII ELECTIVE

THEORY

Time: 2.5 Hours + 2.5 Hours

Total Marks: 100 Theory: 50 Marks Practical: 50 Marks

Unit-1: Security of Premises and Property

Demonstrate the knowledge of Responsibilities involved in perimeter security, Demonstrate the knowledge and skills for the use of access control system, Identify the various documents used in access control, Demonstrate the knowledge of parameters for screening and searching people and vehicles, Manage incidents during screening and search, Describe the responsibilities and procedures involved in gate control. 7

Unit-2: Introduction to Technological Aids in Security Operations

Describe the various types of access control system and equipment, Demonstrate the knowledge of scanning and frisking, Identify the various parts and demonstrate the knowledge of CCTV equipment, Demonstrate the knowledge and skill of using Public Address System. 7

Unit-3: Legal and Procedural Requirement in Private Security Sector (Advanced)

Demonstrate the knowledge of laws related to self defence and arrest, Describe Special Acts which address security issues, Demonstrate the knowledge of provisions made for training under the PSA (R) Act and Rules thereof, Demonstrate the knowledge of the provision made for verifications as per PSA (R) Act and Rules thereof, Demonstrate the knowledge of various provisions related to service conditions of Private Security Personnel under PSA (R) Act 2005. 7

Unit-4: Basic Security Operations

Demonstrate the knowledge of different types of patrol, Describe the planning and preparations of patrols, Identify the limits of responsibility and authority of patrolling team, Deal with various types of crowd, Demonstrate the knowledge and ability to control crowd, Identify the behaviour and appropriate measures for controlling unruly crowds. 7

Unit–5: Security through Surveillance and Protection Systems

Demonstrate the knowledge of visitor information recording, demonstrate the knowledge to monitor visitor's through surveillance systems, managing the visitors' material, and demonstrate the knowledge of the use of security surveillance and protection system. **7**

Unit-6: Responding to Security Incidents and Breaches

Handle security Incidents and services, Deal with threat situations of suspected explosives, bombs and Improvised Explosive Device (IED). 7

Unit–7: Work Integrated Learning

Demonstrate the knowledge of security survey and audit, Demonstrate the knowledge of customer relationship management, Demonstrate gender and cultural sensitivity, Demonstrate the knowledge of Corporate Social Responsibility insecurity service, Demonstrate the ability to apply concepts of environment protection and conservation insecurity system. **8**

Note: Practical will be based on aforesaid theory paper.

LIST OF RECOMMENDED BOOKS

1. Resource Material developed by PSSCIVE, Bhopal on Security (Level I, II, III, IV) for Classes IX, X, XI and XII.

HORTICULTURE CLASS-XII ELECTIVE BASIC HORTICULTURE (762) THEORY

Time: 3 Hours

Marks: 60

1.	Business opportunities in horticulture.	6
2.	Principles of preservation and value addition of Horticultural Produce (Fruits, Vegetables and flowers).	15
3.	Types of syrup, brines and food colour used in preservation of fruits, vegetables and flowers.	4
4.	Urban Horticulture.	8
5.	Weeds of horticultural crops and their management.	5
6.	Methods of propagation of horticultural crop.	15
7.	Planting material for horticultural crops.	7

PRACTICAL

Time:	: 2 Hours Marks	: 40		
1.	Visit to a processing plant.	3		
2.	Visit to a fruit, vegetable and a flower market.	3		
3.	Harvesting, safe plucking & storage of fruits.	6		
4.	Identification of food colours.	2		
5.	Primary Processing (including Cleaning and Sorting/Grading) and preservation of fruits (Including dry addition of preservatives).	ing and 4		
6.	Identification of different preservatives and preparation of syrups and brines.	5		
7.	Identification and taste of different value added products of fruits and vegetables such as Jams, Jellies, Pickles, candies, canned item packs.	Squash, 4		
8.	Identification of common weeds of orchards and vegetable farms.	3		
9.	Visit to a tissue culture laboratory.	5		
10.	Harvesting and Primary processing of flowers.			
11.	Identification of flood arrangements such as Bouquets, Rangoli, Garland, Ikebana etc.	5		
	CLASS_XII			

CLASS-XII OPTIONAL-I OLERICULTURE (763)

THEORY

Time:	3 Hours	Marks: 60
1.	Different production system and modern methods of vegetable cultivation.	10
2.	Industrial importance of vegetable and setting up of industry based on the vegetable crops.	5
3.	Cropping system with vegetable crops.	10
4.	Production technology of important vegetable crops.	15
5.	Fertigation in vegetable crops.	5
6.	Role of chemicals and growth regulators in vegetable production.	5

7.	Seed production techniques of vegetable crops.	5
8.	Hybrid seed production of vegetable crops, An entrepreneurship opportunity.	5

PRACTICAL

Time: 2 Hours

1.	Visit to vegetable field to study methods of vegetable cultivation.	4
2.	Identification of vegetable seeds and vegetable crops at different growth stages.	4
3.	Determining the germination percentage of vegetable seed.	2
4.	To study vegetable treatment with fungicide and bacterial culture.	2
5.	Studying vegetables classification according to economic parts used.	1
6.	Preparing vegetable nursery beds.	2
7.	Raising vegetable seedling in nursery bed and protrays.	2
8.	Identification of major diseases and insect-pests of vegetables.	2
9.	Preparation for sowing/transplanting of vegetable crops.	2
10.	Sowing/transplanting of vegetables in main field.	2
11.	Fertilizer application for vegetable growing.	2
12.	Preparation of pesticide solutions and its spray in vegetable crops.	2
13.	Preparation of processed products from vegetables.	2
14.	Breaking dormancy to induce germination in potato.	2
15.	Hybrid production technology of tomato.	2
16.	Use of protected structures for vegetable cultivation.	2
17.	Harvesting indices, grading and packaging of vegetables.	2
18.	Calculating cost of production of important vegetable crops.	1
19.	Visit to vegetable based industry.	2

CLASS–XII OPTIONAL–II POMOLOGY (764) THEORY

Time: 3 Hours

Marks: 60

1.	Importance of fruit culture (economic preposition, health benefits etc.) Setting up of industry based on the present position and scope of fruit processing and equipments required for setting up a processing unit.	ne fruits 6
2.	Cultivation of temperate of fruits (apple, pear, plum, peach, apricot, walnut, almond).	5
3.	Cultivation of tropical fruits (mango, banana, papaya, sapota, pineapple etc.).	5
4.	Cultivation of sub-tropical fruits (pomeranate, litchi, citrus, grapes, ber, aonpla etc.) their Cultivation of temp fruits (apple, pear, plum, Alume, Peach, apricot, walnut, almond) cultivation practices with special refer origin, varieties (cultivars, climate, soil, land preparation, planting, manuring, irrigation, harvesting, ripe fruits, grading, packaging, marketing) control of insect pest and diseases.	perature rence to ening of 4
5.	Root stocks of different fruit crops, their propagation, nursery management.	4
6.	Management of rootstocks and mother stocks.	3
7.	Fertigation in fruit crops.	4
8.	Maturity standards, harvesting, ripening, grading of fruits etc.	6
9.	Mechanized harvesting of fruits.	6
10.	Role of biotechnology and micro-propagation of importance fruits crops.	5
11.	Pesticide use, safety of operators and consumers, concept of minimum residue limit in fruits crops.	5
12.	Orchard rejuvenation, head back and high density planting in fruits.	3

PRACTICAL

Time: 2 Hours

13.

- 1. Visit to high density orchard, identification of fruit trees and varieties.
- 2. Studying fruit setting and fruit dropping in important fruits crops.
- 3. Laying out different systems of irrigation for young and adult fruit trees in orchard.

Packing, storage and value addition and value added products from fruits.

- 4. Planting of fruit trees such as papaya, citrus, mango etc.
- 5. Mulching in fruit orchard (plastic and biological).
- 6. Performing intercultural operation in orchard.
- 7. Selecting at least two fruit species and maintaining them from flowering till fruiting.
- 8. Training and pruning of available trees.
- 9. Training in grapes on head and bower system, if available.
- 10. Training in mango and pomegranate.
- 11. Notching and pruning in fig/gular.
- 12. Foliar application of nitrogenous fertilizer in fruit crops.
- 13. Manuring with farm yard manure and chemical fertilizer in fruit crops.
- 14. Observing declines in the orchards and study their causes.
- 15. Studying morphological characteristics of available varieties of fruit crops available in your locality.
- 16. Identification of important insects and other pests and diseases of fruit crops.
- 17. Preparation of pesticide solutions and their safe spraying in orchard.

Marks: 40

- 18. Evaluating the taste of fruit cultivars.
 - Identification of fruit trees & verities.
 - Identification of important diseases of fruit crops.
- 19. Calculating the cost of production of important local fruit crops.
- 20. Visit to local fruit market and Studying marketing of fruit and finding out scope of different fruit in the local market.
- 21. Studying the use of Gibberellin Acid and other growth promoting hormones in orchards.
- 22. Orchard rejuvenation making rings, application of fertilizers, root pruning etc.

CLASS–XII OPTIONAL–III FLORICULTURE (765) THEORY

Time: 3 Hours

1.	Present scenario and scope of floriculture in global market.	8
2.	Employment avenues in floriculture sector.	9
3.	Study of outdoor room concept: public area, private area and service area.	9
4.	Different features of gardens like gate, walls, arches, pergolas, paths, roads, edges, hedges, stepping stones, su bird bath, statues, water fountain, lawns, herbaceous borders, bonsai, topiary etc.	n dial, 9
5.	Concept of CAD (Computer aided designs) for landscape designs.	4
6.	Methods of establishing lawns and their management including irrigation, fertilization, mowing, insect-pediseases and their control.	st and 3
7.	Production of indoor plants and their maintenance.	2
8.	Commercial cultivation of rose, chrysanthemum, gladiolus, marigold, tuberose, jasmine and crossandra.	2
9.	Protected cultivation of commercial flower crops like rose, carnation, chrysanthemum, gerbera, orchids, antirr etc).	hinum 2
10.	Flower arrangements: types and styles.	5
11.	Methods of dry flower making like air drying, embedded drying, water drying, press drying, glycerin drying, drying etc. and other value added products.	freeze 4
12.	Post-harvest handling of commercial flower crops including harvesting, pre cooling, pulsing, holding, dry ar storage, packing, packaging and transportation.	nd wet 3

PRACTICAL

Time: 2 Hours

- 1. Visit to flower market during different seasons.
- 2. Performing intercultural operations like training, pruning in roses.
- 3. Performing staking, pinching, de-shooting and disbudding in carnation and chrysanthemum flower crops.
- 4. Maintenance of mother plants of chrysanthemum.
- 5. Embedded drying of important flower crops using different embedding media.
- 6. Studying morphological characteristics of available varieties of flower crops available in your locality.
- 7. Identification of important pests and diseases of lawn and avenue plants.
- 8. Preparation of pesticide solutions and their spraying for control of insect, pests and diseases.
- 9. Preparation of dry flower products like greeting cards, book marks, wall hangings and dry flower baskets.
- 10. Preparation of landscape designs for school and college using CAD technology.

Marks: 40

Marks: 60

- 11. Preparation of landscape designs for home gardens.
- 12. Preparation of landscape designs for public parks.
- 13. Preparation of different flower arrangements like ikebana, garland, bouquets etc.
- 14. Calculating the cost of production of important flower crops.
- 15. Packing and packaging of commercial flower crops.

TRANSPORT SYSTEMS AND LOGISTIC MANAGEMENT CLASS-XII ELECTIVE LOGISTICS, OPERATIONS AND SUPPLY CHAIN MANAGEMENT (750) THEORY

Time: 3 Hours		
Unit–1:	Logistics and System Concept, Objectives and Role of Logistics	10
	• Logistics and System concept - Information flow, warehousing, inventory control, packaging,	transportation.
	Objectives of logistics management.	
	• Role of logistics in supply chain.	
	• 3 PL & 4 PL Logistics.	
	Careers & growth in Logistics and Supply Chain.	
Unit–2:	Inventory Management	15
	• Inventory management and supply chain.	
	• Inventory functions and cost.	
	• Inventory related cost.	
	• Functions of Inventory management in supply chain operations.	
Unit–3:	Freight Management	10
	• Freight Management - factors influencing freight cost, route planning.	
	• Packaging for safe product handling and in Logistic Operations.	
	• Containerization - its scope and types, its uses.	
Unit–4:	Logistic Management and Information Technology	15
	• Logistics operation and Information technology - New trends - GPRS, RFID, Bar code, R Tag (RFT), E -commerce.	adio Frequency
	• Documentation for domestic and international trade cargoes, International Chamber of Comm	erce Terms.
	• Sea borne trade - Ports and Ships management in India.	
	Logistics and Supply Chain uses in World Industry.	
Unit–5:	Emerging Issues in SCM and Logistics	10
	• Statutory Provisions dealing transport – Multi modal Transport Act-1993.	
	• Motor Vehicles Act 1988 - driving rules.	
	• Insurance coverage - Marine insurance, road, rail, sea, air etc.	
	• Insurance Claims.	

PRACTICAL

Time	2: 2 Hours	Marks: 40
Preparation of Different Documents used in –		
1.	Domestic cargoes.	20
2.	International cargoes.	20

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ELECTRICAL TECHNOLOGY

CLASS-XII ELECTIVE ELECTRICAL MACHINES (787) THEORY

Time: 2 Hours

1. Single-Phase Transformer

Types of transformer - step-up and step-down transformer, voltage and current transformer, auto-transformer. Construction, working principles and applications of different types of transformers, rewinding of transformers, cooling of transformers.

2. D.C. Motors

Types of motor - series, shunt, compound and universal, construction, working principles, characteristics, winding details and applications of different types of motors including fractional horse power, starting and starters for D.C. motors. Installation of D.C. motor and testing, speed reversal and speed control of D.C. motors, common faults, their causes, testing and repairs.

3. Three Phase Induction Motors: Principle, working & starting of three phase induction motor.

4. Single Phase A.C. Motor

Types of A.C. Motors – induction motor (Split phase and repulsion start), capacitor motor, shaded pole motor, universal motor, construction, working principles, special characteristics, winding details and applications of different types of fractional horse power motors. Starting and starters for different motors. Speed reversal and speed control of A.C. Motors, installation of A.C. motor and testing, common faults, their causes, testing and repairs, rewinding of fractional h.p. motors.

5. Electrical Solders: Types of Solders, flux and methods, techniques of soldering.

PRACTICAL

Time: 3 Hours

- 1. To test and repair a defective cycle dynamo.
- 2. Dismantling, study and reassembling of a D.C. motor.
- 3. Measurement of resistance of series, shunt field and armature of a given D.C. motor and identification of terminals by multimeter.
- 4. Measurement of insulation resistance of armature and field.
- 5. Testing, fault finding and repair of a D.C. motor.
- 6. Overhauling of a D.C. motor.
- 7. Dismantling, study and reassembling of a D.C. motor starter.
- 8. To study D.C. series motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
- 9. To study D.C. shunt motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
- 10. To study D.C. compound motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.

Marks: 40

12

8

4 12

4

Marks: 60
- 11. To study D.C. universal motor, its running, speed control and reversing rotation and measurement of current, voltage and speed.
- 12. Identification of semi-conductor devices.
- 13. To draw forward & reverse characteristics of given semiconductor diode.
- 14. Study of transistor circuits: (i) Common Base, (ii) Common Emitter, and (iii) Common Collector.
- 15. Study of a half-wave rectifier circuit with and without filter.
- 16. Study of a full-wave rectifier circuit with centre tap transformer with and without filter.
- 17. Study of bridge rectifier circuit with and without filter.
- 18. Study of transistor amplifier circuits: (i) Common Base, (ii) Common Emitter and (iii) Common Collector.
- 19. Study of (i) Voltage Transformer, (ii) Current Transformer and (iii) Auto-Transformer.
- 20. To rewind the given 230/12 v transformer.
- 21. Dismantling, study and reassembling of an A.C. motor.
- 22. Overhauling of an A.C. motor.
- 23. Dismantling, study and reassembling of an A.C. motor starter.
- 24. Testing, fault finding and repair of an A.C. motor starter.
- 25. Connecting, starting, running and reversing of a three phase squirrel cage induction motor.
- 26. Connecting, starting, running of a shaded pole motor.
- 27. Connecting, starting, running and reversing of a capacitor start/run motor.
- 28. Connecting, starting, running and reversing of an A.C. Universal motor.
- 29. Installation of D.C. motor.
- 30. Installation of A.C. motor.
- 31. Study of DOL starter for starting three phase induction motor.

MARKING SCHEME

Marks: 60

Note:

- 1. The marks for sessional work will be awarded by the teacher concerned and included in the final award.
- 2. Students may be asked to perform any one of the experiments listed above.

DISTRIBUTION OF MARKS

1. Sessional Work

- (a) All listed practical performed.
- (b) Maintenance of proper records pertaining to sessional and On-Job-Training.

2. **Experiment(s)**

- (a) List of material/tools/equipment.
- (b) Circuit/connection diagram (wherever diagram is not applicable then these marks should be clubbed with performance of experiments).
- (c) Performance of experiment(s).

3. Viva Vioce

10

10

- (a) Question related to the experiment assigned.
- (b) Question related to the remaining experiments.

CLASS-XII ELECTIVE ELECTRICAL APPLIANCES (788) THEORY

Time: 2 Hours

1. Electric Room Heater:

Construction and working principle of reflector type room heater, common defects, testing and repairs.

2. Electric Iron

Types of electric iron – ordinary type and automatic / thermostat control type – construction and working principles of electric irons. Common defects testing and repairs.

3. Electric Stove

Types of electric stoves- coiled type, covered type, hot plate, grill/oven, cooking range – construction and working principle of electric stoves, common defects, testing and repairs, induction heater, OTG & microwave oven.

4. Electric Toaster

Types of toasters – ordinary and automatic. Construction and working principle of electric toasters. Common defects, testing and repairs.

5. Immersion Heater and Geyser

Construction, working principle and use of immersion heater. Common faults – their causes, testing and repairs. Construction, working principles and use of geyser and thermostat, common defects, their causes, testing and repairs. Testing and installation of geyser. Precautions in using immersion heater and geyser.

6. Electric Kettle and Coffee Percolator

Working principle and use of electric kettle (all types) and coffee percolator. Common faults, their causes, testing and repair.

7. Electric Room Heater

Construction and working principle of blower type room heater. Heat convector – common defects, their causes, testing and repair.

8. Electric Fans

Types of fans – ceiling fan, pedestal fan, table fan, bracket fan, exhaust fan, construction, working principles. Characteristics and applications of electric fans. Common faults, their causes testing and repairs, installation of all purpose fan and exhaust fan.

9. Electric Mixer, Grinder and Blender

Construction, working principles, characteristics and applications of electric mixer, grinder and blender. Common faults, their causes, testing and repairs, servicing, maintenance and over.

10. Electric Washing Machine

Construction, working principles, special features and applications of washing machine, Common faults, their causes, testing and repair, repairing, servicing, maintenance and overhauling of washing machine.

11. Hair Dryer/Curler

Construction and working principles of hair dryer/curler, Common faults, their causes testing and repair.

Marks: 40

2

2

3

3

2

2

2

2

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2

12. Room Cooler

Construction and working details of room cooler, desert cooler, Common cooler faults, their causes, testing and repair, Installation of room cooler/desert cooler.

13. Vacuum Cleaner

Construction and working principles of vacuum cleaner, common faults, their causes, testing and repair.

14. Emergency Light and Voltage Stabilizer

Construction and working principles of emergency light and voltage stabilizer (manual and automatic), Common faults – their causes, testing and repair.

15. Electric Hand Drill

Construction and working principles of electric hand drill, common faults, their causes, testing and repair.

16. Electric Motor Used in Domestic Appliances

Split phase, capacitor start, capacitor-run, shaded-pole motors, two speed motors, reverse motors, universal motors, components testing, trouble shooting, and servicing.

17. Basic Occupational and Safety Practices

Safety signs, lighting and handling loads, moving heavy equipments, Electrical safety- safety practices- first aid, Practice safe methods- lifting and handling of heavy objects, Rescue a person from live wire, Artificial respiration-Nelson's arm and Schafer's Method.

PRACTICAL

Time: 3 Hours

- 1. Dismantling reassembling of reflector type room heater.
- 2. Testing and repair of reflector type room heater.
- 3. Dismantling and reassembling of electric iron (i) ordinary type and (ii) automatic thermostat control type.
- 4. Testing and repair of electric iron (i) ordinary type and (ii) automatic / thermostat control type.
- 5. Dismantling and reassembling of electric stove (i) coiled type, (ii) covered type- (a) hot plate, (b) grill or hot case.
- 6. Testing and repair of electric stove (i) coiled type, (ii) covered type (a) hot plate, (b) grill or hot case.
- 7. Dismantling and reassembling of cooking range/oven.
- 8. Testing and repair of cooking range/oven.
- 9. Dismantling and reassembling of electric toaster:
 - (i) Ordinary, (ii) semi automatic, (iii) automatic with thermostat.
- 10. Testing and repair of electric toaster:
 - (i) Ordinary, (ii) semi automatic, (iii) automatic.
- 11. Dismantling and reassembling of geyser: (i) instant, (ii) storage.
- 12. Testing and repair of geyser: (i) storage, (ii) instant.
- 13. Dismantling and reassembling of electric kettles (all types) and coffee percolator.
- 14. Testing and repair of: (i) electric kettle (all types) and (ii) coffee percolator.
- 15. Connection of fluorescent tube-lamp circuit.
- 16. Testing and repair of: (i) table lamp, (ii) night lamp, (iii) fluorescent tube light.
- 17. Testing and repair of: (i) electric bell, (ii) buzzer, and (iii) door chimes.
- 18. Controlling lamp from two or three place. (Stair case wiring and godown wiring)
- 19. To control one lamp with one switch on batton/conduit wiring.

3

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4

2

- 20. To control one lamp and one socket with separate switches on batton/conduit wiring.
- 21. To prepare series/parallel testing board.
- 22. To connect fan regulator with a ceiling fan.
- 23. To fit MCB in a circuit in place of fuse.
- 24. Measurement of insulation resistance of wiring installation by meggar.
- 25. Polarity test of installation.
- 26. Earth testing and measurement of earth resistance.
- 27. Identification of faults of wiring, installation and rectification.
- 28. Testing, fault finding, repair and overhauling of blower type room heater and heat connector.
- 29. Testing, fault finding, repair and overhauling of electrical fans.
- 30. Testing, fault finding, repair and overhauling (i) electric mixer, (ii) grinder, and (iii) blender.
- 31. Testing, fault finding, repair and overhauling of washing machine.
- 32. Testing, fault finding, repair and overhauling of hair dryer.
- 33. Testing, fault finding, repair and overhauling of room cooler/desert cooler.
- 34. Testing, fault finding, repair and overhauling of vacuum cleaner.
- 35. Testing, fault finding, repair of emergency light and voltage stabilizer (manual and automatic).
- 36. Testing, fault finding, repair and overhauling of electric hand drill machine.
- 37. Testing, fault finding, repair and overhauling of motors used in domestic appliances.
- 38. Winding/re-winding of electrical motor used in domestic appliances.
- 39. To test the given fan with the help of Meggar insulation resistance tester for:
 - (i) Insulation resistance between body of the fan and winding.
 - (ii) Continuity of windings starting and running.
- 40. To study emergency light circuit.

PRACTICAL GUIDELINES

Parameters	Marks
Project / Practical Activities.	15
Viva Based on Project.	10
Practical File / Report or Portfolio.	10
Demonstration of skill Competency in Lab Activities.	25
Total	60

CLASS-XII GENERAL FOUNDATION COURSE (501)

(Common for Engineering & Technology Based Courses)

Tim	e: 3 Hours	Marks: 100
	Part-I: (Compulsory to all Vocational Courses)	Marks: 50
A.	Business Management and Entrepreneurship	30
	Management of Business	

Elementary treatment/exposure to basic conceptual frame work of the topic listed below:

(a)	Basic Function.	6
(b)	Marketing Management.	6
(c)	Financial Management.	6
(d)	Production Management.	6
(e)	Personnel Management.	6
Cor	nputational Skills	10
1.	(a) Solution of linear equations and their application to problem of commercial mathematics.	5
		1 1.

- (b) System of linear equations and in equation in two variables. Applications in formation of simple linear programming problems.
- Statistics: Raw data, bar charts and Histogram; Frequency Tables; Frequency Polygon; Ogive; Menu, Median and Mode of ungrouped and grouped data; Standard Deviation; Introduction to Mortality tables; Price Index etc. Introduction to Computers.

C.	Env	Environmental Education & Rural Development		
	1.	Environmental Education		

- (a) Modernisation of agriculture and environment, irrigation, water logging, use of fertilisers, pesticides, soil erosion, land degradation (desertification and deforestation), silting and drying of water resources.
- (b) Rational utilisation, conservation and regeneration of environmental resources (soil, air, water, plant, energy, minerals).

2. Rural Development

B.

Principles and goals of rural development, major problems/constraints in rural development in India.

Part–II: Applied Chemistry

- 1. Structure of Atom: Rutherford model of the structure of atom, Bohr's theory of electrons, quantum numbers and their significance, de-Broglie equation and uncertainty principle, electronic configuration of 1 to 30 elements. 3
- Periodic Properties of Elements: Periodic law, periodic table, periodicity in properties like atomic radii and volume, ionic radii, ionization energy and electron affinity. Division of elements into s.p.d. and f blocks.
- Chemical Bonds: Electrovalent, covalent and coordinate bond and their properties. Metallic bonding (electron cloud mode) and properties (like texture, conductance, luster, ductility and malleability).
 3
- Fuel and their Classification: Definition, characteristics, classification into solid, liquid and gaseous fuel. petroleum and brief idea of refining into various factions and their characteristics and uses. Calorific value of fuel, Gaseous fuels- preparation, properties, composition and use of producer gas, water and oil gas.
- 5. Water: Impurities in water, methods of their removal, hardness of water, its types, causes and removal, disadvantages of hard water in boilers, pH value and its determination by calorimetric method. 3
- 6. Problems based on Gravimetric and Volumetric Analysis.
- Metals: Cast iron and its properties, effect of sulphur, silicon and phosphorus as impurities in cast iron. Elementary knowledge of heat treatment of steels hardening tempering annealing, normalizing and case hardening.
 3
- Alloys: Definition, classification and necessity for making alloys. Composition, properties and uses of following alloys: Brass, Bronze, Gun-metal and Duralumin. Effect of carbon, nickel, chromium, manganese on steel.
- Corrosion: Its meaning, theory of corrosion, prevention of corrosion by various methods using metallic and non-metallic coatings.
 3
- Plastic and Polymers: Plastic-thermo-plastic and thermo-setting. Introduction of Polythene. P.V.C. Nylon, synthetic rubber and phenol-formal-dehyde resin, their application in industry.

Marks: 30

5

10 5

Time: 1 Hour

- 1. To find the strength in grams per litre of the given solution of sodium hydroxide with the help of standard oxalic acid solution.
- 2. Find the strength in grams per litre of given sodium hydroxide solution with the help of standard sodium-carbonate solution and intermediate solution of an acid.
- 3. Determine the strength of oxalic acid solution in grams per litre using standard oxalic acid and intermediate solution of potassium permanganate.
- 4. Determine the total alkalinity in ppm in the given sample of water using standard sulphuric acid.
- 5. To find the amount of chloride ions present in water using silver nitrate solution (potassium chromate as indicator).
- 6. Estimate the amount of copper in the given sample of copper sulphate or copper alloy solution using a standard solution of sodium thiosulphate.
- 7. Estimate the amount of ash in the given sample or coal or coke or charcoal.
- 8. Estimate the amount of moisture in the given sample coal or coke.
- 9. Study the reaction of dilute and concentrated acid with any two metals (irons, copper, zinic, magnesium).
- 10. To arrange Mg, Zn, Fe, Fb, Sn, Cu according to their activity by studding the interaction of these metals with their salt solutions.
- 11. To determine the pH value of water.

ELECTRONICS TECHNOLOGY

CLASS–XII ELECTIVE OPERATION AND MAINTENANCE OF COMMUNICATION DEVICES (789) THEORY

Time: 2.5 Hours

Marks: 50

1. Introduction to Communication System 15

- Information signals, Elements of communication system, Transmitters and Receivers, Bandwidth of signals, Propagation of electromagnetic waves in the atmosphere, Sky and space wave propagation.
- Noise, Classification of noise, Source and description of noise.
- Fundamentals of Analog and Digital communication, Digital data transmission.
- Need of modulation, Modulation/ Demodulation of Amplitude-modulated wave, Phase- modulated and Frequency modulated wave, Pulse modulation.
- Introduction to Wireless communication, Basics of mobile communications, A simple reference model, Mobile and Wireless devices.
- Frequencies for Radio Transmission, Regulations act.
- Basics of cellular system, Elements of cellular radio systems, Performance criteria.

2. Satellite Communications

- Introduction and brief history of satellite communication, Overview of Satellite system.
- Satellite frequency bands, Introduction to Telemetry, Tracking and Command, Satellite mobile communication, Introduction to C/N ratio and S/N ratio, Introduction to VSAT technology.
- *Special Information (Introduction to Radio propagation and Antenna).

3. Mobile Technology

- History of Mobile technology, Generation of mobile phones.
- Basics of TDMA, FDMA, CDMA and GSM, Mobile Services.
- (* Special Information GSM and CDMA Architecture).
- Overview of Mobile phone components, Bluetooth, Infrared, GPRS, Wi-Fi, SIM, IMEI.
- (* Special Information DECT, UMTS, IMT-2000).
- Base and Master system

4. Mobile Hardware and Software

- Introduction to Mobile hardware and their faults, Basic circuit board configuration, Identification and Working of different BGA IC's, Working on SMD and PCB's.
- Introduction to software and their faults, Formatting of virus affected mobiles, Removing software problems by codes, Unlocking of mobile phones using codes and software, Unlocking codes for GSM & CDMA.

5. Support Program

- How to open and manage your own mobile repair shop.
- How to successfully work as a technician.
- Where to procure tools, spare parts and accessories.

10

5

10

- How to deal with customers and distributers.
- Technical support guidance.

Time: 2.5 Hours

- 1. Assembling & disassembling of different types of mobile phones.
- 2. Use of various tools & instruments used in mobile phone repairing.
- 3. Study of basic parts of mobile phones (mic, speaker, vibrator, LCD, antenna, etc) And Testing of various parts with multi-meter.
- 4. Recognize different IC's and study their working.
- 5. Soldering and De-soldering of different BGA IC's using soldering iron.
- 6. Practice of changing Driver IC Jumper.
- 7. Practice of changing Display in mobiles.
- 8. Practice of changing various jacks in mobile phones.
- 9. Practice of changing Bluetooth module.
- 10. Cool testing and hot testing of mobile phones for fault finding.
- 11. GSM
- 12. CDMA

PRACTICAL GUIDELINES

Parameters	Marks
Project / Practical Activities.	10
Viva Based on Project.	10
Practical File / Report or Portfolio.	10
Demonstration of skill Competency in Lab Activities.	20
Total	50

CLASS-XII ELECTIVE TROUBLE SHOOTING & MAINTENANCE OF ELECTRONIC EQUIPMENTS (790) THEORY

Time:	2.5 Hours	arks: 50	
1.	Basic Occupational Safety and Precautions	15	
2.	Microphones and Loudspeakers		
	• Construction, working principle and frequency response of Carbon Microphone, Variab Microphone, Capacitance Microphone, Piezo-Electric Microphone, Moving Coil Microphone.	e Reactance	

• Frequency ranges of musical instruments, Intensity and Dynamic Range, Constructions and working principles of Moving Coil Loudspeaker, Impedance and Power Level of loudspeaker, Frequency characteristics of Practical Loudspeakers: Woofer, Tweeter, Squawker, and Loudspeaker Enclosure.

3. Recorders

- Analog and digital sound recording, Disk recording and reproduction, working principle with block diagram of disk recording and reproduction.
- Principle of magnetic recording and playback, Requirement of bias, Working principle with block diagram of a tape recorder system.
- Principle of optical recording, CD/ DVD manufacturing and recording, CD/ DVD player system, Advantages/ Disadvantages.
- Steps for Fault finding & Analysis.

4. TV System

10

- Working principle with block diagram of TV transmitter and receiver, Brief description with circuit diagram: TV Tuner, Video IF stage, Sound stage, Picture tube & its associated circuit, Synchronizing circuits, Horizontal & vertical deflection circuits, Remote control of a TV receiver, Idea of bandwidth, blanking and synchronization pulses, modulation scheme, monochrome system, extension of colour transmission.
- Channel and cable type TV system, Head end processor, Trunk & cable distribution system with block diagram, Scrambling.
- Introduction to LCD and LED TV systems, Introduction to high definition systems.
- Steps for Fault finding & Analysis.

5. Modern Appliances

10

- Working principle and block diagram of following: Microwave oven, Telephone, Fax machine, Printers, Scanners.
- Steps for Fault finding & Analysis.

Time: 2.5 Hours

- 1. Assembly study and fault finding of an audio amplifier.
- 2. Assembly, study and fault finding of a graphic equaliser.
- 3. Study working, assembly & fault finding of Colour TV.
- 4. Study working, assembly & fault finding of LCD TV.
- 5. To trace the fault in the following panel controls and correct them:
 - Volume control.
 - Brightness control.
 - Contrast control.
 - Vertical hold control.
- 6. To trace the following stages of T.V. set:
 - Tuner.
 - MF stage.
 - Video detector.
 - Video amplifier.
 - Sound I.T.
 - Sound output stage.
 - Syne separator.
 - Vertical oscillator.
 - Horizontal oscillator.
 - Line Driver Stage.
 - Line output transformer.
 - Power supply.
- 7. To find fault for the following defects:
 - No picture no sound.
 - Sound present, picture missing.
 - Picture rolls vertically.
 - Picture tears (Horizontal oscillator).
 - Faults in tuner/IF/power supply.
- 8. Study working, assembly & fault finding of tape recorder system.
- 9. Study working, assembly & fault finding of CD/DVD player system.
- 10. Study working, assembly & fault finding of Printer.
- 11. Study working, assembly & fault finding of Scanner.
- 12. Study working, assembly & fault finding of Microwave oven.
- 13. Study working, assembly & fault finding of Telephone.
- 14. Study working, assembly & fault finding of Fax Machine.

- 15. Study working, assembly & fault finding of UPS system.
- 16. Study working, assembly & fault finding of DTH kit.

PRACTICAL GUIDELINES

Parameters	Marks
Project / Practical Activities.	10
Viva Based on Project.	10
Practical File / Report or Portfolio.	10
Demonstration of skill Competency in Lab Activities.	20
Total	50

CLASS-XII GENERAL FOUNDATION COURSE (501)

(Common for Engineering & Technology Based Courses)

GUIDELINES FOR EXAMINERS

- 1. Examiner should check up at least one result of the examinee.
- 2. As far as possible each examinee should be given separate experiment.
- 3. Main emphasis should be given on the evaluation of work done, professional competency, workmanship and finish etc.
- 4. The object of Viva-voce should be to ascertain the depth of knowledge and understanding of the student. Questions asked should pertain to experiment performed by the student as well as other experiments.
- 5. Each student may be allotted two experiments from the list and he/she may perform any one out of the two. GENERAL INSTRUCTIONS TO THE STUDENTS/CANDIDATES

Note: Before starting the practical, student should submit the connection diagram along with the list of equipment to the examiner.

- 1. Each student should check up the material/tools and equipments as per the requirement of the examination.
- 2. Each student should make himself/herself clear in understanding the question paper fully before its commencement.
- 3. Any student who finds any problem in handling the machine/equipment should immediately contact his/her Invigilator/Examiner.
- 4. Each student must do all the required operations himself/herself without the help of other students.
- 5. Each student should bear in mind the time allotted to him/her so that he/she may finish his/her jobs within the stipulated time.

OFFICE SECRETARYSHIP

CLASS-XII

ELECTIVE

OFFICE PROCEDURES & PRACTICES (604)

(Common for Office Secretaryship and Stenography & Computer Application)

THEORY

Time: 3 Hours

UNIT I INTRODUCTION TO SECRETARIAL PRACTICE

- 1.1 Meaning, Importance, Types and Duties
- 1.2 Changing Profile of a Secretary
- 1.3 Qualifications and Personal Qualities of a Secretary
- 1.4 Personality Development
- 1.5 Time Management Meaning and Importance
- 1.6 Stress Management

UNIT II: HANDLING THE MAIL

- 2.1 Meaning and Types of Mail
- 2.2 Handling of Incoming Mail
- 2.3 Handling of Outgoing Mail
- 2.4 Handling of Electronic Mail
- 2.5 Mail Room Equipment
- 2.6 Postal Services

UNIT III: FILING AND INDEXING

- 3.1 Filing- Meaning, Importance and Essentials
- 3.2 Classification of Filing Alphabetical, numerical, geographical, subject, chronological
- 3.3 Methods of Filing Horizontal and Vertical
- 3.4 E-filing
- 3.5 Weeding Out or Destruction of Old Records
- 3.6 Indexing Meaning, Importance and Types
- 3.7 Filing Procedure

UNIT IV: ARRANGING MEETINGS

- 4.1 Meeting- meaning, importance, and types of meetings
- 4.2 Requisites of a Valid Meeting
 - 4.3.1 Notice of a Meeting
 - 4.3.2 Agenda of a Meeting
 - 4.3.3 Quorum of a Meeting
 - 4.3.4 Chairman of a Meeting
 - 4.3.5 Motions and Resolutions

10 MARKS

Marks: 60

10 MARKS

10 MARKS

10 MARKS

- 4.3.6 Adjournment of a Meeting
- 4.3.7 Minutes of a Meeting
- 4.3 Secretarial Duties relating to meetings
- 4.4 Terms relating to Meetings

UNIT V: TRAVEL ARRANGEMENTS

- 5.1 Modes of Travel
- 5.2 How to make railway reservation
- 5.3 Air Travel
- 5.4 E-Ticket and Paper Tickets
- 5.5 Travel Agencies
- 5.6 Hotel Reservation
- 5.7 Itinerary
- 5.8 Organizing Travel
- 5.9 Tour Advance and Tour Claim
- 5.10 Overseas Travel Arrangements

UNIT VI: BANKING SERVICES

- 6.1 Services provided by Bank
- 6.2 Terms used in Banking Transaction

10 MARKS

10 MARKS

CLASS XII

ELECTIVE

OFFICE PROCEDURES AND PRACTICES

PRACTICAL

Time: 3 Hours

40 MARKS

Note: The practical work should be as near as the actual work performed in an office.

JOB I: INTRODUCTION TO SECRETARIAL PRACTICE

- The students are required to visit different modern offices (minimum two) and observe the various duties performed there by Private Secretary/Professional Secretary e.g. taking dictation, handling computer, attending calls and visitors, making travel arrangements, arranging meetings, operation of office machines, record management etc.
 After the visit, each student is required to prepare a Project Report of the visits undertaken.
- Role Play as Front Office Assistant and also of different Liaison Duties (Receptionist's Duties) by the students.
- Sessions on personal grooming.
- Demonstration and Role Play Activities concerning office etiquettes and various cross cultural etiquettes.
- Demonstration and Practice of different Time and Stress Management Techniques.
- Learning different occupational hazards.

JOB II: HANDLING THE MAIL

- The students are required to prepare specimen of Inward and Outward Mail Register and make minimum five imaginary entries therein.
- The students should practice preparing at least two envelopes complete in all respects ready for dispatch. The activities to be included are: folding of a letter, addressing, sealing, weighing and stamping the envelope. The prepared envelopes to be pasted in the file.
- The students to prepare a list of various postal and agency services provided by Department of Posts in India and place the same in the file.

JOB III: FILING AND INDEXING

- Practice on classification of files, saving and retrieval of information.
- The students are required to make 3-4 files on computer and save them in a folder.

5

5

JOB IV: ARRANGING MEETINGS

• The students are required to learn drafting of Notice, Agenda and Minutes of Meeting. Specimen of minimum two nos., each of Notice, Agenda and Minutes of Meeting with proper format to be pasted in a file.

JOB V: TRAVEL ARRANGEMENTS

- The students are required to prepare an imaginary itinerary with minimum five entries.
- Study online the various services provided by travel agencies. Also enlist the same and place in the file.
- Practice of booking e-tickets for travel by road, air and rail.
- Practice of filling of TA and Tour Claim Forms.
- Learning how to apply for Passport and Visa online.

JOB VI: BANKING SERVICES

- 1 The students are required to practice filling up of different types of forms used in Banks e.g. opening an account, Withdrawal slips, etc.
- 2 Practice of e-banking and e-payment.

JOB VII: Viva and File Work

5

CLASS-XII ELECTIVE TYPOGRAPHY & COMPUTER APPLICATION (ENGLISH) (607)

(Common for Office Secretaryship and Stenography & Computer Application)

THEORY

Time: 2 Hours

Part-I: Typography

Unit-1: Correspondence

Business Correspondence: Styles of Typewriting letters – indented Style, Block Style/Full Blocked Style, Semi – block style.

Official Correspondence: Types of Official Correspondence - Memorandum, office order, DO letter, Office Note.

Unit-2: Manuscript

Meaning/Definition, Proof correction signs/symbols, Procedure of preparing a fair copy of the manuscript.

Part II: Computer Application

Unit-3: Excel

Starting Excel: Excel window, Ribbon, Excel Workbook and Worksheet, Opening workbook, Data entry, navigating the worksheet, Saving and Printing Workbook.

Editing Excel : Selecting Cells and Ranges, Editing data, Modifying a Worksheet, Adding worksheets, rows and columns, Resizing rows and columns, moving and copying cells, freeze pane, Find and Replace data, Autofill.

Formatting Worksheets: Formatting cells, Formatting rows and columns, Formatting text, Formatting worksheets using Styles Toolbar, Auto formatting, AutoCorrect, Format painter.

Formulas and Functions: Formulas, Operators, Creating a formula, AutoSum, Relative, Absolute and Mixed Referencing, Functions, Spell Checking.

Using Charts: Components of a Chart, Chart types, creating a Chart.

5

8

Marks: 30

Unit-4 : PowerPoint

Power Point Presentation: Starting PowerPoint, Creating a presentation, Opening an existing presentation.

Viewing slides- Normal View, Slide Sorter View, Notes Page, Slide Show.

Working with slides- Adding a slide, deleting a slide, Adding text, moving a text box, format text. Adding WordArt, Format WordArt. Adding shapes, image and clipart. Adding theme to slide, changing the background. Formatting presentation using slide master.

Objects and Animation: Creating Custom Animation Effects for objects, Modify Animation effects, Create a Slide Transition, Change the order of the slide, Slide Show Options, Rehearse Timings

Unit-5: Internet Search

Search Engine, Types of Search Engine, Finding information through search engine, Different Search Engines, E-Commerce, Types of E-Commerce, E-Business

Unit-6: Email

E-mail Management: Importance of E-mail, E-mail Services, Opening an email account using Gmail. Composing an email, Sending an email with attachment, Formatting text. E-mail actions- Reading an email, replying an email, forwarding an email, printing an email and deleting an email. Adding a signature. Creating folders/ labels for archiving emails.

Unit-7: Computer Virus

Computer Virus, Computer virus versus Biological virus, Computer virus classification – Boot sector virus, Companion virus, E-mail virus, Logic Bomb, Macro virus, Cross-site scripting virus, Worm, Trojan Horse. Effects of computer virus, the vulnerability of operating systems to virus, protection from virus and use of popular antivirus software.

2

3

Time: 3 Hours	Marks:70
 Key Board Operations – Speed Test of 30wpm - 10 minutes (300 words / 1500 strokes) 	20
Inculcation of Accuracy in key boarding skills for typing a paragraph by u Software. Minimum benchmark for accurate typing is the speed of 30 words pe	using Typing Tutor er minute.

OR

2. Proof Corrections / Correspondence

One manuscript of 200 words containing 10 proof correction signs.

One Official/Business letter of 180-200 words in MS Word.

3. MS Excel

Creating a workheet with at least 5-6 columns and 6-8 rows including main heading, column heading, calculations (max, min, sum, average or simple arithmetic operations), formatting and page setting, saving and printing the worksheet.

4. MS PowerPoint

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.

5. Practical file

Should contain at least 10 printouts of excel worksheets and 10 printouts of presentation created over the year verified by the Teacher/Instructor concerned to be shown to the External Examiner at the time of final practical examination.

6. Viva

CLASS-XII GENERAL FOUNDATION COURSE (501)

Time: 3 Hours

Part–I: (Compulsory to all Vocational Courses)

Marks: 100 Marks: 50

10

5

10

15

A.	Bus	iness	Management and Entrepreneurship	30
	Mar	nageme	ent of Business	
	Elementary treatment/exposure to basic conceptual frame work of the topic listed below:			
	(a)	Basic	c Function.	6
	(b)	Mark	xeting Management.	6
	(c)	Fina	ncial Management.	6
	(d)	Prod	uction Management.	6
	(e)	Perso	onnel Management.	6
B.	Computational Skills			10
	1.	(a)	Solution of linear equations and their application to problem of commercial mathematics.	5
		(b)	System of linear equations and in equation in two variables. Applications in formation of simple linear programming problems.	
	2.	Statis Men Mort	stics: Raw data, bar charts and Histogram; Frequency Tables; Frequency Polygon; Ogive; u, Median and Mode of ungrouped and grouped data; Standard Deviation; Introduction to cality tables; Price Index etc. Introduction to Computers.	5
C.	Env	vironn	nental Education & Rural Development	10
	1.	Envi	ronmental Education	5
		(a)	Modernisation of agriculture and environment, irrigation, water logging, use of fertilisers, pesticides, soil erosion, land degradation (desertification and deforestation), silting and drying of water resources.	,
		(b)	Rational utilisation, conservation and regeneration of environmental resources (soil, air, water, plant, energy, minerals).	
	2.	Rura	al Development	5
	India	Princ a.	ciples and goals of rural development, major problems/constraints in rural development in	l
			Part–II M	larks: 50
1.	Eco	nomi	c Environment of Business	10
	A br	ief exp	osure of economic and industrial policy, consumer protection.	
2.	Ban	iking		8
	Func	ctions of	of Banks, types of accounts and their operation.	
3.	Adv	vertisi	ng	8
	Mea	ning, I	mportance and media.	
4.	Fin	ancial	Services	8
	Mut	ual fun	ds, leasing, Elementary knowledge of stock market operations in India.	
5.	Pos	tal Se	rvices	8
	Vari	ous ser	vices provided by Post Office.	
6.	Pur	chasi	ng and Storekeeping	8
	Basi	c Princ	tiples of Purchasing and storekeeping.	

STENOGRAPHY AND COMPUTER APPLICATION

CLASS-XII

ELECTIVE

TYPOGRAPHY & COMPUTER APPLICATION (ENGLISH) (607)

(Common for Office Secretaryship and Stenography & Computer Application)

CLASS-XII ELECTIVE SHORTHAND (ENGLISH) (608)

THEORY

Time: 2 Hours

Marks: 30

6

Unit 1: Diphones, Medial Semi-Circle, Essential Vowels, Upward & Downward L, Upward and Downward 'SH'. 5

Part A: Diphones

- Definition
- Rules
- Difference between Diphones and Diphthongs

Part B: Medial Semi-Circle

Rules

Part C: Essential Vowels

- Vowel Indication
- Rules

Part D: Upward and Downward Consonant 'L'

Rules

Part E: Upward and Downward Form of Consonant 'SH'

Unit 2: PREFIXES AND SUFFIXES

• Meaning

Part A: Prefixes

Rules

Part B: Suffixes

Rules

Unit 3: General Contractions, Special Contractions and Figures Part A: General Contractions • Meaning • Rules

Part B: Special Contractions

- Meaning
- Rules

Part C: Figures

- Rules
- Writing Monetary Units in Shorthand

Unit 4: Advanced Phraseography

7

6

6

Rules

Unit 5: INTERSECTIONS

Meaning

Unit 6: Dictation Passages and their Transcription *

- Meaning
- Precautions

Unit 7: Business Letters and their Transcription *

- Business Letters
- Styles of Business Letters Indented, Block and Semi-Block
- Dictation of Business Letters
- Specimens of Business Letters in different styles

** No Theory Questions from these two units. Only Practical Questions to be set from these two units.

Time: 3 Hours

- 1. Practice of writing words and sentences of Diaphones, Medial Semi-Circle, Essential Vowels, Upward, Upward & Downward 'L', Upward & Downward 'SH'.
- 2. Practice of writing words and sentences of Prefixes, Suffixes, Contractions, Figures, and Intersections
- 3. Practice of writing words and sentence of Advanced Phraseography.
- 4. Practice of taking Dictation of Seen and Unseen Passages @ 80-85 wpm and their transcription on Computer.
- 5. Practice of taking dictation of Business Letters in Shorthand @ 60 wpm and transcribing the same on Computer with proper display.
- 6. Practice of Unseen Dictation can be done from the Shorthand Magazines and Audio Cassettes available in the Market.

EXAMINATION SCHEME

The Practical will be conducted by the Board Examiner according to the following standards & the Sample Question Paper:

- Marks: 70 1. Dictation of one Unseen Passage @ 80 wpm consisting of 400 words and its 40 Transcription on Computer. Transcription Time: 40 Minutes
- Dictation of a Business Letter @ 60 wpm for 3 Minutes.
 Transcription Time: 20 Minutes

Note: In no case, Question Paper is to be given to the examinees.

PRACTICAL – INSTRUCTIONS TO EXAMINERS

(Five copies of the Question Paper to be given to each Centre)

Time: 1 HourMarks: 70Job – I: One Dictation of Unseen Passage of 400 words at the speed of 80 wpm40

for 5 minutes (Reading & Transcription time: 40 minutes). After completing the 1st Job, collect the Answer sheets.

Job-II: Business Letter to be dictated in 3 minutes. Reading & Transcription30

time: 20 minutes). The name and addresses should be dictated at low speed. The Body of the letter should be dictated @ 60 words per minute.

Note:

- Examiner should give one or two trial passages of one minute each to the students before start of the practical.
- 10 Minutes time may be given to the Examines for adjustment of checking of computer before starting the Practical.

कक्षा - 12 वैकल्पिक आशुलिपि (हिन्दी) (610) (सैद्धांतिक)

समय ः २	घंटे पूर्णाकः	30
यूनिट १.	उपसर्ग एवं प्रत्यय	(5)
1.1	उपसर्ग एवं प्रत्यय का अर्थ	
यूनिट २. र	मंक्षिप्त संकेत (कनट्रैक्शन), शब्दों की विशेष सूची एवं संख्याएं	(5)
2.1	संक्षिप्त संकेत एवं इसके नियम	
2.2	शब्दों की विशेष सूची–नकारात्मक तथा अन्य शब्द	
2.3	संख्याओं को आशुलिपि में किस प्रकार लिखा जाता है	
यूनिट ३.	शब्दों मे काट प्रयोग (इन्टर सैक्शन)	(5)
3.1	काट का नियम	
3.2	जोड़े वाले शब्द तथा दो बार प्रयोग में आने वाले शब्द	
यूनिट 4.	सामान्य पदनाम, मंत्री, मत्रांलय, विभाग, विभागीय शब्द, राज एवं प्रपत्न शहरों पदीनों दिनों के नाप शब्द चिन्हों विभक्ति	यों
	एप प्रमुख शहरा, महागा, दिगा के गाम, राष्ट्र विन्हा, विमापत	(5)
	ताहत तपगामा प पापचाशा फा तूपा।	(3)
यूनिट 5.	अनुच्छेदों का श्रुतलेख एवं उनका लिप्यांतरण	(5)
यूनिट 6.	व्यावसायिक पत्र उनका लिप्यांतरण	(5)
6.1	व्यावसायिक पत्र	
6.2	व्यावसायिक पत्र के विभिन्न भाग	
6.3	व्यावसायिक पत्रों के विभिन्न शैलियां	
6.4	व्यावसायिक पत्रों का लिप्यांतरण	

परीक्षा स्कीम

(सैद्धांतिक)

परीक्षा पद्धतिः– थ्योरी परीक्षा बोर्ड द्वारा ली जाएगी जिसके लिए निर्धारित पाठ्यकम से प्रश्न पूछे जाएंगे, जो लघु, मध्यम एवं दीर्घ उत्तर वाले होंगे। सैद्धांतिक परीक्षा 30 अंको की होगी।

प्रैक्टिकल

समय : 3 घंटे

अंकः ७०

- 1. उपसर्ग एवं प्रत्ययों का अभ्यास कराना ।
- संक्षिप्त संकेत, शब्दों की विशेष सूची एवं संख्याओं के शब्दों को लिखकर अभ्यास करना ।
- काट के प्रयोग का अभ्यास डिक्टेशन के द्वारा कराना ।
- पुस्तक में दिये गए अभ्यासों के अतिरिक्त पत्र–पत्रिकाओं से डिक्टेशन को 60 शब्द प्रति मिनट पर लिखकर कम्प्यूटर पर उसका लिप्यांतरण का अभ्यास करना ।
- व्यापारिक पत्रों की डिक्टेशन लेना और कम्प्यूटर पर उसे सही रूप में लिप्यांतरण करना ।
- ऑडियों कैसेटों से तथा शार्टहैंड मैग्जीन से डिक्टेशन लेना और उनका कम्प्यूटर पर लिप्यांतरण करना ।

परीक्षा पद्धतिः

व्यावहारिक परीक्षा निर्धारित मानकों के अनुसार बोर्ड परीक्षक द्वारा ली जाएगी ।

समय : 3 घंटे

अंकः ७०

जॉबः १

एक श्रतलेखन ५ मिनट का, ८० शब्द प्रति मिनट की गति से कुल ४०० शब्दों का (श्रुतलेख पढ़ने व कम्प्यूटर पर टाइप करने व लिप्यांतरण के लिए निर्धारित समय – ५० मिनट) (४०)

जॉबः २

एक व्यावसायिक पत्र जो लगभग 300 शब्दों का होगा, 5 मिनट में बोला जाएगा, 60 शब्द प्रति मिनट की गति से। (30)

लिप्यांतरण समय : 30 मिनट

प्रैक्टिकल– परीक्षकों के लिए निर्देश

(प्रत्येक सेन्टर को प्रश्न पत्र की पाँच प्रतियाँ दी जाएगी)

समय : 1 घंटा 20 मिनट

अंकः ७०

जॉबः १

श्रुतलेखन 5 मिनट का, 80 शब्द प्रति मिनट की गति से कुल 400 शब्दों का (श्रुतलेख पढ़ने व कम्प्यूटर पर टाइप करने व लिप्यांतरण के लिए निर्धारित समय–50 मिनट) जॉब 1 पूरी होने के बाद उत्तर पुस्तिकाओं को इक्ट्ठा कर लिया जाएगा।

जॉबः २

एक व्यापारिक पत्र की 3 मिनट मे डिक्टेशन दी जाएगी (पढ़ने एवं लिप्यांतरण का समय : 30 मिनट) पत्र के नाम व पते को कम गति से बोला जाएगा जबकि पत्र के मुख्य अंग को 60 मिनट की गति से बोला जाएगा। (30)

नोटः

प्रशिक्षक को प्रैक्टिकल परीक्षा शुरू होने से पहले प्रत्येक विधार्थी को एक मिनट का एक या दो ट्रायल पैसेज देना चाहिए।

प्रैक्टिकल परीक्षा शुरू होने से पहले प्रत्येक विधार्थी को कम्प्यूटर को चैक करने के लिए 10 मिनट का समय दिया जाना चाहिए।

> CLASS–XII OPTIONAL OFFICE PROCEDURES & PRACTICES (604) (Common for Office Secretaryship and Stenography & Computer Application)

CLASS-XII

GENERAL FOUNDATION COURSE (501)

(Common for Office Secretaryship, Stenography & Computer Application, Accountancy & Taxation, Marketing & Salesmanship, Retail, Financial Market Management and Business Administration)