

# 70% OF SYLLABUS OLD COURSES

## SKELETON MODEL QUESTION PAPER FOR OLD COURSES

**Time: 3 Hours**

**Max.marks:50**

### SECTION - A

**Note: i) Answer all Questions.  
ii) Each question carries 2 marks**

**10x2=20 Marks**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
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- 8.
- 9.
- 10.

### SECTION – B

**Note: i) Answer any 5 Questions  
ii) Each Question Carries 6 marks**

**5x6=30 Marks**

- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

# DAIRYING

## I YEAR

### PAPER – III: ANIMAL HEALTH [THEORY]

PERIODS/WEEK: 04

PERIODS/YEAR:135

S.No.	NAME OF THE UNIT	No. of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
1	Health	9	8	1	1
2	First Aid	10	8	1	1
3	Bacterial Diseases	20	10	2	1
4	Viral Diseases	15	10	2	1
5	Protozoan Diseases	15	10	2	1
6	Helminthic & external parasitic diseases	10	10	2	1
7	Mycotic diseases	8	4	2	-
8	Metabolic diseases	8	4	2	-
9	Reproductive disorders	20	10	2	1
10	Prevention of animal diseases	20	10	2	1
	Total	135			

#### 1. Health

- 1.1. Definitions of health and disease
- 1.2. Signs of health and ill health
- ~~1.3. Recording body temperature, pulse and respiration rates~~
- 1.4. Normal values of body temperature, pulse and respiration rates

#### 2. First aid

- 2.1. Definition of first aid and its principles
- 2.2. Attending to traumatic condition
- 2.3. Attending to poisoning cases
- ~~2.4. Attending to obstetrical difficulties~~
- 2.5. First aid to burns and scalds
- 2.6. Attending to fracture
- 2.7. First aid kit
- ~~2.8. First aid during natural calamities~~

#### 3. Bacterial diseases

- 3.1. Classification of dairy animal diseases - Bacterial, viral, protozoal, helmenthic, metabolic etc.
- 3.2. Anthrax
- 3.3. Black Quarter
- 3.4. Brucellosis
- ~~3.5. Vibriosis~~
- 3.6. Haemorrhagic septicaemia
- 3.7. Tuberculosis
- 3.8. Johnes disease
- 3.9. Leptospirosis
- 3.10. Listeriosis
- ~~3.11. Contagious bovine pleuropneumonia~~
- 3.12. Tetanus
- ~~3.13. Calf diseases.~~
- 3.14. Common bacterial diseases of sheep and goat
- 3.15. Mastitis
- ~~3.16. Pneumonia~~

#### 4. Viral diseases

- 4.1. Rinderpest
- 4.2. Foot and mouth disease
- 4.3. Rabies
- ~~4.4. Cow pox~~
- ~~4.5. Common Viral diseases of sheep and goat~~

#### 5. Protozoan diseases

- 5.1. Anaplasmosis
- 5.2. Babesiosis
- 5.3. Theileriasis

5.4. Trypanosomiasis

~~5.5. Leishmaniasis~~

5.6. Coccidiosis

~~5.7. Amebiasis~~

## **6. Helminthic and External parasitic diseases**

6.1. Round worms

6.2. Tape worms

6.3. Liver flukes

~~6.4. Flies~~

6.5. Ticks and mites

~~6.6. Common helminthic and external parasites of sheep and goat~~

## **7. Mycotic diseases**

7.1. Ring worm

7.2. Actinomycosis

~~7.3. Aspergillosis~~

## **8. Production & Systemic diseases.**

8.1. Bloat

8.2. Ketosis

8.3. Milk fever

~~8.4. Downer Cow syndrome.~~

~~8.5. Enteritis.~~

## **9. Reproductive disorders**

9.1. Anaestrus

9.2. Dystocia

9.3. Retained placenta

9.4. Endometritis

9.5. Pyometra

~~9.6. Infertility—causes and prevention~~

~~9.7. Other diseases associated with reproduction~~

## **10. Prevention of diseases**

10.1. Surveillance of animal diseases

10.2. Outbreak reports

10.3. Action plans for prevention of diseases for different seasons

10.4. Isolation

10.5. Quarantine

10.6. Vaccination for dairy animals, sheep and goat

10.7. Deworming – cattles, sheep and goat

~~10.8. Disinfection~~

10.9. Disposal of Carcasses

~~10.10 Action plan during disease out break~~

~~10.11. Sterilization of equipment – hot/cold/chemical methods~~

**DELETED TOPICS**

<b>S . NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1 – <b>Health</b>	1.3. Recording body temperature, pulse and respiration rates
2	Unit-2 – <b>First aid</b>	2.4. Attending to obstetrical difficulties 2.8. First aid during natural calamities
3	Unit-3– <b>Bacterial diseases</b>	3.5. Vibriosis 3.11. Contagious bovine pleuropneumonia 3.13. Calf diseases. 3.14. Common bacterial diseases of sheep and goat 3.16. Pneumonia
4	Unit-4– <b>Viral diseases</b>	4.4. Cow pox 4.5. Common Viral diseases of sheep and goat
5	Unit-5– <b>Protozoan diseases</b>	5.5. Leishmaniasis 5.7. Amaebiasis
6	Unit-6– <b>Helminthic and External parasitic diseases</b>	6.4. Flies 6.6. Common helminthic and external parasites of sheep and goat
7	Unit-7– <b>Mycotic diseases</b>	7.3. Aspergellosis
8	Unit-8– <b>Production &amp; Systemic diseases.</b>	8.4. Downer Cow syndrome. 8.5. Enteritis.
9	Unit-9– <b>Reproductive disorders</b>	9.6. Infertility - causes and prevention 9.7. Other diseases associated with reproduction
10	Unit-10– <b>Prevention of diseases</b>	10.8. Disinfection 10.10 Action plan during disease out break 10.11. Sterilization of equipment- hot/cold/chemical methods

**DAIRYING**  
**II YEAR**  
**PART B – VOCATIONAL SUBJECTS**  
**PAPER – I: QUALITY CONTROL OF MILK AND PROCESSING [THEORY]**  
**PERIODS/WEEK:04** **PERIODS/YEAR:110**

S.No.	NAME OF THE UNIT	No. of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
1	Composition of Milk	10	8	1	1
2	Physico Chemical properties of milk	8	6	3	
3	Adultrants and preservatives	7	6	-	1
4	Microbiology of milk	10	8	1	1
5	Estimation of microbes in milk	12	8	1	1
6	Milk Reception	12	8	1	1
7	Filtration and cream separation	13	10	2	1
8	Heat treatment to milk	20	10	2	1
9	Cleaning and Sanitization	18	10	2	1
10	Steam and Refrigeration	20	10	2	1
	Total	130			

**Syllabus:**

**1. Composition of Milk**

- 1.1. Definition of milk , PFA designated milks
- ~~1.2. Composition of milk from different species~~
- 1.3. Detailed composition of milk
- 1.4. Factors affecting composition of milk

**2. Physico Chemical Properties of milk**

- 2.1. Colour and flavor
- 2.2. PH and Acidity
- 2.3. Specific gravity of milk
- 2.4. Freezing and boiling point
- ~~2.5. Viscosity and surface tension~~
- 2.6. Off- flavours

**3. Adultrants and Preservatives**

- 3.1. Common Adultrants in milk – their detection
- 3.2. Common preservatives in milk – their detections
- ~~3.3. Adultration of buffalo milk with cow milk – Hansa test~~
- 3.4. Effects of adultrants and preservation on human health

**4. Microbiology of Milk**

- 4.1. Types of micro-organisms present in milk
- 4.2. Milk borne diseases (pathogens)
- 4.3. Microbial standards of raw and pasteurized milk
- ~~4.4. Microbial spoilage of milk~~

**5. Estimation of microbes in milk**

- 5.1. MBRT and RRT tests
- 5.2. Direct Microscopic count(DMC test)
- 5.3. Standard plate count
- ~~5.4. Coliform count~~
- ~~5.5. Yeast and mould count~~
- 5.6. Tests for pathogenic bacteria of milk

**6. Milk Reception**

- 6.1. Milk collection and transportation
- 6.2. Methods of milk preservation
- 6.3. Milk reception at dock (unloading , weighing, sampling, grading, dumping)
- ~~6.4. Milk chilling methods and storage~~

**7. Filtration and cream separation**

- 7.1. Milk Filtration method
- ~~7.2. Milk clarification~~
- 7.3. Cream separation methods
- 7.4. Cream separator – parts and arrangements of parts

7.5. Factors affecting efficiency of cream separator  
~~7.6. Milk standardization for Fat and SNF procedure~~

**8. Heat treatment to milk**

- 8.1. Pasteurization – definition – objectives, advantages and disadvantages
- 8.2. Types of pasteurization
- ~~8.3. Batch pasteurization~~
- 8.4. HTST pasteurization
- ~~8.5. UHT pasteurization~~
- 8.6. Sterilization of milk
- 8.7. Homogenization of milk definition, advantages, disadvantages
- ~~8.8. Packing of milk (prepack) and storage~~

**9. Cleaning and Sanitization**

- 9.1. Detergents and sanitizers- desirable characters
- ~~9.2. Common detergents and sanitizers used dairy plant~~
- 9.3. Cleaning and sanitization-methods-hand , machine and CIP systems
- 9.4. Cleaning and sanitization of cans –types of can washers
- 9.5. Cleaning and sanitization of HTST pasteurizer and other equipment
- ~~9.6. Dairy effluents–treatment measures~~

**10. Steam and refrigeration**

- 10.1. Properties of steam
- 10.2. Steam boilers-types-water tube and fire tube
- 10.3. Steam requirements in dairy
- 10.4. Direct and indirect refrigeration systems
- ~~10.5. Vapour compression cycle, compressor types and constructional details~~
- 10.6. Bulk cooler, plate chillers (shell and tube chillers)
- ~~10.7. Common problems in refrigeration system and remedies~~

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	<b>Composition of Milk</b>	1.2.Composition of milk from different species
2	<b>Physico Chemical properties of milk</b>	2.5 Viscosity and surface tension
3	<b>Adultrants and preservatives</b>	3.3 Adultration of buffalo milk with cow milk – Hansa test
4	<b>Microbiology of milk</b>	4.4 Microbial spoilage of milk
5	<b>Estimation of microbes in milk</b>	5.4 Coliform count 5.5 Yeast and mould count
6	<b>Milk Reception</b>	6.4 Milk chilling methods and storage
7	<b>Filtration and cream separation</b>	7.2 Milk clarification 7.6 Milk standardization for Fat and SNF procedure
8	<b>Heat treatment to milk</b>	8.3 Batch pasteurization 8.5 UHT pasteurization 8.8 Packing of milk (prepack) and storage
9	<b>Cleaning and Sanitization</b>	9.2 Common detergents and sanitizers used dairy plant 9.6 Dairy effluents- treatment measures
10	<b>Steam and Refrigeration</b>	10.5 Vapour compression cycle, compressor types and constructional details 10.7 Common problems in refrigeration system and remedies

**DAIRYING**  
**II YEAR**  
**PART B – VOCATIONAL SUBJECTS**  
**PAPER – II: MILK PRODUCTS [THEORY]**

PERIODS/WEEK:04

PERIODS/YEAR:110

S.No.	NAME OF THE UNIT	No. of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
1	Liquid milks	16	10	2	1
2	Fat rich milk products	16	10	2	1
3	Ice cream	13	10	2	1
4	Fermented milk products	16	10	2	1
5	Concentrated and deride milks	15	10	2	1
6	Indigenous milk product	14	10	2	1
7	Dairy by products	11	8	1	1
8	Packing and storage of milk products	9	8	1	1
	<b>Total</b>	<b>110</b>			

**Syllabus:**

**1. Liquid milks**

- 1.1. Flavored milks
- ~~1.2. Sterilized milk~~
- 1.3. Toned milk
- 1.4. Double toned milk
- ~~1.5. Recombined milk~~
- 1.6. Reconstituted milk
- ~~1.7. Standardized milk~~
- 1.8. Irradiated milk
- ~~1.9. Humanization of milk~~

**2. Fat rich products**

- 2.1. Cream
  - 2.1.1. Definition, composition and types of cream
  - 2.1.2. Methods – gravity and centrifugal
  - ~~2.1.3. Factors affecting cream separation~~
- 2.2. Butter
  - 2.2.1. Definition, composition and legal standards
  - 2.2.2. Methods of manufacture – desi method
  - 2.2.3. Creamery method of butter preparation
  - ~~2.2.4. Types and uses of butter~~
- 2.3. Ghee
  - 2.3.1. Definition – composition and legal standards
  - 2.3.2. Desi method of ghee preparation
  - 2.3.3. Preparation of ghee from cream
  - ~~2.3.4. Prestratification method~~
  - ~~2.3.5. Agmark grading~~

**3. Ice cream**

- 3.1. Definition, composition, legal standards
- 3.2. Classification of ice creams
- ~~3.3. Figuring of ice cream nut~~
- 3.4. Method of manufacture of ice cream
- ~~3.5. Role of ingredients in Ice cream~~
- 3.6. Overrun in Ice cream
- 3.7. Softy ice cream

**4. Fermented milk products**

- 4.1. Starter cultures- importance of types
- 4.2. Classification of fermented milks
- 4.3. Dahi- srik hand
- 4.4. Yoghurt
- 4.5. Classification of cheese varieties
- ~~4.6. Cheddar cheese~~

- 4.7. Cottage cheese  
~~4.8. Processed cheese~~
- 5. Concentrated and dried milks**  
 5.1. Classification of concentrated milks  
 5.2. Preparation of condensed milk  
 5.3. Preparation of evaporated milks  
 5.4. Dried milks – definition – types and standards  
~~5.5. Drum dried power~~  
~~5.6. Spray dried milk power~~
- 6. Indigenous milk products**  
 6.1. Classification of indigenous milk products with examples  
 6.2. Khoa  
 6.3. Khoa based sweets  
~~6.4. Channa~~  
 6.5. Channa based sweets  
~~6.6. Paneer~~  
 6.7. Kheer  
 6.8. Kulfi
- 7. Dairy by products**  
 7.1. Classification of dairy by products  
 7.2. Skim milk – utilization  
 7.3. Whey – utilization  
 7.4. Butter milk – utilization  
~~7.5. Ghee residue – utilization~~
- 8. Packing and storage of milk products**  
 8.1. Definition – objectives of packing  
 8.2. Packing materials  
 8.3. Packing of milk products  
~~8.4. Storage of milk products – desirable conditions~~

**DELETED TOPICS**

<b>Unit .NO</b>	<b>Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Liquid milks	1.2. Sterilized milk 1.5. Recombined milk 1.7 Standardized milk 1.9 Humanization of milk
2	Fat rich milk products	2.1.3 Factors affecting cream separation 2.2.4 Types and uses of butter 2.3.4 Prestratification method 2.3.5 Agmark grading
3	Ice cream	3.3 Figuring of ice cream nut 3.5 Role of ingredients in Ice cream
4	Fermented milk products	4.6 Cheddar cheese 4.8 Processed cheese
5	Concentrated and deride milks	5.5 Drum dried power 5.6 Spray dried milk power
6	Indigenous milk product	6.4 Channa 6.6 Channa
7	Dairy by products	7.5 Ghee residue – utilization
8	Packing and storage of milk products	8.4 Storage of milk products- desirable conditions



**DAIRYING**  
**II YEAR**  
**PART B – VOCATIONAL SUBJECTS**

**PAPER – III: DAIRY ECONOMICS EXTENSION & ENTERPRENEURSHIP (THEORY)**  
**PERIODS/WEEK:04** **PERIODS/YEAR:110**

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
I	Dairy Economics	15	10	2	1
II	Milk procurements	14	10	2	1
III	Dairy development programmes	14	10	2	1
IV	Dairy Cooperatives	15	10	2	1
V	Marketing	11	8	1	1
VI	Dairy accounts	10	8	1	1
VII	Dairy extension	16	10	2	1
VIII	Dairy entrepreneurship	15	10	2	1
	<b>Total</b>	<b>110</b>			

**Syllabus:**

**1. Dairy Economics**

- 1.1. Scope and importance of principles of economics in Dairying
- 1.2. Economic viability for different size of dairy enterprises
- 1.3. Economic principles involved to enhance benefits in dairying
- 1.4. Economic institutions supporting dairy development programmes
- 1.5. Projects reports to be submitted for financial institutions for 2,10,50 and 100 animal dairy farms
- 1.6. Project reports for 5,000 litres and 50,000 litres processing centres

**2. Milk procurement**

- 2.1. Systems of Milk collection
- 2.2. Systems of Milk pricing
- 2.3. Principles involved in pricing of milk products
- 2.4. Planning for milk collection and transportation routes.
- 2.5. Measures to enhance milk collection during lean season
- 2.6. Strategies for improvement in collection comparing with competitors

**3. Dairy development programmes**

- 3.1. Various dairy development programmes available.
- 3.2. White revolution-Aims-impact on economy of rural people
- 3.3. Operation flood-different phases-aims and achievements
- 3.4. National Technology mission for dairy development
- 3.5. Milk mission in A.P.
- 3.6. Role of voluntary organizations in dairy development
- 3.7. Concept of socio-economic and cultural changes for dairying programmes.

**4. Dairy cooperatives**

- 4.1. History of cooperative movement in India.
- 4.2. Cooperative movement in Dairy Industry.
- 4.3. Milk cooperatives –Anand pattern
- 4.4. Aims, and functioning of village milk cooperative society.
- 4.5. Structure and activities of district milk union.
- 4.6. Role of state milk cooperative federations
- 4.7. Records and registers in a milk society
- 4.8. Coordination with other institutions concerned with dairy development.
- 4.9. Insurance of dairy animal and processing center.

**5. Marketing**

- 5.1. Principles of marketing
- 5.2. Marketing of dairy animals
- 5.3. Marketing plans for liquid milks
- 5.4. Strategy for marketing of milk products
- 5.5. Role of advertisement for market promotion
- 5.6. Analysis of consumer demand and acceptance
- 5.7. Role of salesman and marketing personalities in marketing of dairy products.

## 6. Dairy accounts

- 6.1. General principles of account keeping
- 6.2. Single and double entry system
- 6.3. Various records pertaining to financial aspects
- 6.4. Preparation of balance sheet
- 6.5. Auditing

## 7. Dairy Extension

- 7.1. Role of Extension in dairy development
- 7.2. Dairy Extension-methods
- 7.3. Role of audiovisuals in Dairy development
- 7.4. Selection of Extension methods for effective transfer technology
- 7.5. Communications process aims objectives and problems
- 7.6. Role of information technology in dairy extension.
- 7.7. Organizations of training programmes, cattle shows, exhibitions etc.,
- 7.8. Evaluation of training programmes

## 8. Dairy Entrepreneurship

- 8.1. Entrepreneur-his behavior
- 8.2. Dairying as self-employment
- 8.3. Entrepreneur cycle for dairying
- 8.4. Entrepreneur development for rural youth
- 8.5. Programmes for entrepreneurship development in dairying
- 8.6. Risks in self-employment and remedies.

### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Dairy Economics	1.5. Projects reports to be submitted for financial institutions for 2,10,50 and 100 animal dairy farms 1.6. Project reports for 5,000 litres and 50,000 litres processing centres
2	Milk procurements	2.2. Systems of Milk pricing 2.3. Principles involved in pricing of milk products 2.5. Measures to enhance milk collection during lean season 2.6. Strategies for improvement in collection comparing with competitors
3	Dairy development programmes	3.4. National Technology mission for dairy development 3.7. Concept of socio-economic and cultural changes for dairying programmes.
4	Dairy Cooperatives	4.2. Cooperative movement in Dairy Industry. 4.5. Structure and activities of district milk union. 4.8. Coordination with other institutions concerned with dairy development.
5	Marketing	5.5. Role of advertisement for market promotion 5.6. Analysis of consumer demand and acceptance
6	Dairy accounts	6.3. Various records pertaining to financial aspects 6.4. Preparation of balance sheet
7	Dairy extension	7.5. Communications process-aims objectives and problems 7.7. Organizations of training programmes, cattle shows, exhibitions etc., 7.8. Evaluation of training programmes
8	Dairy entrepreneurship	8.4. Entrepreneur development for rural youth 8.6. Risks in self-employment and remedies.

**DAIRYING (DAIRY) COURSE CODE 106**  
**MODEL QUESTION PAPER**  
**FIRST YEAR**  
**PAPER-III: ANIMAL HEALTH (THEORY)**

**Time: 3 Hours**

**Max.marks:50**

**SECTION - A**

**Note: i) Answer all Questions.**

**ii) Each question carries 2 marks**

**2x10=20 Marks**

1. What is Health?
2. Define First Aid.
3. Mention any two viral diseases.
4. Expand R.P and FMD.
5. What is tick fever?
6. Mention the causative organism of Liver flukes.
7. What is aspergillosis?
8. What is Ketosis?
9. What is Anoestrus?
10. What is Deworming?

**SECTION – B**

**Note: i) Answer any 5 Questions**

**ii) Each Question Carries 6 marks**

**5x6=30 Marks**

11. What are the signs of Healthy animal?
12. What are the contains of first aid box?
13. Describe in detail the disease "Black Quarter
14. Briefly write about "Rinderpest" disease in cattle.
15. Explain in detail about 'trypanosomiasis' disease.
16. Write short notes on (a) Ticks (b) Mites.
17. Explain about the Ring Worm.
18. Explain about Enteritis.
19. Write detail about Dystocia.
20. Explain the procedures of sterilization of equipment.

**DAIRYING (DAIRY) COURSE CODE 106**

**MODEL QUESTION PAPER**

**FIRST YEAR**

**PAPER-I: QUALITY CONTROL OF MILK & PROCESSING (THEORY)**

**Time: 3 Hours**

**Max.marks:50**

**SECTION - A**

**Note: i) Answer all Questions.**

**ii) Each question carries 2 marks**

**2x10=20 Marks**

1. Define milk.
2. Mention the colour of cow and buffalo milks.
3. Mention the various adulterants used in milk.
4. Mention various organisms under Leuconostoc group.
5. How you will interpret the SPC results?
6. Name different modes of milk transport.
7. What is the filtration of milk?
8. Define pasteurization.
9. What is CIP system?
10. Mention different types of boilers.

**SECTION – B**

**Note: i) Answer any 5 Questions**

**ii) Each Question Carries 6 marks**

**5x6=30 Marks**

11. Give the composition of cow, buffalo, sheep, goat and human milks
12. Explain about specific gravity of milk.
13. Explain briefly about detection of preservatives in milk.
14. Classify milk borne diseases with suitable examples.
15. Explain in details MBRT test.
16. Discuss in detail about platform tests.
17. Explain the various factors affecting cream separation.
18. What are the advantages and disadvantages of HTST system?
19. Mention the desirable characteristics of a good detergent and Sanitizers.
20. Write briefly about various types of steam.

**DAIRYING  
MODEL QUESTION PAPER  
SECOND YEAR**

**PAPER-II: MILK PRODUCTS (THEORY)**

**Time: 3 Hours**

**Max.marks:50**

**SECTION - A**

**Note: i) Answer all Questions.  
ii) Each question carries 2 marks**

**10x2=20 Marks**

1. Define flavoured milk?
2. Define Ghee?
3. What is Softy Ice-cream?
4. Mention any four fermented milk products.
5. Define Shrikhand?
6. What is evaporated milk?
7. Define Kheer?
8. What is Whey?
9. Define Packing?
10. What is toned and double toned milk?

**SECTION – B**

**Note: i) Answer any 5 Questions  
ii) Each Question Carries 6 marks**

**5x6=30 Marks**

11. Explain the method of manufacturing process of sterilized milk?
12. How do you prepare creamery method of butter?
13. Explain in detail, about the classification of Ice cream.
14. Explain the preparation method of Dahi.
15. Write the preparation method of condensed milk.
16. Write the preparation method of Khoa.
17. Write short notes on:
  - a. Skim Milk
  - b. Butter Milk
18. Explain in detail about packing material.
19. Explain the method of manufacturing process of Yoghurt.
20. Explain the method of manufacturing process of Sterilized milk.

**DAIRYING  
MODEL QUESTION PAPER  
SECOND YEAR**

**PAPER-III: DAIRY ECONOMICS. EXTENSION AND ENTERPRENUERSHIP (THEORY)**

**Time: 3 Hours**

**Max.marks:50**

**SECTION - A**

**Note: i) Answer all Questions.  
ii) Each question carries 2 marks**

**10x2=20 Marks**

1. Define farm production economics?
2. Define milk shed?
3. What is lean season?
4. What do you mean by white revolution?
5. What is Amul?
6. Define Market?
7. Define Advertisement?
8. What is Ledger?
9. Define Farm and home visit?
10. Define Entrepreneur?

**SECTION – B**

**Note: i) Answer any 5 Questions  
ii) Each Question Carries 6 marks**

**5x6=30 Marks**

11. Briefly write about cattle insurance.
12. Briefly explain about milk procurement system.
13. Explain different dairy development programmes started in India.
14. With the help of schematic diagram, explain Anand pattern.
15. Explain marketing of dairy animals.
16. Briefly explain about activities and skills of a salesman.
17. Explain about objectives and functions of auditing.
18. Explain dairy extension and give the importance of dairy extension.
19. Briefly write about theory and practice of self-employment in dairying.
20. What are the registers and records to be maintained in the milk society?

# SERICULTURE

## I YEAR

### PART B – VOCATIONAL SUBJECTS

#### PAPER – : MULBERRY CULTIVATION (THEORY)

PERIODS/WEEK: 04

PERIODS/YEAR: 135

S. No	NAME OF THE UNIT	No. of Periods	Weightage in marks	Short answer questions	Essay questions
1.	<b>History of Sericulture</b> – Introduction, History, Silk Road	5	2	1	-
2.	<b>Morphology of Mulberry</b> - Introduction, Distribution of Mulberry , Mulberry varieties, systematic position, morphology of mulberry	20	16	2	2
3.	<b>Taxonomy of Mulberry</b> - Introduction, mulberry taxonomy, non-mulberry taxonomy, conditions required for mulberry growth	20	8	1	1
4.	<b>Soils and Preparation of Land</b> - Introduction, types of soils and properties, soil P <sup>H</sup> and reclamation, selection of land , land preparation, soil erosion, moisture and conservation.	20	8	1	1
5.	<b>Propagation of Mulberry</b> - Introduction, sexual propagation, asexual propagation.	20	8	1	1
6.	<b>Cultivation and Cultural Practices</b> - Introduction, garden implements, selection of mulberry varieties, mulberry plant spacing, weeds and inter-cultivation, pruning and training, importance of water shed, methods of irrigation.	20	8	1	1
7.	<b>Manures &amp; Fertilizers</b> – Introduction, farm yard manure, types of fertilizers, vermi- compost, application methods and schedules.	20	10	2	1
8.	<b>Leaf Harvesting</b> - Introduction, harvesting methods, preservation of mulberry leaves.	10	8	1	1
	<b>Total</b>	<b>135</b>	<b>68</b>	<b>10</b>	<b>8</b>

#### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	History
2	Unit-2	systematic position
3	Unit-3	non-mulberry taxonomy
4	Unit-4	Soil erosion, moisture and conservation.
5	Unit-5	Sexual propagation, asexual propagation.
6	Unit-6	importance of water shed, methods of irrigation
7	Unit-7	Application methods and schedules.
8	Unit-8	Preservation of mulberry leaves.

**SERICULTURE**

**I YEAR**

**PART B – VOCATIONAL SUBJECTS**

**PAPER – II: FARM MANAGEMENT AND SERI-BIOTECHNOLOGY [THEORY]**

PERIODS/WEEK: 05

PERIODS/YEAR:180

S.No.	Name of the unit	No. Of Periods	Weightage in marks	Short answer questions	Essay questions
1	<b>Farm Management</b> - Introduction, mulberry farming, <del>labour management</del> , farm records.	5	8	1	1
2	<b>Mulberry Diseases</b> – Introduction, fungal diseases, bacterial diseases, viral diseases, <del>nutrient deficiency diseases and control</del>	20	10	2	1
3	<b>Mulberry Pests</b> – Introduction, <del>Lepidopteran</del> pests, Jassids, Thrips, Mites, Beetles.	20	10	2	1
4	<b>Estimation of Leaf Yield</b> – Introduction, methods of estimation.	20	6	-	1
5	<b>Economics of Mulberry cultivation</b> – Introduction, Nursery, Rain-fed cultivation, irrigation cultivation, <del>Economics of 1 acre Mulberry.</del>	20	8	1	1
6	<b>Seri- Bio Technology</b> – Introduction, Tissue and Organ culture, <del>Plant Bio-Technology, Silkworm Bio-Technology.</del>	20	8	1	1
7	<b>Secondary Food Plants and Diet</b> – Introduction, Secondary Food Plants, <del>Artificial diet, composition of diet,</del> preparation of diet.	20	8	1	1
8	<b>Cytology and Genetics of Mulberry</b> – Introduction, Mitosis and meiosis, Mendelian principles of genetics, <del>importance of mulberry breeding.</del>	10	10	2	1
	<b>Total</b>	<b>135</b>	<b>68</b>	<b>10</b>	<b>8</b>

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 –	labour management,
2	Unit-2 –	nutrient deficiency diseases and control
3	Unit-3–	Lepidopteran
4	Unit-4–	
5	Unit-5–	Economics of 1 acre Mulberry.
6	Unit-6–	, Plant Bio-Technology, Silkworm Bio-Technology.
7	Unit-7–	Artificial diet, composition of diet,
8	Unit-8–	Importance of mulberry breeding.



## SERICULTURE (CC:112):

I st Year: Paper-1.

### Mulberry Cultivation.(OLD).

Time: 3 Hours.

Section- A.

Max.Marks: 50.

**Note:** Answer ALL questions.

Each question carries TWO Marks.

10x2= 20 Marks.

1. What is Silk Road?
2. Name some Hybrid varieties?
3. Write the Systematic position of Mulberry?
4. What is Soil PH?
5. Draw a neat diagram of Mulberry seed.
6. What is Layering?
7. Define Weed?
8. What is Compost?
9. Expand FYM and NPK?
10. What is the best time for leaf leaf harvesting?

### Section-B.

**Note:**Answer any FIVE questions.

5x6=30 Marks.

Each question carries SIX Marks.

11. Describe the Morphology of Mulberry Plant?
12. Explain the Indian varieties of Mulberry?
13. Write about the environmental conditions required for Mulberry growth.
14. Explain different types of soils in Telangana?
15. Explain about the Bud Grafting methods in Mulberry?
16. Write about control methods of Weeds?
17. Explain about Bulky Organic Manures?
18. Write about the methods of harvesting of Mulberry leaves.
19. What is Prunning? Write about methods of pruning?
20. Write short notes on:
  - a) M5 Leaf.
  - b) Air-Layering.
  - c) Vermis-compost.

# SERICULTURE (CC:112)

I st Year: Paper-2.

## FARM MANAGEMENT & SERI-BIOTECHNOLOGY.(OLD).

**Time: 3 Hours.**

**Section- A.**

**Max.Marks: 50.**

**Note:** Answer ALL questions.

Each question carries TWO Marks.

10x2= 20 Marks.

1. Mention different types of farms?
2. What are the symptoms of Leaf spot?
3. Mention some Mulberry diseases?
4. Define Pest?
5. What is Tukra Disease?
6. Mention some farm implements?
7. What is Tissue and Organ culture?
8. Name some secondary food plants?
9. What is Mitosis?
10. What are Mendel's Laws?

### Section-B.

**Note:**Answer any FIVE questions.

5x6=30 Marks.

Each question carries SIX Marks.

11. Write about Mulberry farm records?
12. Describe Powdery Mildew disease?
13. Explain about Root Knot disease with neat diagrams?
14. Write about life cycle of Scale Insects.
15. Describe about Thrips?
16. "Leaf estimation improves crop results" Comment.
17. Write about economics of Nurseries?
18. Write about Tissue and Organ culture in detail?
19. Explain in detail about secondary food plants?
20. Write short notes on:
  - d) Meiosis.
  - e) Mites.
  - f) Leaf spot.

**BANKING AND FINANCIAL SERVICES**

**I YEAR**

**PAPER-III BANKING-I (THEORY)**

**PERIODS/WEEK : 05**

**PERIODS/YEAR : 135**

**TIME SCHEDULE, WEIGHTAGE & BLUE PRINT**

S, No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Problem questions
1.	Bank and Banking	20	10	2	1
2.	Commercial Banking in India	25	16	2	2
3.	Banking Legislation in India	20	10	2	1
4.	Central Banking functions	25	14	1	2
5.	Negotiable instruments Act	20	10	2	1
6.	Banker and Customer	25	08	1	1
	Total :	135	68	10	8

**I. BANK AND BANKING**

Origin and growth of Banking – Meaning and definition of Bank – Types of Bank: Commercial Banks, Industrial banks, agricultural Banks, ~~Exchange banks~~, Central Bank, Co-operative banks, Nationalized banks, (Old & New Pvt. Banks) Regional Rural Banks, NABARD, Asian Development Bank, Banking systems; ~~Branch banking~~ – Meaning, Advantages and Disadvantages. UNIT banking: meaning, Advantages and Disadvantages, Commercial Banks: Functions-Credit creation – Role of Commercial banks in a developing economy- ~~lead bank~~ schemes – ~~Unit Branch~~ – Franchise Banking – Branch Banking.

**II. COMMERCIAL BANKING IN INDIA ;**

Structure of Indian Commercial banking system – Recent trends in Commercial banking, ~~Deposit Insurance~~, Credit Guarantee Schemes – ~~innovative Banking~~ (Only General Awareness) : Social banking, Merchant banking, Mutual funds, ~~Venture Capital~~, Factoring Services, E-Banking – ~~Banking Sector Reforms~~.

**III. BANKING LEGISLATION INDIA :**

Banking regulation Act ; Important provisions Viz Definition of ~~Banking Company~~, Capital, Restriction on banking operations, powers of the RBI (General Awareness)

**IV. CENTRAL BANKING FUNCTIONS:**

Credit control : Meaning, Objectives : Method : ~~Quantitative and Qualitative methods~~ – Note issue systems – Principals of Note Issue – ~~methods of Note Issue~~ – Role of Central Banks in developing countries – Reserve Bank of India Organization Structure.

**V. NEGOTIABLE INSTRUMENTS ACT.**

Negotiable Instruments : ~~Meaning~~ – characteristics – Kinds of promissory notes, Bills of exchange ~~cash credit~~, Discount & purchase of Bank Draft – Parties to negotiable instruments – Crossing – ~~Endorsement~~ – Collection and payment of cheques – Dishonour of Cheques – MICR cheques – Important sectors relating to Banker.

**VI. BANKER AND CUSTOMER :**

Definition of Banker – Services to customers – Meaning of Customer-Relationship between banker and customers obligations of Banker – Rights of the Banker-~~Rights of a customer under consumer protection Act.~~

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 – BANK AND BANKING	Exchange banks, Branch banking, lead bank schemes – Unit Branch
2	Unit-2 – COMMERCIAL BANKING IN INDIA	Deposit Insurance , innovative Banking, Venture Capital, Banking Sector Reforms
3	Unit-3– BANKING LEGISLATION INDIA	Banking Company,
4	Unit-4– CENTRAL BANKING FUNCTIONS	Quantitative and Qualitative methods, methods of Note Issue,
5	Unit-5– NEGOTIABLE INSTRUMENTS ACT	Meaning, cash credit, Endorsement
6	Unit-6– BANKER AND CUSTOMER	Rights of a customer under consumer protection Act.

**BANKING AND FINANCIAL SERVICES**

**II YEAR**

**PAPER-I FINANCIAL SERVICES (THEORY)**

**PERIODS/WEEK : 05**

**PERIODS/YEAR : 110**

**TIME SCHEDULE, WEIGHTAGE & BLUE PRINT**

S, No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Problem questions
1.	Interest Calculation	20	10	2	1
2.	Leasing	15	8	1	1
3.	Hire Purchase	15	8	1	1
4.	Insurance	20	16	2	2
5.	Mutual funds	20	16	2	2
6.	Micro-Credit Agencies	20	10	2	1
	Total :	110	68	10	8

**1. INTEREST CALCULATION :**

Calculation of Interest, Simple Interest, Compound Interest, Compound Amount, ~~Compound Rate (CAER), Add on Interest~~, Reducing Balance Rate of Interest (EMI), Present value of sum of money Reading interest, to help Interest Calculation on various types of advances (term loans, over drafts, cash credit, demand loans) and bills discounting.

**2. LEASING :**

Concept and classification (- finance lease and operating lease – Sale and lease back and Direct Lease) – ~~Sources of Finance to a leasing company (equity capital, Debenture, Term Loans, Public Deposits, Bank Deposits, Bank Borrowings etc.)~~ – Tax aspects, Lease Evaluation (Lessor and lessee's point of view) – legal aspects, Lease Accounting and Reporting :- Current Accounting and Reporting Practices, Accounting Treatment for Finance Leases and Reporting for operating leases – Accounting for lease – hold and Buildings.

**3. HIRE – PURCHASE :**

Concept and characteristics of Hire Purchase – ~~Legal aspects – Income Tax aspects~~ – Accounting aspects (in the books of hirer and finance company (owner) – ~~Different types of Repayment Methods~~ – Difference between leasing and Hire purchase – Hire Purchase Act 1972 (all the provisions)

**INSURANCE :**

Introduction – Types – (Life Insurance and Non-life Insurance) – kinds of Insurance policies – Re-insurance, ~~Insurance premium determination~~, Reading the Insurance premium charts (present value of One Rupee, compound sum of One Rupee, etc.) – ~~Calculated surrender values for various types of policies.~~

**5. MUTUAL FUNDS :**

Introduction – Classification of Mutual fund schemes (Open and closed End Schemes Liquid Fund Schemes – Debt fund schemes – Tax savings schemes – Income and Growth schemes) ~~SEBI guidelines for Mutual funds investments~~ – Net Asset Value (NAV) of the fund – ~~Rating of Mutual Fund/ Schemes.~~

**6. MICRO – CREDIT AGENCIES :**

Introduction – Formation of Groups – Self Groups (SHG)m Micro-Finance Institutions – Registration – Empowerment of women – Role of the Micro Credit Agencies in meeting the credit needs of women – ~~Group dynamics – Bank linkage~~ – Features of the SHG – Revolving Funds – Recovery need for control over the micro-credit agencies.

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 – INTEREST CALCULATION	Compound Rate (CAER), Add on Interest
2	Unit-2 – LEASING	Sources of Finance to a leasing company (equity capital, Debenture, Term Loans, Public Deposits, Bank Deposits, Bank Borrowings etc.), Tax aspects
3	Unit-3– HIRE – PURCHASE	Legal aspects – Income Tax aspects, Different types of Repayment Methods
4	Unit-4– INSURANCE	Insurance premium determination, Calculated surrender values for various types of policies
5	Unit-5– MUTUAL FUNDS	SEBI guidelines for Mutual funds investments,
6	Unit-6– MICRO – CREDIT AGENCIES	Group dynamics – Bank linkage

**BANKING AND FINANCIAL SERVICES**  
**II YEAR**  
**PAPER-III BANKING II (THEORY)**

**PERIODS/WEEK : 05**

**PERIODS/YEAR : 110**

S, No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Problem questions
1.	Deposit Accounts	20	10	2	1
2.	Loans and Advances	10	8	1	1
3.	Specific Loans	20	10	2	1
4.	Securities for Advances	20	10	2	1
5.	Handling Cash	10	8	1	1
6.	Clearing House: Meaning	10	8	1	1
7.	Innovative Products	20	10	2	1
	Total :	110	68	10	8

**1. DEPOSIT ACCOUNTS :**

Meaning – Types of Deposit Accounts viz, Fixed Deposit, Saving Bank Account, Current Deposit, Recurring Deposit – Fixed deposit, opening and operation, payment of interest, advance against fixed deposit, Surrender of Deposit before maturity – Deposits in Joint names, Repayment of Deposit – Savings Bank Deposits Accounts : opening and operation Accounts, Interest Calculations – Current Deposits: Account Opening and operation – Recurring Deposit Account : Opening and Operation – Opening of Account for different types of customers – Minors, Lunatics, ~~Married woman~~, pardanashin women, illiterate persons, Trustees, Executors and Administrators, Joint Accounts, Joint Accounts, ~~Partnership Firms~~, HUF, Joint Stock Companies, Societies and other non-trading institutions – Know Your Customer – ~~Anti Money Laundering~~ – Multi Option Deposit – ~~Cash Key~~ – Unfixed Deposit – ~~Floating Deposit~~ – Standing Instructions Implementations – Tax Deducted At Source.

**2. LOANS & ADVANCES :**

Meaning of the term loans – Considerations for sound lending – types of loans : cash credit, overdraft, bills discounting and purchase – ~~consortium finance~~, Term loans.

**3. SPECIFIC LOANS :**

Personal Loans – Housing Loans – consumer Loans – ~~Priority sector Advances~~ – ~~Loans for Weaker sections~~, small scale Industries, Agriculture, self employed and professionals etc. – Gold – Loan against Hypothecation – Duties and Responsibilities of Bank in Disbursing Loan – Consumer Loan – Auto Loan – Role of recovery agents – mode of recovery - Recovery Agent - ~~Direct selling Agent~~ – verification Agent – Bank ombudsman.

**4. SECURITIES FOR ADVANCES :**

Meaning – Kinds of securities : ~~Term Deposit Receipts~~, Gold, Vehicles, Land, Buildings, Goods, Document of Title Government Securities, Modes of Charging the security : Lien, pledge, Hypothecation, Mortgage.

**5. HANDING CASH :**

Functions of Cash Department – Receipt and Payments Recording – ~~Safe Keeping of cash by Double Lock system~~ – ~~Teller system~~ – Sorting of notes – Procedure of opening Strong Room. ATM – Innovative Banking Mobile & Tele, ~~Internet Door step banking~~.

**6. CLEARING HOUSE : MEANING**

Functions – Working Rules – Receiving Local Cheques, Drafts etc, Stamping, sorting, preparing schedule and general summary, exchanging the cheques in clearing house and balancing – Sorting bank wise and Branch wise, putting Bank's Endorsement, Returning the Dishonored Cheques. Real Time Gross Settlement (RTGS), Electronic funds Transfer, (EFT) Electronic clearing service (ECS), ~~Core Banking~~ – Advantages – anywhere banking, ~~Multi city cheques~~, ~~Single window service~~

**7. INNOVATIVE PRODUCTS :**

Credit Cards, Debit Cards, ATM Cards – NRI Deposits – ~~Foreign Exchange~~ – Front Office – Back Office

**DELETED TOPICS**

<b>S. No</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1 – DEPOSIT ACCOUNTS	Married woman, Partnership Firms, Anti Money Laundering, Cash Key, Floating Deposit
2	Unit-2 – LOANS & ADVANCES	Consortium finance
3	Unit-3– SPECIFIC LOANS :	Priority sector Advances - Loans for Weaker sections, Direct selling Agent
4	Unit-4– SECURITIES FOR ADVANCES :	Term Deposit Receipts,
5	Unit-5– HANDING CASH	Safe Keeping of cash by Double Lock system – Teller system – Internet Door step banking.
6	Unit-6– CLEARING HOUSE : MEANING	Core Banking – Advantages, Multi city cheques, Single window service
7	Unit-7– INNOVATIVE PRODUCTS	Foreign Exchange

**MARKETING & SALESMANSHIP**  
**I YEAR**  
**PART B – VOCATIONAL SUBJECTS**  
**PAPER – III: ELEMENTS OF MARKETING**

PERIODS/WEEK : 05

PERIODS/YEAR : 135

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
01	INTRODUCTION	25	8	1	1
02	MARKETING FUNCTIONS	20	10	2	1
03	SELLING	20	16	2	2
04	MARKETING MIX	30	16	2	2
05	CHANNEL OF DISTRIBUTION	20	10	2	1
06	MARKETING INFORMATION	20	8	1	1
		135	68	10	08

**Note:** The question paper contains two sections.

**Section – A** of question paper contains 10 questions carries 2 marks each. The student has to answer all questions.

**Section – B** of question paper contains 8 questions carries 6 marks each. The student has to answer five questions.

**COURSE CONTENTS:**

**Unit - I: Introduction**

Nature And Scope Of Marketing –Meaning of marketing – Scope and nature of Marketing - Evolution Of Marketing - Marketing Process -Difference Between Marketing And Selling - ~~Contribution Of Marketing To The Society~~

**Unit – II: Marketing Functions:**

Concentration – Dispersion - Equalization - Buying And Selling - Transportation And Storage-Standardization And Grading - ~~Financing Risk Management And Insurance~~ -Marketing Information And Promotion

**Unit – III: Selling:**

Meaning And Importance -Characteristic Of Indian Marketing -Product Planning And Development- Consumerism - Characteristic Of Consumer - ~~Industrial Service Mark In India~~

**Unit – IV: Marketing Mix**

Concept And Elements Of Marketing Mix - Product Classification- ~~Branding~~ - Packing - Concept Of Product Life Cycle- Physical Distribution- Pricing

**Unit –V: Channel Of Distribution**

Meaning And Functions Of Channels Of Distribution- Types Of Middle Men- Channels-used For Consumer And Industrial Goods- ~~Importance Of Warehousing And Its Types~~

Transportation –Modes

**Unit Vi: Marketing Information**

Importance - Methods Of Collecting Marketing Information- External Source Of Information - Organizing And Analyzing Information For Improving Sales- ~~Obtaining Information Through Direct Market Research~~

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 – Introduction	Contribution Of Marketing To The Society
2	Unit-2 – Marketing Functions:	Financing-Risk Management And Insurance
3	Unit-3– Selling	Industrial Service Mark In India
4	Unit-4– Marketing Mix	Branding
5	Unit-5– Channel Of Distribution	Importance Of Warehousing And Its Types
6	Unit-6–Marketing Information	Obtaining Information Through Direct Market Research

**DENTAL HYGIENIST**  
**DENTAL ANATOMY, PHYSIOLOGY & HISTOLOGY**  
**1<sup>ST</sup> YEAR**  
**PART-B (VOCATIONAL)**  
**PAPER-1(THEORY)**

Theory : 135hrs

Marks: 50

S. NO.	Name of the unit	No.of periods	Weight age in marks	Short answer questions	Essay type questions
I	Terminology in Dental and General Anatomy Structure & functions of Oral Mucosa Bones of the Cramium & Face <del>Embriology—Development of Maxilla ,Mandible&amp; tooth</del>	20	10	2	1
II	Types of Muscles Structure & Functions of Muscles of Mastication ,muscles of Facial Expression Blood Vessels-Structure functions .Blood supply to face jawas & teeth. Blood grouping, mechanism of clotting Structure & functions of Nerves Cranial Nerves- description of V&VII <del>Cranial nerve</del> <del>Salivary glands ,composition and functions of saliva</del>	25	16	2	2
III	Temporo Mandibular joint –Basic anatomy physiology functions & movements of TMJ <del>Structure of tpngue taste buds-</del> Nomenclature of tooth Parts of tooth, morphology, eruption shedding& occlusion of teeth	25	16	2	2
IV	<del>Structure of enamel Dentine ,pulp cementum &amp; periodontal apparatus</del> Functions of perodontium- gingiva, cementum periodontal ugament, alveolar process <del>Process of Mastication, deglutition &amp; phonation</del>	20	10	2	1
V	<del>Structure of human cell</del> Histology of enamel ,Dentine pulp, Cementum , gigiva , Periodontal membrane alveolar bone ,nasmyths membrane. <del>Structure of RBC,W.B.C&amp;Platelets</del>	25	16	2	2

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 –	Embriology –Development of Maxilla ,Mandible& tooth
2	Unit-2 –	Cranial nerve Salivary glands ,composition and functions of saliva
3	Unit-3–	Structure of tpngue taste buds .
4	Unit-4–	Structure of enamel Dentine ,pulp cementum & periodontal apparatus Process of Mastication, deglutition & phonation
5	Unit-5–	Structure of human cell Structure of RBC,W.B.C&Platelets
6	Unit-6–	Embriology –Development of Maxilla ,Mandible& tooth



**DENTAL HYGIENIST**

**PAPER-II: ORAL PATHOLOGY, BACTERIOLOGY & DENTAL PHARMACOLOGY (THEORY)**

**1<sup>ST</sup> YEAR**

Theory : 135hrs

Marks: 50

<b>S. NO.</b>	<b>Name of the unit</b>	<b>No. of periods</b>	<b>Weight age in marks</b>	<b>Short answer questions</b>	<b>Essay type questions</b>
I	General principals of pathology Inflammation ,repair ,de generation & Necrosis <del>Immunity</del> White lesions of oral cavity	20	08	1	1
II	Pre-cancerous lesions & conditions Neoplasm-differences between malignant & Benign lesions <del>Systemic diseases with oral manifestations</del> Nutritional, vitamin, & iron deficiency Infections of oral Cavity-ANUG, Herpetic stomatitis, candidiasis, HIV, Hepatitis	20	10	2	1
III	Sterilization & Infection control <del>Bacteria types</del> <del>Dental anomalies</del> Attrition ,abrasion & erosion Normal microbial flora of oral cavity Dental caries- etiology, pathogenesis	30	18	3	2
IV	<b><u>Dental Pharmacology:</u></b> <del>Nomenclature, sources of various drugs ,routes of</del> Drug administration Pharmacological action & therapeutic uses of drugs commonly used in dentistry Antibiotics <del>Chemotherapeutic agents</del> Analgesics & anti inflammatory drugs	25	16	2	2
V	Sedatives Local anesthetics Haemostatics Astringents	20	08	1	1
VI	Antiseptics Mouth washes, Gum paints, disclosing agents <del>Obtundents, dentifrices.</del>	20	08	1	1

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1 -	Immunity
2	Unit-2 -	Systemic diseases with oral manifestations
3	Unit-3-	Bacteria- types Dental anomalies
4	Unit-4-	Nomenclature, sources of various drugs Chemotherapeutic agents
5	Unit-5-	Astringents
6	Unit-6-	Obtundents, dentifrices.

**DENTAL HYGIENIST**

**PAPER-III : DENTAL RADIOLOGY, FOOD & NUTRITION(THEORY)**

**1<sup>ST</sup> YEAR**

Theory : 135hrs

Marks: 50

<b>S. NO.</b>	<b>Name of the unit</b>	<b>No.of periods</b>	<b>Weight age in marks</b>	<b>Short answer questions</b>	<b>Essay type questions</b>
I	Properties & production of x-rays <del>Radiation Physics</del> X-ray film composition classification of x-ray film	15	08	1	1
II	Technique of intra oral x-rays Composition of developer and fixer <del>Processing &amp; mounting of dental radio graphs</del> Common errors in x-ray processing	15	08	1	1
III	Hazards of radiation Protection from hazards Protection of the patient Protection of the operator	20	10	2	1
IV	<del>Normal radiographic anatomy</del> Study of normal radio graph	10	08	1	1
V	<b>Food &amp; Nutrition:</b> Basic food chemistry in relation to general & oral health Carbohydrates: their effects on general & oral health Proteins: their effects on general & oral health Fats: their effects on general & oral health Vitamins: their effects on general & oral health Minerals: their effects on general & oral health	20	10	2	1
VI	Etiology of dental caries, rampant caries, prevention of dental caries role of Fluorides s in prevention of dental caries Fluorosis	20	08	1	1
VII	Dietary requirement- in maxilla facial injury Dietary requirement-during pregnancy ,during lactation, during development of jaw bones & in geriatric patients	20	08	1	1
VIII	Dietary management of new denture wearer, <del>patients with cleft palate &amp; after cleft palate repair</del> Dietary management of diabetic patients, individual dietary requirement & diet counseling <del>Effects of mal nutrition on general &amp; oral tissues</del>	15	08	1	1

**DELETED TOPICS**

<b>S . NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1 -	Radiation Physics
2	Unit-2 -	Processing & mounting of dental radio graphs
3	Unit-3-	
4	Unit-4-	Normal radiographic anatomy
5	Unit-5-	
6	Unit-6-	
7	Unit-7-	
8	Unit-8-	patients with cleft palate & after cleft palate repair Effects of mal nutrition on general & oral tissues

**DENTAL HYGIENIST**  
**SECOND YEAR**

**PAPER-I: DENTAL HYGIENE & ORAL PROPHYLLAXIS(THEORY)**

Theory : 110hrs

Marks: 50

S.NO.	Name of the unit	No.of periods	Weight age in marks	Short answer questions	Essay type questions
I	Definition of Hygiene & Health <del>Objectives of Dental Hygiene</del> <del>Classification of Gingival &amp; Periodontal diseases</del>	10	04	2	
II	Periodontal micro biology Plaque_ Definition ,Composition, Classification & its role in periodontal diseases. Calculus-Definition composition , <del>Classification</del> <del>mode of attachment, Mechanism of formation</del> <del>&amp; its role in periodontal diseases.</del>	20	16	2	2
III	Etiology of gingival & periodontal diseases Gingival enlargements. Acute infection of oral cavity-ANUG-Herpetic gingivostomatitis, Pericoronitis oral thrush Gingivitis & periodontitis-clinical features Desquamative gingivitis	30	16	2	2
IV	AIDS & periodontal manifestations , special care Periodontal pockets ,pathogenesis, classification, clinical sign& symptoms Periodontal Instrumentation , scaling instruments <del>Special emphasis on probes&amp; scaling</del> <del>instruments.</del> <del>Instruments used for impant surgery</del>	25	16	2	2
V	Plaque control methods Brushing and inter dental cleaning Aggressive periodontitis(juvenile periodontities) Patients education & motivation Mouth washes & gum paints Desensitization of teeth	25	16	2	2

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 -	Objectives of Dental Hygiene Classification of Gingival & Periodontal diseases
2	Unit-2 -	Classification mode of attachment, Mechanism of formation & its role in periodontal diseases.
3	Unit-3-	
4	Unit-4-	Special emphasis on probes& scaling instruments. Instruments used for impant surgery

**DENTAL HYGIENIST**  
**SECOND YEAR -PAPER-II (THEORY)**  
**PUBLIC HEALTH AND DENTAL PUBLIC HEALTH**

Theory : 110hrs

Marks: 50

S.NO.	Name of the unit	No.of periods	Weight age in marks	Short answer questions	Essay type questions
I	Introduction to public Health: Introduction Definition of Health Definition of Health-WHO Epidemiological triad Iceberg of disease Definition of Primary Health care Elements/Components of Primary Health care <del>Principals of Primary Health care</del> <del>Public Health care in India</del>	15	02		1
II	Public Health Dentistry: Difference between Public Health dentist and General Dentist <del>Private practice and public health Dentistry</del> Definition of Prevalence, point prevalence Definition of incidence Pondemic Epidemic Endemic Uses of Epidemiology	10	08	1	1
III	Epidermiology, ethology and prevention of dental caries Prevention of periodontal diseases and <del>prevention of oral cancers</del>	5	02	1	
IV	Oral Health Education and Promotion Principals of Health Education <del>Contents of Health Education</del> <del>Health Education &amp; Propaganda</del> Components of communication Types of communication	10	08	1	1
V	School Dental Health Programme Definition Aspects of Health Services Objectives Ideal requirements Advantages <del>Elements/Components of School Dental Health Programme.</del>	10	08	1	1
VI	Fluorides in preventive dentistry. Fluoride delivery methods Unital fluorides, compounds used in preventive dentistry. Water fluoridation <del>Salt fluoridation</del> <del>Milk fluoridation</del> Fluoride tablets/drops/lozenges Fluoride toxicity.	15	08	1	1
VII	Indices in dental epidemiology Introduction Definitions Ideal requisites of an index <del>Criteria for selecting an index</del> Classification of indices	20	08	1	1

S.NO.	Name of the unit	No.of periods	Weight age in marks	Short answer questions	Essay type questions
	Uses of index Indices used for assessing oral hygiene and plaque. Oral Hygiene Index (OHI) Simplified Oral Hygiene Index (OHI-S) Indices used for assessing gingival and periodontal disease Russels Periodontal Index Community Periodontal Index of Treatment Needs (CPITN) Community Periodontal Index and Loss of Attachment (CPILOA) Indices used for assisting dental caries DMFT Index DMFS Index Indices used for assessing fluorosis				
VIII	Dental Man Power Introduction Dentist Dental Auxiliaries Frontier Auxiliaries <del>New Auxiliary Types</del> <del>Dental Manpower in India</del>	10	08	1	1
IX	Atraumatic Restorative Treatment (ART) Introduction Principles Indications Advantages Procedure	10	08	1	1
1X	Environment and Health Water Waste Management	5	02	1	
XI	Occupational Hazards and Infection control in Dentistry	5	02	1	

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 –	Principals of Primary Health care Public Health care in India
2	Unit-2 –	Private practice and public health Dentistry
3	Unit-3–	prevention of oral cancers
4	Unit-4–	Contents of Health Education Health Education & Propaganda
5	Unit-5–	Elements/Components of School Dental Health Programme.
6	Unit-6–	Salt fluoridation Milk fluoridation
7	Unit-7–	Criteria for selecting an index
8	Unit-8–	New Auxiliary Types Dental Manpower in India

## DENTAL HYGIENIST

### SECOND YEAR

#### PAPER-III (THEORY) CHAIR SIDE ASSISTANCE, DENTAL ETHICS, JURISPRUDENCE AND DENTAL MATERIALS

**Theory: 110**

**Marks:50=**

S. No	Name of the Unit	No of Periods	Weight age Marks	Short Questions	Long Questions
1	Reception of patients management of waiting patients. , Chairside assisting in various dental surgical procedures., <del>Chairside</del> assisting in dental Implant placement.	15	08	1	1
2	Preparation of patient for treatment sterilization of dental equipment and various instruments Maintenance and care for infection control in dental practice.	10	08	1	1
3	Care and Maintenance of dental instruments Requirements of an Ideal Dental Clinic Sharpening of instruments, Charting of teeth Instructions to patients before and after surgery. Homecare procedures and follow up after receiving dental implants. Local Anesthetics used in dental practice. Through knowledge about components of dental chair and adjustments, <del>Basic knowledge about management of medical emergencies.</del>	30	20	4	2
4	<u>Dental Ethics and Juries procedures</u> Principles of ethics code of professional conduct <del>Dentists Act 1948</del> Dental Auxiliaries Duties of a dental hygienist according to 1948 act. <del>Dental Council of India.</del>	15	08	1	1
5	State Dental Council Indian Dental Association Aims and Objectives of WHO <del>Health Organization of India</del>	15	08	1	1
6	<u>Dental Materials</u> 1. General Knowledge of various materials used in dental practice, Gypsum Products Waxes, Impression materials	15	08	1	1
7	Filling materials-Temporary and permanent Mixing techniques of filling materials Their composition and uses. Mixing techniques of silver amalgam impression materials <del>Denture base materials</del> <del>Dental implant materials</del>	10	08	1	1

#### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 -	
2	Unit-2 -	
3	Unit-3-	Basic knowledge about management of medical emergencies.
4	Unit-4-	Dentists Act 1948 Dental Council of India.
5	Unit-5-	Health Organization of India
6	Unit-6-	
7	Unit-7-	Denture base materials Dental implant materials

**DENTAL TECHNICIAN**

FIRST YEAR

PAPER – I : APPLIED ORAL ANATOMY (THEORY)

PERIODS/WEEK: 05

PERIODS/YEAR: 135

**TIME SCHEDULE, WEIGHTAGE & BLUE PRINT**

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
1.	<b>Introduction:</b> A] Dental formulae. B] <del>Chronology</del> C] Parts of tooth D] Elementary Anatomy of Structure of denture bearing area.	20	10	2	1
2.	A] Anatomical land marks B] Human dentition and occlusion C] <del>Functions of teeth</del>	20	08	1	1
3.	Morphology of Crowns of teeth. i. Maxillary anterior teeth ii. Maxillary posterior teeth	25	16	2	2
4.	Morphology of Crowns of teeth i. Mandibular anterior teeth ii. Mandibular posterior teeth.	30	18	3	2
5.	A] Muscles of mastication B] <del>Muscles of facial expression</del> C] Nerve supply of maxillary and mandibular teeth. D] Blood supply of maxillary and mandibular teeth.	20	08	1	1
6.	A] Temporo mandibular joint B] Jaw bones : Maxilla, Mandible	20	08	1	1
<b>Total</b>		<b>135</b>			

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 -	B] Chronology
2	Unit-2 -	Functions of teeth
3	Unit-3-	
4	Unit-4-	
5	Unit-5-	Muscles of facial expression
6	Unit-6-	

**DENTAL TECHNICIAN**

**FIRST YEAR**

**PAPER – II : DENTAL MECHANICS ( PRIMARY) [THEORY ]**

PERIODS/WEEK: 05

PERIODS/YEAR : 135

S. No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay type questions
1.	Introduction a) Dental formulae. b) <del>Chronology</del> c) Anatomical Land marks.	20	08	1	1
II.	A) Impression trays: Impression trays classification B) Primary impression care C) <del>Final Impression care:</del> <del>Beading and boxing of final impression</del>	20	10	2	1
III	A) Construction of special trays with i. <del>Shellac base plate.</del> ii. Self-cure acrylic with spacer and without spacer. B) Cast preparation and trimming. C) Preparation of occlusal rims D) Articulators i. Classification ii. Parts of Articulator.	20	08	1	1
IV.	<del>A) Selection of teeth</del> B) Principles of teeth setting i. Maxillary ii. Mandibular C) Articulation D) Occlusal plane <del>E) Curve of spee.</del> <del>F) Compensating curve</del> <del>G) Balancing occlusion</del> <del>H) Protrusive Balance</del> I) Over Jet – Over bite J) Key of occlusion.	30	18	3	2
V.	A. Flasking B. Dewaxing C. Packing D. Curing E. Deflasking. F. Trimming G. Finishing and polishing of Acrylic dentures. <del>H. Denture relining &amp; rebasing</del> <del>I. Immediate denture</del> J. Denture repair with : i. Self cure acrylic ii. Heat cure acrylic.	20	08	1	1
VI.	A. Kennedy's Classification of partial dentures B. Principles of partial denture design <del>C. Surveyor: parts of surveyor, uses of surveyor, blocking undercut.</del> <del>D. Duplicating the cast</del> E. Designing of removable partial denture, parts of clasp. F. Principles of wire bending <del>G. wrought wire clasp preparation</del> H. 'C' clasp preparation I. Parts of removable partial dentures.	15	08	1	1
VII.	General Principles for denture retention	10	08	1	1



**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1 -	Chronology
2	Unit-2 -	Final Impression care: Beading and boxing of final impression
3	Unit-3-	iii. Shellac base plate.
4	Unit-4-	A]Selection of teeth E] Curve of spee. F]Compensating curve G] Balancing occlusion H] Protrusive Balance
5	Unit-5-	H. Denture relining & rebasing I. Immediate denture J. Denture repair with : i. Self cure acrylic ii. Heat cure acrylic.
6	Unit-6-	Surveyor: parts of surveyor, uses of surveyor, blocking undercuts. Duplicating the cast wrought wire clasp preparation

**DENTAL TECHNICIAN**

I YEAR

PART B – VOCATIONAL SUBJECTS

**PAPER – III: DENTAL MATERIALS [THEORY ]**

PERIODS/WEEK: 05

PERIODS/YEAR : 135

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay type questions
1.	A] The science of Dental Materials- Introduction B] Gypsum and Gypsum products C] Impression materials [ Rigid]	20	10	2	1
2.	A] Elastic impression materials B] Irreversible Hydrocolloid - Alginate	20	08	1	1
3.	A] Elastomeric Impression Materials B] Denture base materials.	20	08	1	1
4.	<del>A] Dental Cements B] Direct filling gold.</del>	25	10	2	1
5.	A] Dental casting Alloys B] Dental waxes	30	16	2	2
6.	A] Dental Casting Investment materials <del>B] Model, cast and die materials C] Dental ceramics.</del>	10	08	1	1
7.	A] Abrasive and Polishing Agents. B] Trimming Burs. i. Acrylic Trimming Burs. ii. Metal Trimming Burs. iii. Ceramic Trimming Burs. <del>C] Materials used for Dental implants.</del>	10	08	1	1
<b>Total</b>		<b>135</b>			

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 -	
2	Unit-2 -	
3	Unit-3-	
4	Unit-4-	A] Dental Cements B] Direct filling gold.
5	Unit-5-	
6	Unit-6-	B] Model, cast and die materials C] Dental ceramics.
7	Unit-7-	C] Materials used for Dental implants.
8	Unit-8-	

**DENTAL TECHNICIAN**

**SECOND YEAR**

**PAPER – I DENTAL MECHANICS (FINAL) [THEORY]**

PERIODS/WEEK: 05

PERIODS/YEAR: 110

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay type questions
1.	A] Introduction i. Crown and Bridge ii. Importance iii. Advantages of Crown and Bridge B] Casting: Types of casting Machines. a. Centrifugal casting machine. b. Pressure casting machine. c. Induction casting machine.	20	10	2	1
2.	<del>A] Casting furnaces and procedures involved.</del> B] Principles of casting C] Casting Techniques of Bridges, full crowns, occlusal rests, partial denture [ Skeleton ]	20	10	2	1
3.	A] Wax pattern fabrication B] Spruing the wax pattern <del>C] Investing procedures with casting ring and without casting ring.</del> D] Casting procedures E] Burnout procedures. F] Metal trimming, Finishing and polishing.	20	16	2	2
4.	A] Inlay classification. B] Types of Abutments C] Various Pontic designs. D] Bridge retainers <del>E] Cobalt Chromium denture bases F] Wrought alloy denture bases.</del>	30	16	2	2
5.	A] Cast gold restorations B] Ceramics <del>C] Maxillo facial prosthesis i. obturators ii. Splints iii. Mouth guards. D] Cast duplication various methods. E] Immediate denture construction F] Over dentures.</del>	20	16	2	2
<b>Total</b>		<b>110</b>			

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 –	
2	Unit-2 –	A] Casting furnaces and procedures involved.
3	Unit-3–	C] Investing procedures with casting ring and without casting ring.
4	Unit-4–	E] Cobalt Chromium denture bases F] Wrought alloy denture bases.
5	Unit-5–	C] Maxillo facial prosthesis D] Cast duplication various methods. E] Immediate denture construction F] Over dentures.
6	Unit-6–	

**DENTAL TECHNICIAN  
II YEAR  
PAPER-II ORTHODONTICS (THEORY)**

Periods Per Week: 05

Total Periods: 110

S.NO	NAME OF THE UNIT	NO.OF PERIODS	WEIGHTAGE IN MARKS	SHORT ANSWER QUESTIONS	ESSAY TYPE QUESTIONS
I	A) <u>INTRODUCTION:</u> 1. Definition of Malocclusion <del>2. Nature of Malocclusion</del> <del>3. The need for Orthodontic treatment</del>	10	08	1	1
II	<u>Malocclusion:</u> <del>1. Malposition of Individual teeth</del> 2. Classification of Malocclusion	20	10	2	1
III	<u>Appliance therapy in general:</u> 1. Removable Appliances 2. Myofunctional Appliances <del>3. Orthopaedic Appliances (Removable).</del> 4. The component parts of appliances	20	16	2	2
IV	<del>A) Anchorage</del> <del>B) Relative advantages of fixed and removable appliances.</del> C) Appliance design D) Materials used in the construction of appliances E) Soldering F) Welding	20	10	2	1
V	A) <u>Removable and Functional Appliances:</u> i) <del>Removable appliances in which screws are incorporated</del> ii) Removable appliances with auxiliary spring. iii) The construction of removable appliances with screws and springs. <del>B) Fixed appliances</del> i) <del>Types of fixed appliances</del> ii) <del>Attachments</del> iii) <del>Molar bands</del> iv) <del>Incisor bands</del> v) <del>Brackets</del> vi) <del>Labiolingual appliances</del> vii) <del>Spring/flexible bows</del> viii) <del>Local fixed appliances</del>	20	16	2	2
VI	<del>A) Surgical orthodontics</del> <del>B) Computers in orthodontics</del> C) Study models D) Retention appliances.	20	08	1	1
	<b>TOTAL PERIODS:</b>	<b>110</b>			

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1 –	2. Nature of Malocclusion 3. The need for Orthodontic treatment
2	Unit-2 –	3. Malposition of Individual teeth
3	Unit-3–	3. Orthopaedic Appliances (Removable).
4	Unit-4–	G) Anchorage H) Relative advantages of fixed and removable appliances.
5	Unit-5–	iv) Removable appliances in which screws are incorporated Fixed appliances ix) Types of fixed appliances x) Attachments xi) Molar bands xii) Incisor bands xiii) Brackets xiv) Labiolingual appliances xv) Spring/flexible bows Local fixed appliances
6	Unit-6–	E) Surgical orthodontics F) Computers in orthodontics

**DENTAL TECHNICIAN  
II YEAR  
PAPER-III DENTAL METALLURGY (THEORY)**

Periods Per Week: 05

Total Periods: 110

S.NO	Name of the unit	No.of periods	Weightage in marks	Short answer questions	Essay type questions
I	Introduction A) Metallurgical terms B) General properties of metals C) Study of metals used in dentistry i) <del>Gold</del> ii) Silver iii) Copper iv) Zinc v) <del>Tin</del> vi) <del>Lead</del> vii) <del>Aluminium</del>	25	16	02	02
II	Alloys used in Dentistry particularly: i) Cast gold ii) <del>Wrought gold</del> iii) Silver alloys iv) Stainless steel v) Copper alloys vi) Cobalt alloys	25	16	02	02
III	A) Heat treatment B) Annealing C) Tempering D) Solders E) Fluxes F) Anti fluxes	30	18	03	02
IV	A) Tarnish and corrosion B) <del>Electrodeposition</del> C) <del>Dies-counterdies-</del> Electroforming D) Soldering and welding E) <del>Chrom-cobalt casting</del> F) Metal polishing materials	30	18	03	02
<b>TOTAL PERIODS :</b>		<b>110</b>			

DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1 -	Gold Tin Lead Aluminium
2	Unit-2 -	Wrought gold
3	Unit-3-	
4	Unit-4-	Electrodeposition Dies-counterdies-Electroforming Chrom-cobalt casting
5	Unit-5-	
6	Unit-6-	

**BUILDING CONSTRUCTION AND MAINTENANCE TECHNICIAN (THEORY)**  
**PAPER I : WATER SUPPLY ENGINEERING**  
**FIRST YEAR**

Periods/ Week: 4

Periods/ Year: 135

Sl. No.	Units	No of periods	Weightage of marks	No. Of short questions	No. Of essay questions
1	Introduction	5	2	1	-
2	Water Demand	10	6	-	1
3	Sources of Water Supply	10	6	-	1
4	Quality of Water	15	8	1	1
5	Treatment of Water	25	10	2	1
6	Distribution System	25	10	2	1
7	Appurtenances in the distribution system	10	8	1	1
8	Water Supply Plumbing systems in Buildings and Houses	15	8	1	1
9	Rain water Harvesting	5	2	1	-
10	Liquids and Their Properties	5	2	1	-
11	Pressure Head and Measurement	10	6	-	1
	Total	135	68	10	8

**Detailed Syllabus:**

**1.0. Introduction**

- 1.1. Importance and Necessity for planned water supplies
- 1.2. Wholesome water
- 1.3. Status of protected water supply in India
- ~~1.4. Planning and Execution of Modern water supply schemes~~

**2.0. Water Demands**

- 2.1. Various types of water Demands
  - 2.1.1. Domestic Demand
  - 2.1.2. Industrial Demand
  - 2.1.3. Institutional and commercial water demand
  - 2.1.4. Demand for Public uses
  - 2.1.5. Fire demand
  - 2.1.6. Losses and wastes
- 2.2. Per capita demand
- 2.3. Factors affecting per capita demand
- 2.4. Variations in demand
  - 2.4.1. Seasonal variations
  - 2.4.2. Daily variations
  - 2.4.3. Hourly variations
- ~~2.5. Design Period~~
- ~~2.6. Total requirement of water for a town or a city~~
- 2.7. Population forecasting methods and problems
  - 2.7.1. Arithmetical increase method
  - 2.7.2. Geometrical increase method
  - 2.7.3. Incremental increase method, etc.

**3.0. Sources of water supply**

- 3.1. Hydrological concepts
  - 3.1.1. Definition
  - 3.1.2. Precipitation, Infiltration, Run off, Evaporation, Transpiration
- 3.2. Surface sources
  - 3.2.1. Natural ponds and lakes
  - 3.2.2. Streams and rivers
  - 3.2.3. Impounding reservoirs
- 3.3. Sub surface sources
  - 3.3.1. Infiltration galleries
  - 3.3.2. Infiltration wells
  - 3.3.3. Springs
  - 3.3.4. Wells
    - (a) Shallow wells

(b) Deep wells

~~3.4. Intakes for collecting surface water, definitions and general introduction~~

#### **4.0. Quality of water**

4.1. General Introduction

4.2. Characteristics of Water

4.2.1. Physical Characteristics

4.2.1.1. Turbidity

4.2.1.2. Colour and Temperature

4.2.1.3. Taste and Odour

4.2.2. Chemical Characteristics

4.2.2.1. Total Solids and suspended solids

4.2.2.2. PH value of water

4.2.2.3. Hardness of water

4.2.2.4. Chloride content

4.2.2.5. Nitrogen content

4.2.2.6. Metals and other Chemical substances

4.2.2.7. Dissolved Gases

4.2.2.8. Bio-chemical Oxygen Demand

4.2.3. Bacterial and Microscopical characteristics

~~4.3. Water Borne Diseases~~

~~4.4. Drinking water standards~~

#### **5.0. Treatment of Water**

5.1. General Introduction

5.2. Treatment unit flow diagram

5.3. Screening

5.4. Sedimentation

5.4.1. Plain Sedimentation

5.4.2. Sedimentation aided with Coagulation

5.5. Filtration

5.5.1. Theory of filtration

5.5.2. Slow sand filters construction and operation

5.5.3. Rapid sand filters

~~5.5.4. Pressure filters~~

5.6. Disinfection

5.6.1. Methods of Disinfection

5.6.2. Chlorination, pre, post, Break-point Chlorination and Dechlorination

~~5.7. Defluoridation by Nalgonda technique~~

#### **6.0. Distribution System**

6.1. General Introduction

6.2. Requirements of a good distribution system

6.3. Layouts of Distribution Networks

6.3.1. Dead end system

6.3.2. Grid iron system

6.3.3. Ring system

6.3.4. Radial system

6.4. Systems of Distribution

6.4.1. Gravitational system

6.4.2. Pumping system

6.4.3. Combined system

~~6.5. Pumps~~

6.5.1. Types of pumps and their suitability

6.5.2. Centrifugal pumps - Components

6.5.3. Selection of pump horse power

6.5.4. Operation and maintenance

6.5.5. Trouble Shooting

6.6. Requirement of pipe materials

6.6.1. Different types of pipes

6.6.2. Laying and Testing

6.6.3. Maintenance

6.6.4. Pipe Corrosion - Causes and Prevention



## **7.0. Appurtenances in the distribution system**

- 7.1. Understand the various appurtenances in a distribution system
- 7.2. Use of
  - 7.2.1. Sluice valves
  - 7.2.2. Check valves or reflux valves
  - 7.2.3. Air valves
  - 7.2.4. Drain valves or Blow off valves
  - 7.2.5. Scour valve
  - ~~7.2.6. Water meter~~
  - 7.2.7. Fire Hydrants

## **8.0. Water supply plumbing systems in buildings and Houses**

- 8.1. Plumbing System in Water Supplies
- 8.2. The House Water Connection
- 8.3. Stop Cocks
- 8.4. Water taps and Bib cocks
- 8.5. Pipe fittings
- 8.6. Storage of water in buildings
  - 8.6.1. Estimating Storage Capacity
  - 8.6.2. Overhead Storage, Underground Storage tanks
  - 8.6.3. Types of tanks, RCC, GI and HDPE tanks
  - ~~8.6.4. General requirements of domestic water storage~~
- 8.7. Water piping systems in building
  - 8.7.1. Piping system using direct supply
  - 8.7.2. Piping system using over head tanks
  - 8.7.3. Piping system using underground - overhead tank supply
  - 8.7.4. Pumped systems

## **9.0. Rainwater Harvesting**

- 9.1. Rain water Harvesting structures into the ground
  - 9.1.1. Collection of rain water
  - 9.1.2. Separation of first rain flush
  - 9.1.3. Filtration of rain water
  - 9.1.4. Storage of rain water
  - 9.1.5. Distribution of water
- ~~9.2. Rain water directed to Service wells~~
- ~~9.3. Rain water harvesting by percolation pit method~~

## **10.0 Liquids and Their Properties**

- 10.1. Mass Density – Specific Weight – Specific Gravity
- 10.2. Adhesion – Cohesion – Surface Tension – Capillarity – Compressibility
- ~~10.3. Dynamic Viscosity – Vapour Pressure~~

## **11.0. Pressure Head and Measurement**

- 11.1. Atmospheric Pressure – Gauge Pressure – Absolute Pressure
- 11.2. Pressure Measuring Instruments - Piezometer – Manometer and Differential Manometer
- ~~11.3. Pressure Head – Datum Head and Kinetic Head~~
- 11.4. Bernoulli's Theorem
- ~~11.5. Water Hammer~~

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No.</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	1.4. Planning and Execution of Modern water supply schemes
2	Unit-2	2.5. Design Period 2.6. Total requirement of water for a town or a city
3	Unit-3	3.4. Intakes for collecting surface water, definitions and general introduction
4	Unit-4	4.3. Water Borne Diseases 4.4. Drinking water standards
5	Unit-5	5.7. Defluoridation - by Nalgonda technique
6	Unit-6	6.5. Pumps
7	Unit-7	7.2.6. Water meter
8	Unit -8	8.6.4. General requirements of domestic water storage 8.7. Water piping systems in building
9	Unit -9	9.2. Rain water directed to Service wells 9.3. Rain water harvesting by percolation pit method
10	Unit -10	10.3. Dynamic Viscosity – Vapour Pressure
11	Unit -11	11.3. Pressure Head – Datum Head and Kinetic Head 11.5. Water Hammer

**BUILDING CONSTRUCTION AND MAINTENANCE TECHNICIAN  
PAPER - I : ENVIRONMENTAL ENGINEERING [THEORY]  
II YEAR**

Periods/ Week: 4

Periods/ Year: 110

**TIME SCHEDULE**

SL. NO.	UNITS	NO.OF PERIODS	WEIGHTAGE OF MARKS	NO. OF SHORT QUESTIONS	NO. OF ESSAY QUESTIONS
1	Introduction	5	2	1	-
2	Quantity of sewage	5	2	1	-
3	Sewerage systems	10	8	1	1
4	Sewer Appurtenances	10	8	1	1
5	Sewage Characteristics	10	6	-	1
6	Sewage Treatment and Disposal	20	14	1	2
7	Solid waste Management	20	14	1	2
8	Drainage and sanitation in buildings	10	4	2	-
9	Rural Water supply and Sanitation	10	4	2	-
10	Air pollution and Ecology	10	6	-	1
	Total	110	68	10	8

**Detailed Syllabus :**

**1.0. Introduction**

- 1.1. Objects of providing sewerage works
- 1.2. Definition of terms - Sullage, Sewage, sewer and sewerage
- 1.3. Classification of sewage
- 1.4. Systems of sewage disposal
- 1.5. ~~Types of sewerage systems and their suitability separate, combined and partially separate systems~~

**2.0. Quantity of Sewage**

- 2.1. Quantity of discharge in sewers, dry weather flow, variability flow
- 2.2. ~~Determination of storm water flow~~
- 2.3. Surface drainage - requirements, shapes, laying and construction

**3.0. Sewerage systems**

- 3.1. Different shapes of cross section for sewers, circular and noncircular, merits and demerits
- 3.2. Brief description and choice of types of sewers - stoneware, cast Iron, cement concrete and A.C. pipes
- 3.3. ~~Laying of Sewers—setting out alignment of a sewer, excavation, checking the gradient, preparation of bedding, handling, lowering, laying and jointing, testing and back filling~~

**4.0. Sewer Appurtenances**

- 4.1. Brief description, location, function and construction of
  - 4.1.1. Manholes
  - 4.1.2. Drop Manholes
  - 4.1.3. Street inlets
  - 4.1.4. Catch basins
  - 4.1.5. Flushing tanks
  - 4.1.6. Regulators
  - 4.1.7. Inverted siphon
- 4.2. ~~Necessity of pumping sewage—location and component parts of pumping station~~

**5.0. Sewage Characteristics**

- 5.1. Strength of sewage, sampling of sewage, characteristics of sewage, physical, chemical and biological
- 5.2. Analysis of Sewage - significance of the following tests. 1. Solids, 2. C.O.D, 3. B.O.D, 4. PH- value, 5. Chlorides (No details of tests)
- 5.3. ~~Characteristics of industrial waste water - principles of treatment, reduction of volume, and strength of waste water.~~

**6.0. Sewage treatment and disposal**

- 6.1. Preliminary treatment - Brief description and functions of the following units 1. Screens, 2. Skimming tanks and 3. Grit chambers
- 6.2. Primary treatment - Brief description and functions of plain sedimentation
- 6.3. Secondary treatment - Brief description of 1. Trickling filters, 2. Activated sludge process.
- 6.4. Septic tank
- 6.5. ~~Sewage disposal—dilution, disposal on to lands, groundwater recharge, reuse etc~~

## 7.0. Solid Waste Management

- 7.1. Municipal, Industrial, Hazardous solid wastes, their characteristics, study of solid waste treatment systems  
- Sources - collection methods - transportation - disposal methods - dumping, sanitary land fill, incineration - composting - ~~preparation~~

## 8.0. Drainage and sanitation in Buildings

- 8.1. Aims of building drainage and its requirements - General layout of Sanitary fittings to a house, drainage arrangements for a single and multi storeyed buildings as per IS code of practice  
8.2. Sanitary fittings - traps, water closets, flushing cisterns, urinals, inspection chambers, ~~antisiphonage inspection, testing and maintenance of sanitary fittings~~

## 9.0. Rural water supply and sanitation

- 9.1. Disinfection of wells  
9.2. Rural Sanitation ~~and sanitary latrines~~, brief description and operational details of bio-gas plant using cow dung, night soil and agricultural waste

## 10.0. Air pollution and Ecology

- 10.1. Definition - sources of air pollution - effects of air pollution  
10.2. Control of air pollution - methods - air pollution control at source - zoning - installation of control devices and equipment  
10.3. Air pollution control by stacks and vegetation  
10.4. Environment - Biosphere - Atmosphere - Acid rains, Greenhouse effect - Ozone layer depletion  
10.5. ~~Ecology and Ecosystem - Components of Ecosystem flow of matter in an ecosystem~~

### Journals :

1. All leading Journals on Environmental Engineering
2. All leading Journals on Air Pollution
3. All leading Journals on Solid Waste Management

### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	1.5. Types of sewerage systems and their suitability separate, combined and partially separate systems
2	Unit-2	2.2. Determination of storm water flow
3	Unit-3	3.3. Laying of Sewers - setting out alignment of a sewer, excavation, checking the gradient, preparation of bedding, handling, lowering, laying and jointing, testing and back filling
4	Unit-4	4.2. Necessity of pumping sewage - location and component parts of pumping station
5	Unit-5	5.3 principles of treatment, reduction of volume, and strength of waste water.
6	Unit-6	6.5. Sewage disposal - dilution, disposal on to lands, groundwater recharge, reuse etc
7	Unit-7	7.1 preparation
8	Unit -8	8.2 antisiphonage inspection, testing and maintenance of sanitary fittings
9	Unit -9	
10	Unit -10	10.5. Ecology and Ecosystem - Components of Ecosystem flow of matter in an ecosystem

**BUILDING CONSTRUCTION AND MAINTENANCE TECHNICIAN  
PAPER – II : BUILDING MATERIALS AND MAINTENANCE [THEORY]  
II YEAR**

Periods/ Week: 4

Periods/ Year: 110

Sl. no.	Units	No. Of periods	Weightage of marks	No. Of short questions	No. Of essay questions
1	Stones	9	6	-	1
2	Bricks	9	4	2	-
3	Cement	9	8	1	1
4	Sand	5	2	1	-
5	Mortar	5	2	1	-
6	Concrete	9	8	1	1
7	Timber	9	6	-	1
8	Miscellaneous Building materials	10	8	1	1
9	Types of buildings	5	2	1	-
10	Foundations	10	6	-	1
11	Masonry	5	2	1	-
12	Maintenance Problems in Building and their solutions	25	14	1	2
	<b>Total</b>	<b>110</b>	<b>68</b>	<b>10</b>	<b>8</b>

Old Name	New Name
Building Material and Construction	Building Material and Maintenance.

**Detailed Syllabus :**

**1. Stones**

- 1.1. Classification of rocks
  - 1.1.1 Geological Classification
  - 1.1.2. Physical Classification
- 1.2. Uses of Stones
- 1.3 Requirements of good building stones
- 1.4. Characteristics of stones - Granite, Sand Stone, lime Stone and marble
- 1.5. Selection of Stones and marble
- 1.6. Artificial Stones
- 1.7. Introduction of aggregate – grading of aggregates

**2. Bricks**

- 2.1. Definition - Composition of good brick earth – Manufacturing process
- 2.2. Classification of bricks
- 2.3. Properties of bricks
- 2.4. Special types of bricks and their uses
- 2.5. Grade of bricks as per B.I.S.

**3. Cement**

- 3.1. Definition - Composition of ordinary portland cement – Functions of cement, ingredients
- 3.2. Different types of cements
- 3.3. Grades of cement (33, 43 and 53)
- 3.4. General Uses of Cement
- 3.5. Admixtures - uses
- 3.6. Lime as basic ingredient of cement – importance of lime in construction – classification of lime – Fat, Hydraulic and poor lime – modern usage of lime as cem.

**4. Sand**

- 4.1. Sources of sand
- 4.2. Characteristics of good sand
- 4.3. Grading of sand
- 4.4. Bulking of sand

**5. Mortar**

- 5.1. Definition - Properties and uses of mortar
- 5.2. Types of mortar - Cement, Lime mortar
- 5.3. Preparation of cement mortar

**6. Concrete**

- 6.1. Definition - Constituents of concrete and their requirements
- 6.2. Uses of Concrete - Types of Concrete

6.3. Preparation of cement concrete - Hand mixing, Machine mixing and Ready mix concrete

~~6.4. Compaction of concrete - Methods~~

6.5. Curing of concrete - Methods

## **7. Timber**

7.1. Common Varieties of Timber

7.2. Defects in timber - Seasoning of timber

~~7.3. Wood based products~~

7.4. Characteristics of good timber

## **8. Miscellaneous building Materials**

8.1. Metals

8.1.1. Types of metals used in construction - cast iron - steel - Mild steel - Galvanised iron - Aluminium - Copper and Alloys.

8.1.2. Uses of different types of metals

8.2. Plastics

8.3. Asbestos - Uses of asbestos

~~8.4. Adhesives - Uses of Adhesives~~

8.5. Glass

8.6. Thermocole

8.7. Plaster of Paris

~~8.9. Wall paper~~

8.10. P.V.C

8.11. Bitumen and tar

~~8.12. Fal G Concrete~~

## **9. Types of Buildings**

9.1. Classification of building as per NBC

9.2. Component parts of building

## **10. Foundations**

10.1. Definition - Functions of Foundation

~~10.2. Classification of Soil~~

10.3. Types of foundations - Shallow and deep

~~10.4. Bearing capacity of soil~~

10.5. Requirements of good foundation

10.6. Causes of failures of foundations and remedial measures

## **11. Masonry**

11.1. Stone Masonry - Definition - ~~Material required for stone masonry - tools required~~ - types of masonry - rubble and ashlar masonry.

11.2. Brick masonry - Definition - Types of brick masonry - English and flemish bonds

## **12. Maintenance Problems in Building and Their Solutions**

12.1. Definition - Objectives of Maintenance - Annual and Special

12.2. Dampness in buildings at various locations - causes

12.3. Treatment with standard water proofing chemicals

12.4. Cracks in walls - causes and preventions

12.5. Types of floors - construction of cement concrete floor, mosaic floor, and marble floor

12.5.1. Maintenance of floors - ~~Settlement of floors - repairs~~

~~12.5.2. Removal of stains~~

12.6. Types of Roofs - Pitched roof - flat roof

12.6.1. Roofs - Leakages of Roofs - causes and repairs

~~12.6.2. Spalling of concrete~~

~~12.6.3. Corrosion of Reinforcement - repairs~~

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No.</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	1.6. Artificial Stones 1.7. Introduction of aggregate - grading of aggregates
2	Unit-2	2.4. Special types of bricks and their uses 2.5. Grade of bricks as per B.I.S.
3	Unit-3	3.6. Lime as basic ingredient of cement - importance of lime in construction - classification of lime - Fat, Hydraulic and poor lime - modern usage of lime as cem.
4	Unit-4	4.4. Bulking of sand
5	Unit-5	5.3. Preparation of cement mortar
6	Unit-6	6.4. Compaction of concrete - Methods
7	Unit-7	7.3. Wood based products
8	Unit -8	8.4. Adhesives - Uses of Adhesives 8.9. Wall paper 8.12. Fal-G Concrete
9	Unit -9	
10	Unit -10	10.2. Classification of Soil 10.4. Bearing capacity of soil
11	Unit -11	11.1 Material required for stone masonry - tools required
12	Unit -12	12.5 Settlement of floors – repairs 12.6.2. Spalling of concrete 12.6.3. Corrosion of Reinforcement – repairs

**BUILDING CONSTRUCTION AND MAINTENANCE TECHNICIAN  
II YEAR**

**PAPER III: ESTIMATING AND COSTING THEORY**

Periods/ Week: 4

Periods/ Year: 110

Sl. No.	Units	No. Of periods	Weightage of marks	No. Of short questions	No. Of essay questions
1	Introduction	10	8	1	1
2	Methods of Building Estimates	30	14	1	2
3	Analysis of Rates	30	18	3	2
4	Estimation of Open drains and roads	15	12	3	1
5	Estimation of Public	25	16	2	2
	<b>Total</b>	<b>110</b>	<b>68</b>	<b>10</b>	<b>8</b>

**1.0. Introduction**

- 1.1. Definition – Purpose – Data required for estimation
- 1.2. Types of estimates
  - 1.2.1. Detailed Estimate - Abstract estimate - Definitions - formats for detailed and abstract estimates
  - 1.2.2. Preliminary estimate or Approximate estimate - plinth area estimate - cubic rate estimate
- 1.3. Units of measurement of various Items of work as per IS Code 1200

**2.0. Methods of Building Estimates**

- 2.1. Preparation of detailed estimates of building using centre line method/long wall - short wall method
  - a) Single room building
  - ~~b) Single room with varandah~~
  - c) Two rooms building
  - d) Two rooms building with Varandah
  - e) Single bedroom house including with RCC staircase
  - ~~f) Double bedroom house including with RCC staircase~~
  - ~~g) Compound wall and steps~~

**3.0. Analysis of Rates**

- 3.1. Definition – data required
- 3.2. Factors effecting Rate Analysis
- 3.3. Cost of material at source and at site
- 3.4. Standard Schedule of Rates (SSR) of different materials
- 3.5. Types of Labour - Wages as per SSR
- 3.6. Lead and lift - preparation of lead statement
- 3.7. Preparation of unit rates for finished items of works using standard data & SSR
- 3.8. Methods of claculating quantities of ingredients of various proportions of cement concrete

**4.0. Estimation of Open Drains and Roads**

- 4.1. Estimation of open drain in rural area
- ~~4.2. Estimation of earthwork by trapeziodal Rule~~
- ~~4.3. Estimation of earthwork by prismoidal method~~
- 4.4. Estimation of roads (abstract estimates) of
  - ~~a) Water bound Macadam Road~~
  - b) Cement Concrete Road

**5.0. Estimation of public health engineering works**

- 5.1. Preparation of detailed estimates of
  - a) Septic tank
  - b) Estimation of quantity of sanitary pipes and pipe specials and fittings for a building from the plan of the building

**DELETED TOPICS**

S.NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	
2	Unit-2	2.1 b) Single room with varandah e) Single bedroom house including with RCC staircase f) Double bedroom house including with RCC staircase g) Compound wall and steps
3	Unit-3	
4	Unit-4	4.2. Estimation of earthwork by trapeziodal Rule 4.3. Estimation of earthwork by prismoidal method 4.4 a) Water bound Macadam Road
5	Unit-5	



# CONSTRUCTION TECHNOLOGY

## I YEAR

### PAPER – I : CONSTRUCTION MATERIALS (THEORY)

PERIODS/ WEEK: 4

PERIODS / YEAR: 135

S.NO.	TOPICS	NO.OF PERIODS	WEIGHTAGE OF MARKS	NO. OF SHORT QUESTIONS	NO.OF ESSAY QUESTIONS
1	Introduction	2	-	-	-
2	Stones	4	6	-	1
3	Bricks	14	8	1	1
4	Clay Products	15	8	1	1
5	Lime	3	2	1	-
6	Cement	20	8	1	1
7	Sand	10	2	1	-
8	Mortar	5	2	1	-
9	Concrete	20	12	-	2
10	Timber	5	2	1	-
11	Metals	15	8	1	1
12	Surface Protective Materials	14	8	1	1
13	Miscellaneous Materials	8	2	1	-
	<b>Total</b>	<b>135</b>	<b>68</b>	<b>10</b>	<b>8</b>

#### Detailed Syllabus:

1. Introduction
  - 1.1. General
  - 1.2. Scope and purpose of the subject
2. Stones
  - 2.1. Introduction
  - 2.2. Classification of Rocks
    - 2.2.1. Geological classification
    - 2.2.2. Physical classification
  - 2.3. Common varieties of stones – their uses
  - 2.4. Availability of important stones
  - 2.5. Dressing of stones
  - 2.6. Different types of surface finishes
  - 2.7. Introduction of aggregates – grading of aggregates
3. Bricks
  - 3.1. Composition of good brick earth
  - 3.2. Requirements of good brick earth
  - 3.3. Manufacture of Bricks
    - 3.3.1. Preparation of brick earth
    - 3.3.2. Moulding
    - 3.3.3. Drying
    - 3.3.4. Burning
  - 3.4. Field tests of good bricks
  - 3.5. Characteristics of good bricks
  - 3.6. Classification of Bricks as per I.S.
  - 3.7. I.S.I. Specification for bricks
  - 3.8. Special Forms of Bricks
  - 3.9. Special purpose Bricks
    - 3.9.1. Cement bricks, Uses and advantages
    - 3.9.2. Fly ash bricks , uses and advantages
4. Clay Products
  - 4.1. Tiles – Types of Tiles
  - 4.2. Roofing Tiles
  - 4.3. Flooring Tiles
  - 4.4. Stone ware pipes
  - 4.5. Glazing
  - 4.6. Poreclain
  - 4.7. Terra- cotta
5. Lime
  - 5.1. Introduction

- 5.2. Lime - properties and uses
- 5.3. Sources of lime
- 5.4. Calcinations of lime
- 5.5. Slaking of lime
- 5.6. Quick lime
- 5.7. Classification of lime

## **6 Cement**

- 6.1. Introduction
- 6.2. Chemical composition of Portland cement
- 6.3. Manufacture of ordinary Portland cement
  - 6.3.1. Dry Process
  - 6.3.2. Wet Process
- 6.4. Field tests of cement
- 6.5. Tests for cement as per I.S.I.
  - 6.5.1. Fineness test by sieving
  - 6.5.2. Consistency test
  - 6.5.3. Initial and Final setting times test
  - 6.5.4. Compressive strength test
- 6.6. Types of cement
  - 6.6.1. Grades of Cement
  - 6.6.2. Ordinary Portland cement (O.P.C)
  - 6.6.2. Quick Setting Cement
  - 6.6.3. Rapid hardening cement
  - 6.6.4. White cement
  - 6.6.5. P.P.C.

## **7. Sand**

- 7.1. Sources of sand
- 7.2. Natural sand
- 7.3. Robo sand
- 7.4. Characteristics of good sand
- 7.5. Grading of sand
- 7.6. Bulking of sand

## **8. Mortars**

- 8.1. General
- 8.2. Classification of Mortars
- 8.3. Different proportions of mortars for various construction works
- 8.4. Precautions in use of Mortars.

## **9. Concrete**

- 9.1. Definition, purpose of concrete
- 9.2. Types of concrete
- 9.3. Ingredients of plain concrete
- 9.4. Proportions and uses of different grades of concrete.
- 9.5. Re-inforced cement concrete
- 9.6. Pre-cast concrete
- 9.7. Water - cement ratio
- 9.8. Mixing of concrete - methods
- 9.9. Batching of concrete
- 9.10. Transporting of concrete - methods
- 9.11. Placing of concrete
- 9.12. Compaction of concrete—usage of vibrators
  - 9.12.1. Types of vibrators
- 9.13. Curing of Concrete - methods
- 9.14. Workability of concrete—slump cone test
  - 9.14.1 Ready Mix concrete.

## **10. Timber**

- 10.1. Introduction
- 10.2. Defects in timber
- 10.3. Common varieties of timber in A.P.
- 10.4. Wood Products
- 10.5. Characteristics of good timber

## **11. Metals**

- 11.1. Types of metals
- 11.2. Properties, chemical composition and uses of cast iron
- 11.3. Properties, chemical composition and uses of wrought iron
- 11.4. Properties and uses of steel.
- 11.5. Commonly used structural steel sections
- ~~11.6. Re-inforcing steel—types, chemical composition~~
- ~~11.7. Weights of tor steel per meter length of rods of various diameters~~
- ~~11.8. Tests on Metals~~

## **12. Surface Protective Materials**

- 12.1. Introduction
- 12.2. Paints and Types of paints
- 12.3. Functions of paints
- 12.4. Ingredients of paint
- 12.5. Characteristics of good paint
- 12.6. Varnishes
  - 12.6.1. Ingredients of varnish
  - 12.6.2. Types of varnishes
- ~~12.7. French Polish~~

## **13. Miscellaneous Material**

- 13.1. Glass
- ~~13.2. Adhesives~~
- 13.3. Asbestos
- 13.4. Thermocole
- 13.5. Plaster of Paris
- ~~13.6. Fibre Reinforced concrete~~
- ~~13.7. Wall Paper~~
- 13.8. P.V.C.
- 13.9. Bitumen and Tar
- 13.10. Aluminium

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No.</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	
2	Unit-2	2.6. Different types of surface finishes 2.7. Introduction of aggregates – grading of aggregates
3	Unit-3	3.4. Field tests of good bricks 3.7. I.S.I. Specification for bricks 3.8. Special Forms of Bricks
4	Unit-4	4.5. Glazing 4.6. Porcelain
5	Unit-5	5.6. Quick lime
6	Unit-6	6.5. Tests for cement as per I.S.I. 6.5.1. Fineness test by sieving 6.5.2. Consistency test 6.5.3. Initial and Final setting times test 6.5.4. Compressive strength test
7	Unit-7	
8	Unit -8	8.4. Precautions in use of Mortars.
9	Unit -9	9.4. Proportions and uses of different grades of concrete. 9.6. Pre-cast concrete 9.12. Compaction of concrete - usage of vibrators 9.12.1. Types of vibrators 9.14. Workability of concrete - slump cone test 9.14.1 Ready Mix concrete.
10	Unit -10	10.2. Defects in timber
11	Unit -11	11.6. Re-inforcing steel – types, chemical composition 11.7. Weights of tor steel per meter length of rods of various diameters 11.8. Tests on Metals
12	Unit -12	12.6. Varnishes 12.6.1. Ingredients of varnish 12.6.2. Types of varnishes 12.7. French Polish
13	Unit -13	13.2. Adhesives 13.6. Fibre Reinforced concrete 13.7. Wall Paper

**CONSTRUCTION TECHNOLOGY**  
**II YEAR**  
**PAPER I : CONSTRUCTION PRACTICE (THEORY)**

Periods/ Week: 4

Periods/ Year: 110

**TIME SCHEDULE**

S. NO.	TOPICS	No. Of periods	Weightage of marks	No. Of short questions	No. Of essay questions
1	Introduction	5	-	-	-
2	Foundations	15	8	1	1
3	Masonry work (a) Stone Masonry (b) Brick Masonry	15	14	1	2
4	Openings (a) Doors & Windows (b) Ventilators	5	6	-	1
5	Lintels and sunshades	5	2	1	-
6	Floors	10	8	1	1
7	Roofs	10	8	1	1
8	Stairs and Stair Cases	10	4	2	-
9	Form work	10	6	-	1
10	Scaffolding, shoring and under pinning	6	2	1	-
11	Carpentry and Joinery	6	2	1	-
12	Surface Finishing	5	2	1	-
13	Basic knowledge of equipment and construction machinery	8	6	-	1
	Total	110	68	10	8

**Detailed Syllabus :**

**4.1 Introduction :**

- 1.1. Classification of Buildings as per NBC - Component parts of a building

**2. Foundations :**

- 2.1. Definition
- 2.2. Functions of Foundations
- 2.3. Shallow and deep foundations ( Definitions )
- 2.4. Bearing capacity of soil
- 2.5. Essential requirements of good foundation
- 2.6. Classification of foundations
  - 2.6.1. Raft foundations
- 2.7. Construction details of spread footing
  - 2.7.1. Foundation for walls
  - 2.7.2. Masonry and concrete pillars
  - 2.7.3. Stepped foundations
- 2.8. Causes and importance of insecticides, pesticides and their treatments
- 2.9. Causes of failure of foundations and remedial measures

**3. Masonry**

- 3.1. Stone masonry
  - 3.1.1. Definition
  - 3.1.2. Material required for stone masonry
  - 3.1.3. Classification of stone Masonry( mention names)
  - 3.1.4. Rubble and Ashlar masonry.
  - 3.1.5. Tools required for stone masonry
  - 3.1.6. Types of joints in stone masonry
  - 3.1.7. Supervising points to be observed in stone masonry.
- 3.2. Brick masonry
  - 3.2.1. Definition
  - 3.2.2. Types of brick masonry
  - 3.2.3. English Bond - Flemish bond 1,11/2 2 Brick walls
  - 3.2.4. Defects in brick masonry
  - 3.2.5. Structures in brick masonry
  - 3.2.6. Tools required.

3.2.7. Supervising points to be observed in brick masonry.

#### **4. Openings**

4.1. Doors and Windows

4.1.2. General Terms

4.1.3. Types of Doors

4.1.4. Types of windows

4.1.5. Fixtures and fastenings for doors and windows.

4.2. Ventilators

4.2.1. ~~Types of ventilators—Fixed, Swing.~~

#### **5. Lintels and Sun-shades**

5.1. Types of Lintels

5.2. ~~Definition of sun shade~~

#### **6. Floors**

6.1. General terms

6.2. Types of floors

6.3. ~~Materials required for Cement concrete, Terrazzo, Mosaic, Marble and Stone slab floors~~

6.4. Method of construction of Cement Concrete, Mosaic, Terrazzo and Marble floors.

#### **7. Roofs**

7.1. Definition

7.2. Classification of Roofs - Pitched roofs - King post, Queen Post

7.3. Steel Trusses –

7.4. Roof Covering Material for pitched roofs -Flat Roof - R.C.C. roof

7.5. ~~Tools required to fix AC sheet GI sheet and Roof covering~~

7.6. Methods for fixing of AC sheet

7.7. General requirements

7.8. ~~Weather proof course on R.C.C. roof.~~

#### **8. Stairs and Staircases**

8.1. Technical terms

8.2. Characteristics of a good Stair

8.3. Types of Stairs - Straight, Quarter turn, half turn, Doglegged, Open well, ~~Bifurcated and Spiral stairs.~~

#### **9. Form Work**

9.1. Requirement of Form work

9.2. Material used for Form work

9.3. Removal of Form work

9.4. ~~Failure of Form work~~

9.5. Form work for - Column, Footing, Columns and Stairs

#### **10. Scaffolding, shoring and under pinning**

10.1. Definition

10.2. Types of scaffolding

10.3. ~~Shoring and under pinning~~

#### **11. Carpentry and Joinery**

11.1. Technical terms

11.2. Classification of Joints

11.3. Tools used in carpentry

#### **12. Surface Finishing**

12.1. Plastering

12.1.1. Purpose

12.1.2. Types of Plastering

12.2. Procedure of plastering

12.3. Pointing

12.3.1. Purpose

12.3.2. Types of Pointing

12.4. Painting

12.4.1. ~~Method of Painting new and old surfaces—wood and metal surfaces~~

#### **13. Basic Knowledge of Equipment and Construction Machinery**

13.1. Bull dozers- Concrete Mixers- Cranes-Pulley Blocks- Pumps- ~~Winches-Excavators etc.~~

**Note :** Latest Developments on this subject should be noted from time to time

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No.</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	
2	Unit-2	2.7.3. Stepped foundations 2.8. Causes and importance of insecticides, pesticides and their treatments 2.9. Causes of failure of foundations and remedial measures
3	Unit-3	3.1.5. Tools required for stone masonry 3.1.6. Types of joints in stone masonry 3.2.5. Structures in brick masonry –
4	Unit-4	4.2. Ventilators 4.2.1. Types of ventilators - Fixed, Swing.
5	Unit-5	5.2. Definition of sun shade
6	Unit-6	6.3. Materials required for Cement concrete, Terrazzo, Mosaic, Marble and Stone slab floors
7	Unit-7	7.5. Tools required to fix AC sheet GI sheet and Roof covering 7.8. Weather proof course on R.C.C. roof.
8	Unit -8	Bifurcated and Spiral stairs.
9	Unit -9	9.4. Failure of Form work
10	Unit -10	10.3. Shoring and under pinning
11	Unit -11	
12	Unit -12	12.4.1. Method of Painting new and old surfaces - wood and metal surfaces
13	Unit -13	13.1 Winches- Excavators etc.

**MECHANICAL ENGINEERING TECHNICIAN  
FIRST YEAR**

**PAPER-II MECHANICAL TECHNOLOGY [THEORY]**

**PERIODS PER WEEK : 4**

**PERIODS PER YEAR : 135**

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
1.	Thermo Dynamics	10	04	2	Nil
2.	Laws of Thermo dynamics	8	02	1	Nil
3.	Laws of perfect gases	15	10	2	1
4.	Thermo dynamics process in gases	21	08	1	1
5.	Fuels and combustions	20	08	1	1
6.	Air standard cycles	10	08	1	1
7.	I.C. Engines	36	20	4	2
8.	Pumps	15	08	1	1
	<b>Total</b>	<b>135</b>	<b>68</b>	<b>13</b>	<b>7</b>

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
1.	<b>Thermo Dynamics :</b> 1.1 Introduction 1.2 Thermo dynamic system, 1.3 Types of thermo dynamic systems, 1.4 Properties thermodynamic systems, 1.5 definitions of properties like pressure (P) Volume (V) Temperature (T) Enthalpy, <del>Atmospheric pressure</del> , Internal Energy, specific heat.	10	04	2	Nil
2.	<b>Laws of Thermodynamics :</b> 2.1 Zeroth law of thermodynamics, 2.2 First law of thermodynamics, <del>2.3 Second law of thermo dynamics</del>	8	02	1	Nil
3.	<b>Laws of perfect gases :</b> 1.1 Introduction, <del>1.2 Brief Explanation of Boyles Law, Charles Law, Avagadro's Law, Joules law, Regnaults law,</del> 1.3 Characteristic of gas equation, 1.4 General gas equation	15	10	2	1
4.	<b>Thermo dynamics process in gases :</b> 4.1 Types of thermodynamic processes, 4.2 Constant volume process, <del>constant pressure process, constant temperature process, Adiabatic process, polytropic process,</del> 4.3 Equation for work done during the above processes and calculations of change of internal energy, 4.4 Evaluation of heat supplied or rejected during the process	21	08	2	1
5.	<b>Fuels and combustions :</b> 5.1 Introduction, 5.2 Types of fuels, solid fuels, liquid fuels, gaseous fuels, 5.3 Merits and demerits of liquid fuel, <del>5.4 Merits and demerits of gaseous fuels,</del> 5.5 Calorific value	20	08	2	1
6.	<b>Air standard cycles :</b> 6.1 Introduction, 6.2 Study of cornot cycle, Otto Cycle, <del>Diesel eyele,</del>	10	08	2	1



Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
	6.3 Comparison of Otto Cycle and <del>Diesel Cycle.</del>				
7.	<b>I.C. Engines :</b> 7.1 Heat Engines 7.2 Classification of engines 7.3 Classification of I.C. Engines, 7.4 Working principle of two stroke petrol and diesel engine, 7.5 Working principle of four stroke petrol and diesel engine, 7.6 Comparison between two stroke and four stroke cycle engine, <del>7.7 Comparison between petrol &amp; diesel engine,</del> <del>7.8 Carburetor, fuel injection pump.</del>	36	20	2	2
8.	<b>Pumps :</b> 8.1 Functions of a pump, 8.2 Classification of pumps, 8.3 Applications of pump, 8.4 Working of centrifugal, reciprocating, jet, submersible pumps	15	08	1	1
	<b>Total</b>	<b>135</b>			

<i>S.No.</i>	<i>Unit deleted</i>	<i>Unit added</i>
<i>1.</i>	<i>Sprinklers</i>	<i>FIP Pump, Carburetor</i>

#### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	<del>1..5 specific heat.</del> <del>Atmospheric pressure</del>
2	Unit-2	<del>2.3 Second law of thermo dynamics</del>
3	Unit-3	<del>3.2 Avagadro's Law, Joules law, Regnaults law,</del>
4	Unit-4	<del>4.2 constant pressure process, constant temperature process, Adiabatic process, polytropic process,</del>
5	Unit-5	<del>5.4 Merits and demerits of gaseous fuels,</del>
6	Unit-6	<del>6.2 Diesel cycle,</del>
7	Unit-7	<del>7.7 Comparison between petrol &amp; diesel engine,</del> <del>7.8 Carburetor, fuel injection pump.</del>
8	Unit -8	

## MECHANICAL ENGINEERING TECHNICIAN

### FIRST YEAR

#### PAPER-III ELECTRICAL TECHNOLOGY THEORY

**PERIODS PER WEEK : 4**

**PERIODS PER YEAR : 135**

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
1.	Safety	7	2	1	
2.	Basic Electricity	22	08	1	1
3.	Work Power and Energy	12	08	1	1
4.	Conductors and Insulators	12	02	1	
5.	Electrical Accessories	12	08	1	1
6.	Magnetism and Electro Magnetism	22	08	1	1
7.	Electro Magnetic Induction	7	08	1	1
8.	Electrical Machines	17	08	1	1
9.	Electrical Appliances	12	08	1	1
10.	Batteries	12	08	1	1
	<b>Total</b>	<b>135</b>	<b>68</b>	<b>10</b>	<b>8</b>

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
1.	<b>Safety :</b> 1.1 Introduction, 1.2 Safety precautions, 1.3 Removal from Electric Shock, <del>1.4 Methods of Artificial Respiration,</del> 1.5 Hand tools of an electrician	7	2	1	Nil
2.	<b>Basic Electricity :</b> 2.1 Introduction, 2.2 Electric Potential, 2.3 Potential Difference, 2.4 Resistance, 2.5 Current, 2.6 Ohm's Law, 2.7 Problems on ohm's Law, 2.8 Laws of Resistance, <del>2.9 Specific Resistance</del> <del>2.10 Specific conductivity,</del> 2.11 Effects of Temperature on Resistance, 2.12 Series and parallel connections of Resistance, 2.13 Simple problems on series and parallel, <del>2.14 Kirchoff's Laws,</del> <del>2.15 Problems on Kirchoff's Law,</del> <del>2.16 Wheat stone Bridge</del>	22	08	1	1
3.	<b>Work, Power and Energy :</b> 1.5 Work and its units, 1.6 Power and its units 1.7 Energy and its units, 1.8 Electrical power, 1.9 Electrical Energy, <del>1.10 Simple problems on Monthly electricity bills.</del>	12	08	1	1
4.	<b>Conductors and Insulators :</b> 4.1 Conductors, 4.2 Properties of conductors, 4.3 Insulators, 4.4 Properties of insulators, 4.5 Semi conductors, <del>4.6 Grading of conducting wires.</del>	12	02	1	Nil
5.	<b>Electrical Accessories :</b>	12	08	1	1

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
	5.1 Electrical Accessories and their uses, 5.2 Switches and their types, 5.3 Lamp holders and their types, 5.4 Ceiling rose, 5.5 Pin plug, <del>5.6 Socket and adapter,</del> <del>5.7 Fuses,</del> 5.8 Wires and cables.				
6.	<b>Magnetism and Electro Magnetism :</b> 6.1 Some important Definitions of Magnetism, 6.2 Magnetic field, 6.3 Magnetic poles, 6.4 Magnetic lines of force, 6.5 Magnetic flux, 6.6 Flux Density, 6.7 Magneto motive force, <del>6.8 Reluctance,</del> 6.9 Care and maintenance of magnets, <del>6.10 Magnetic field around a current carrying conductor,</del> <del>6.11 Comparison between Electric and Magnetic Circuits.</del>	22	08	1	1
7.	<b>Electro Magnetic Induction :</b> 7.1 Faraday's Laws of Electromagnetic Induction, <del>7.2 Lenz's Law,</del> 7.3 Flemings Right hand rule, 7.4 Self inductance, 7.5 Mutual Inductance.	7	08	1	1
8.	<b>Electical Machines :</b> 8.1 D.C Generator, 8.2 Principle of working, 8.3 Parts of Generator, 8.4 D.C. Motors, 8.5 Principle of Working, 8.6 Parts of Motor, 8.7 Flemings Left hand and Right hand rule, <del>8.8 Trouble shooting in an electric motor.</del>	17	08	1	1
9.	<b>Electrical Appliances :</b> <del>9.1 Immersion Rod,</del> 9.2 Electric Iron, 9.3 Electric stove, <del>9.4 Geyser,</del> 9.5 Water Heater, 9.6 Ceiling Fan	12	08	1	1
10.	<b>Batteries :</b> 10.1 Batteries, 10.2 Cell, 10.3 Lead-Acid Cell Construction, 10.4 Applications of Lead-Acid Cells, <del>10.5 Care and Maintenance of Cells,</del> <del>10.6 Charging and discharging of Batteries.</del>	12	08	1	1
	<b>Total</b>	135			

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	1.4 Methods of Artificial Respiration,
2	Unit-2	2.9 Specific Resistance 2.10 Specific conductivity, 2.14 Kirchoff's Laws, 2.15 Problems on Kirchoff's Law, 2.16 Wheat stone Bridge
3	Unit-3	3.10 Simple problems on Monthly electricity bills.
4	Unit-4	4.6 Grading of conducting wires.
5	Unit-5	5.6 Socket and adopter, 5.7 Fuses,
6	Unit-6	6.8 Reluctance, 6.10 Magnetic field around a current carrying conductor, 6.11 Comparison between Electric and Magnetic Circuits.
7	Unit-7	7.2 Lenz's Law,
8	Unit -8	8.8 Trouble shooting in an electric motor.
9	Unit -9	9.1 Immersion Rod, 9.4 Geyser,
10	Unit -10	10.5 Care and Maintenance of Cells, 10.6 Charging and discharging of Batteries.

**MECHANICAL ENGINEERING TECHNICIAN  
SECOND YEAR**

**PAPER-I ENERGY SOURCES & POWER PLANT [THEORY]**

**PERIODS PER WEEK: 4**

**PERIODS PER YEAR: 110**

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
1.	Energy Sources	5	2	1	Nil
2.	Solar Energy	20	10	--	2
3.	Wind Energy	5	4	2	
4.	Bio Energy	15	10	--	2
5.	Tidal Energy	8	4	2	
6.	Fuel Cells	8	4	2	
7.	Steam Boiler	15	10	1	2
8.	Steam Nozzle	10	10	2	1
9.	Steam Turbine	15	10	2	1
10.	Steam Condenser	9	04	2	
	<b>Total</b>	<b>110</b>			

Sl. No.	Name of the Unit	No. of Periods
1.	Energy Sources : 1.1 Introduction to Energy 1.2 Different forms of Energy <del>1.3 Energy Sources and their availability</del> <b>Primary secondary Energy sources</b> 1.4 Conventional and Non-Conventional sources of energy	5
2.	Solar Energy : 2.1 Introduction 2.2 Solar Constant <del>2.3 Solar Radiation at the Earth's Surface</del> <b>Diffuse, Global Radiation</b> 2.4 Instruments for measuring Solar Radiation and Sun shine 2.5 Solar Energy Utilisation - <del>Basic ideas about the pre-historic ways of using solar energy.</del> 2.6 Solar energy applications – Solar collectors, solar cooker, solar water heater, solar distillation, <del>solar pumping, electricity from solar energy, solar photo voltaic, applications of solar photo voltaic system in Rural areas</del>	20
3.	Wind Energy : 1.1 Introduction 1.2 Classification of wind mills Principle of Wind Mill, Factors for wind floor 1.3 Horizontal wind mills, Vertical wind mills 1.4 Advantages and Disadvantages of wind energy	5
4.	Bio Energy : 4.1 Introduction, <del>History of Bio-gas</del> 4.2 Process of Bio-gas, generation-wet process, dry process. <del>4.3 Raw materials available for Bio-gas fermentation</del> <del>4.4 Selecting of site for installation of a Bio-gas plant</del> 4.5 Materials required for the construction of Bio-gas plant 4.6 Constructional Details of Bio-gas plant	15
5.	Tidal Energy : 5.1 Introduction <b>Classification, Double Besin, Use of sluice gates, Classification of Sluice Gates</b> 5.2 Components of Tidal Power Plant 5.3 Sinds tidal power plant 5.4 Advantages and imitations of tidal Power plant	8
6.	Fuel Cells : <b>Disadvantages of Fuel Cell</b> 6.1 Working principle 6.2 Bacar's High Pressure Fuel cell-construction details and working principle <del>6.3 Aluminium and fuel cell working principle</del>	8
7.	Steam Boilers : 7.1 Classification, function use or boilers <b>Firetube Boiler</b> <del>7.2 Cochran and Babcock Wilcox boilers</del>	15

8.	Steam Nozzles : Classification 8.1 Flow of steam through Nozzles, convergent Nozzle, Divergent nozzle. <b>Frictionless flow with Mollover Chart</b>	10
9.	Steam Turbines : 9.1 <del>Classification, working principle of impulse &amp; reaction turbines with line diagrams</del> <b>Comparison between Impulse &amp; Reaction</b>	15
10.	Steam condenser : 10.1 Function Advantages & Dis advantages	9
	<b>Total</b>	<b>110</b>

**NOTE: SUBJECT NONCONVENTIONAL ENERGY SOURCES RENAMED AS ENERGY SOURCES AND POWER PLANT.**

#### DELETED TOPICS

S .NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	1.3 Energy Sources and their availability <b>Primary secondary Energy sources</b>
2	Unit-2	2.3 Solar Radiation at the Earth's Surface <b>Diffuse, Global Radiation</b> 2.6 solar pumping, electricity from solar energy, solar photo voltaic, applications of solar photo voltaic system in Rural areas
3	Unit-3	
4	Unit-4	4.3 Raw materials available for Bio-gas fermentation 4.4 Selecting of site for installation of a Bio-gas plant
5	Unit-5	
6	Unit-6	6.3 Aluminum and fuel cell working principle
7	Unit-7	7.2 Cochran and Babcock Wilcox boilers
8	Unit -8	
9	Unit -9	9.1 Classification, working principle of impulse & reaction turbines with line diagrams
10	Unit -10	

**MECHANICAL ENGINEERING TECHNICIAN  
SECOND YEAR**

**PAPER-III REFRIGERATION AND AIR CONDITIONING [THEORY]**

**PERIODS PER WEEK: 4**

**PERIODS PER YEAR: 110**

Sl. No.	Name of the Unit	No. of Periods	Weightage in Marks	Short answer questions	Essay type questions
1.	Fundamentals of Refrigeration	10	10	2	1
2.	Refrigeration equipment	25	16	2	2
3.	Refrigeration applications	15	8	1	1
4.	Fundamentals of Air conditioning	10	10	2	1
5.	Air conditioning equipment	25	8	1	1
6.	Air conditioning applications	15	8	1	1
7.	Servicing and maintenance of Refrigeration and air conditioning equipment	10	8	1	1
		110	68	10	8

Sl. No.	Name of the Unit	No. of Periods
1.	Fundamentals of Refrigeration : Introduction 1) Methods of refrigeration Ice refrigeration Dry ice refrigeration <del>Air expansion refrigeration</del> <del>Liquid gas refrigeration</del> Vapor compression refrigeration	10
2.	Refrigeration equipment : 2.1 Compressors 2.2 Condensers & cooling towers 2.3 Evaporators 2.4 Expansion devices	25
3.	Refrigeration applications : Definition of refrigeration Unit of refrigeration, Domestic refrigerator, Water cooler, <del>Ice plant, Cold storage</del>	15
4.	Fundamentals of Air conditioning : 4.1 Introduction 4.2 Meaning of air conditioning 4.3 Psychrometry & its properties 4.4 Dry air 4.5 Moist air <del>4.6 Dry bulb temperature</del> 4.7 wet bulb temperature	10
5.	Air conditioning equipment : 5.1 Fans & Blowers 5.2 Ducts 5.3 Supply air outlets 5.4 Return air outlets <del>5.5 Filters &amp; dust collectors</del> <del>5.6 Heating and cooling coils</del>	25
6.	Air conditioning applications : 6.1 Air cooler 6.2 Window air conditioner <del>6.3 Split air conditioner</del> <del>6.4 Packaged air conditioner</del>	15
7.	Servicing and maintenance of Refrigeration and air conditioning equipment:	10
		<b>110</b>

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No.</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	Air expansion refrigeration Liquid gas refrigeration
2	Unit-2	
3	Unit-3	Ice plant, Cold storage
4	Unit-4	4.6 Dry bulb temperature
5	Unit-5	5.5 Filters & dust collectors 5.6 Heating and cooling coils
6	Unit-6	6.3 Split air conditioner 6.4 Packaged air conditioner
7	Unit-7	



**MECHANICAL ENGINEERING TECHNICIAN  
FIRST YEAR  
PAPER-II MECHANICAL TECHNOLOGY [THEORY]**

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. Explain Isolated system.
2. Explain zeroth law of Thermodynamics.
3. Define Boyle's law.
4. Draw P-V diagram of constant volume process
5. What is meant by the term fuel? What are its constituents ?
6. Write types of fuels
7. What is air standard cycle?
8. Define Heat Engine.
9. Explain “scavenging”
10. What is priming?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Explain the characteristic gas equations
12. Explain constant volume process and derive an expression for work done, change in Internal Energy, Heat supplied and relation between P, V and T.
13. Explain briefly about liquid fuels
14. Explain merits and demerits liquid fuels.
15. Derive an expression for thermal efficiency of Carnot cycle
16. Derive an expression for thermal efficiency of otto cycle
17. With a neat Sketch explain the working principle of 2-Stroke petrol engine
18. With a neat Sketch explain the working principle of 4-stroke Diesel engine.
19. Explain in detail the classification of pumps
20. With a neat sketch working of submersible pump.

**MECHANICAL ENGINEERING TECHNICIAN  
FIRST YEAR  
PAPER-III ELECTRICAL TECHNOLOGY THEORY**

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. Mention the hand tools of an Electrician
2. Define network.
3. What is Electric power & Give units.
4. Define semiconductor. Give examples.
5. What are the types of Switches?
6. Define magnetic axis.
7. State Faraday's first law of electromagnetic Induction:
8. What is DC Generator?
9. Mention the parts of ceiling fan.
10. Distinguish between cell and battery.

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Explain the different methods of artificial respiration.
12. Derive an expression for an equivalent resistance, when three resistances are connected in parallel
13. Write short notes on (i) work (ii) power (iii) Energy
14. What are conductors? Give the general properties of Conductors.
15. What are the types of lamp holders and explain.
16. Explain about care and maintenance of magnets.
17. State and explain Faraday's laws of Electromagnetic Induction.
18. Describe the parts of the practical motor
19. Explain the working principle of Electric Iron with the help of neat Sketch
20. What are the applications of Lead-Acid cell?

**MECHANICAL ENGINEERING TECHNICIAN  
SECOND YEAR  
PAPER-I ENERGY SOURCES & POWER PLANT [THEORY]**

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. What are the conventional Sources of energy?
2. Define solar constant.
3. What are the disadvantages of wind power?
4. What the types of Bio-gas plant
5. Define tidal energy
6. Write the advantages of fuel cell.
7. What are the basic elements of boiler?
8. What is divergent nozzle?
9. What are the disadvantages of steam turbines?
10. What is the function of steam condense?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. What are the non-conventional energy sources and explain briefly
12. Explain solar collectors with a neat sketch
13. Explain briefly about vertical wind mill with a neat sketch.
14. Explain Pragathi design bio-gas plank with a neat sketch.
15. Explain briefly about main components of Tidal power plant.
16. Explain briefly components of Fuel cell.
17. Explain briefly about working principle of cochran boiler.
18. Explain briefly about the super saturate, Steam flow in a Nozzle.
19. Explain briefly about Reaction steam Turbine with a neat sketch
20. Explain briefly the function of steam Condenser with a neat sketch.

**MECHANICAL ENGINEERING TECHNICIAN  
SECOND YEAR  
PAPER-III REFRIGERATION AND AIR CONDITIONING [THEORY]**

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. Define Refrigeration.
2. What is vapor compression Refrigeration System?
3. State the function of Condenser and classify the condensers.
4. State the function of capillary Tube
5. Mention the parts of water cooler
6. Write the classification of Air-Conditioning,
7. What is Dry Air?
8. State the function of Fan.
9. What are the main features of Air Cooler?
10. How the leakage test conducted for Ammonia Refrigerated?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write short notes on Dry Ice Refrigeration
12. Explain the working Shell and Tube condenser
13. Explain the working of Double tube condenser
14. Draw a neat sketch of water cooler and explain its working
15. Explain the various types of Axial Fans with a neat sketch
16. Describe various types of Duct system used to supply conditioned air to outlets.
17. Explain the working of Air Cooler with a neat sketch
18. Describe the working of window Air-conditioner with a neat sketch
19. Describe the different methods for leak testing of the following Refrigerants
  - a. Ammonia b. Freon c. Sulphur Dioxide
20. Explain any six trouble shooting in Refrigeration system.

**TOURISM & TRAVEL TECHNIQUES  
FIRST YEAR**

**PAPER-II: TOURISM GEOGRAPHY, CULTURAL HERITAGE –I (THEORY)  
PERIODS/WEEK : 05 PERIOD/YEAR-135**

S. No.	Name of Unit	No of Periods	Weightage in Marks	Short Answer Questions	Essay Questions
1	Introduction to Geography	20	10	2	1
2	Indian Geography	30	16	2	2
3	A.P Geography and Tourism Resources	25	16	2	2
4	Outline of Indian History	20	10	2	1
5	Cultural Heritage of India	20	10	2	1
6.	Managing Heritage	20	08	1	1
	Total	135			

**COURSE CONTENTS**

1. INTRODUCTION GEOGRAPHY: - Meaning of Geography, Importance of Geography for Tourism, Climate variations, Study of Maps, Longitude, & Latitude, ~~International Date Line~~, Time variations and Time Difference.
2. INDIAN GEOGRAPHY: - Physical and Political Features Of Indian Geography, ~~Various Climate Condition~~ and Forests.
3. AP GEOGRAPHY & TOURISM RESOURCES: - ~~Physical And Political Features Of Andhra Pradesh Geography~~, Various Climate Stages Of AP, Various Natural And Man- Made Tourism Resources Of Andhra Pradesh.
4. OUTLINES OF INDIAN HISTORY –Evolution Of Indian Culture, AP –~~Brief History And Culture Features~~.
5. CULTURAL HERITAGE OF INDIA-Heritage Meaning and Importance; Heritage Site, ~~World Heritage Site: Criteria for Selection~~, Monuments and Architect.
6. MANAGING HERITAGE –How To Manage Heritage. Protection Conservation & Preservation of Cultural Heritage, Marketing For Heritage.

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	International Date line
2	Unit-2	Various Climate Condition
3	Unit-3	Physical And Political Features Of Andhra Pradesh Geography,
4	Unit-4	AP –Brief History And Culture Features.
5	Unit-5	World Heritage Site: Criteria For Selection
6	Unit-6	

# TOURISM & TRAVEL TECHNIQUES

## I YEAR

### PAPER III: TOURISM PRODUCTS-I (THEORY)

PERIODS/WEEKS: 05

PERIODS/YEAR- 135

S. NO.	NAME OF THE UNIT	NO. OF PERIODS	WEIGHTAGE AND MARKS	SHORT ANSWER QUESTIONS	Essay Question
1	Introduction to tourism products	20	10	2	1
2	Nature based tourism products	20	16	2	2
3	Culture based tourism products-I	30	16	2	2
4	Culture based tourism products-II	25	10	2	1
5	Recreation based tourism products	20	10	2	1
6	Adventure based products	20	08	1	1
		135			

#### COURSE CONTENTS:

1. Introduction to tourism products: - meaning and definition of tourism products, ~~characteristics of tourism products~~, different types of tourism products
2. Nature based products: - Various tourism products based on climate, Landscape, ~~mountains~~, Rocks, valleys, caves, deserts, ~~Rivers, lakes~~, beaches, waterfalls, wildlife centaury, and National parks.
3. Culture based products part-I : - Historical places, ~~Archaeological sites~~, Heritage sites, Museums, Art Galleries.
4. Culture based products part- II: - ~~Religious and spirituals centres~~, Dance forms, ~~Music~~, Fair & Festivals, Folk arts, tourist festivals.
5. Recreation based products: - ~~Duty free shops, malls~~, cinema halls, Theatre, Theme parks, Amusement parks, Resorts.
6. Adventure based products: - Various land based sports, ~~water sports~~, Air - sports

#### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	characteristics of tourism products
2	Unit-2	mountains, Rivers, lakes
3	Unit-3	Archaeological sites,
4	Unit-4	Religious and spirituals centres
5	Unit-5	Duty free shops, malls
6	Unit-6	water sports

**TOURISM AND TRAVEL TECHNIQUES**  
**APPLICATION OF COMPUTER FOR TOURISM & TRAVEL**  
**PAPER-III- THEORY (2<sup>ND</sup> YEAR)**

Periods /Week : 05

Periods /year : 115

S. No.	Name of the Unit	No. of periods
1.	Introduction to computer	10
2.	MS-Office	30
3.	MS-Excel /Power point	30
4.	Net working	10
5.	Internet / CRS	30

**Course contents:**

1. Computer Lab – Introduction to computers.
2. MS-Word- MS-word documents preparation, using word commands.
3. MS-Excel / MS-power point – preparation of excel sheets; excel command practices, power point presentation, and power point commands practices.
4. Net working – understudy LAN, Wan.
5. Internet /CRS- Browsing Internet, Google search, creating e-mail-ID, CRS- practices.

Unit 1 :- Introduction to Computers

- 1.1. Introduction
- 1.2. Meaning and Definition of Computer
- 1.3. Historical Evolution of Computer
- 1.4. Computer Terminology – Abbreviations & Definitions
- 1.5. Components of Computers
- ~~1.6. Types of Computers~~
- ~~1.7. Characteristics of Computers~~
- 1.8. Uses of Computers
- ~~1.9. Role of Computers/ IT in different service sectors~~
- 1.10. The Applications of Computers on Tourism Industry

Unit 2 :- MS Office

- 2.1 Introduction to MS- Office
- 2.2 Origin of MS- Office
- 2.3 Components of MS- Office
- ~~2.4 Main Features of MS Office~~
- 2.5 Importance & Advantages of MS- Office
- 2.6 Introduction of MS Word
- ~~2.7 MS- Word Document Preparation~~
- 2.8 Using Word Commands

Unit 3: Introduction to MS- Excel

- 3.1 Components of MS-Excel
- 3.2 Uses and Advantages of MS Excel
- 3.3 Main functions of MS-Excel
- 3.4 Operation Procedures of Excel
- ~~3.5 Introduction to MS- PowerPoint~~
- 3.6 Preparation of MS- Excel Sheets
- ~~3.7 Excel Command Practices~~
- ~~3.8 PowerPoint Presentation~~
- 3.9 Power Point Commands

Unit 4:- Networking

- 4.1 Introduction to Networking
- 4.2 Types of Networking
- 4.3 Network Topology
- ~~4.4 Understanding LAN~~
- 4.5 Main features of LAN
- 4.6 LAN Networks
- 4.7 Understanding WAN
- ~~4.8 Networks of WAN~~

Unit 5 :- Internet & CRS

- 5.1. Introduction to Internet
- 5.2. History of Development of Internet
- 5.3. Advantages & Disadvantages of Internet
- 5.4. Functions of Internet
- 5.5. Role of Internet in Tourism Industry
- ~~5.6. Browsing Internet~~
- ~~5.7. Google Search~~
- 5.8. E-Mail
- 5.9. Computer Reservation System & Practices

**DELETED TOPICS**

<b>S .NO</b>	<b>Unit No.</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	1.6. Types of Computers 1.7. Characteristics of Computers 1.9. Role of Computers/ IT in different service sectors
2	Unit-2	2.4 Main Features of MS Office 2.7 MS- Word Document Preparation
3	Unit-3	3.5 Introduction to MS- PowerPoint 3.7 Excel Command Practices 3.8 PowerPoint Presentation
4	Unit-4	4.4 Understanding LAN 4.8 Networks of WAN
5	Unit-5	5.6. Browsing Internet 5.7. Google Search



**FASHION GARMENT MAKING**  
**1<sup>st</sup> YEAR**  
**PAPER- I FUNDAMENTALS OF GARMENT CONSTRUCTION**  
**THEORY**

Periods / week: 05

Periods / year 135

S.No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
1. 1	<b>Sewing equipment and tools:</b> Measuring, Marking, Cutting, <del>General tools and Pressing tools</del> — their selection, use and care	10	2	1	
2.	<b>Sewing machine:</b> Types of sewing machines- domestic models, Parts and functions, Threading the machine, <del>Machine adjustments—stitch length,</del> tension, changing the needle, minor defects and repair, Care of machine- cleaning and oiling	15	8	1	1
3.	<b>Hand sewing techniques:</b> Temporary stitches- uneven and even; Permanent stitches- running, <del>back stitch, run and back;</del> hemming- slip, knotted hemming; suitability of stitches for various fabric types	15	8	1	1
4.	<b>Seams and seam finishes:</b> Importance, and types- Plain, French, <del>Flat and fell,</del> Lapped, <del>Bound, Counter seam;</del> suitability of seams to various fabric types and end uses Seam finishes- importance; types - Pinking, Double stitch, Edge stitch finish; suitability on different fabrics	15	8	1	1
5.	<b>Creating fullness in garments :</b> Methods: Tucks- Pin, Shell, Cross; Pleats – Knife, Box, Inverted box: Gathering ; <del>Shirring;</del> Ruffles and <del>godets;</del> Smocking – preparation and stitches used	15	8	1	1
6.	<b>Placket Openings:</b> Standards of a good placket; Types – Continuous, Bound and faced, <del>Zipper, Tailored</del>	15	8	1	1
7.	<b>Methods of finishing necklines</b> Bias strip and its preparation; Application of bias facing, bias binding and <del>fitted facing.</del>	15	8	1	1
8.	<b>Types of Fasteners and their suitability to different openings</b> Types -Buttons and button holes; Hooks and eyes- <del>metal, thread;</del> Press buttons; Fancy buttons;	15	8	1	1

S.No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
	Suitability, Positioning, stitching of fasteners				
9.	<b>Importance of paper patterns</b> Types of paper patterns, contents of patterns and its uses	10	8	1	1
10.	<b>Body measurements :</b> <del>Principles and rules in Measuring ;</del> <del>Direct and Standard system of measurements</del>	10	2	1	

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	General tools and Pressing tools
2	Unit-2	machine, Machine adjustments- stitch length,
3	Unit-3	back stitch, run and back;
4	Unit-4	Flat and fell, Bound, Counter seam;
5	Unit-5	Shirring, and godets
6	Unit-6	Zipper, Tailored
7	Unit-7	fitted facing.
8	Unit -8	metal, thread; Positioning, stitching
9	Unit -9	
10	Unit -10	Principles and rules in ,Direct and Standard system of measurements

**FASHION GARMENT MAKING**  
**1<sup>st</sup> YEAR**  
**PART- B – VOCATIONAL SUBJECTS**  
**PAPER- II FUNDAMENTALS OF TEXTILES**  
**THEORY**

Periods / week: 05

Periods / year 135

Time Schedule, Weightage & Blue Print

S.No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
1.	<b>Textile terms and definitions:</b> Fiber, Yarn, Filament, Staple, Count, <del>Denier</del> , <del>Thermoplastic</del> , Elasticity, <del>Hydrophilic</del> , <del>Hydrophobic</del> , Elongation, Absorbency, Luster, Heat Sensitivity, Solubility, Resiliency, <del>Cohesiveness</del>	15	2	1	
2.	<b>Classification of fibers:</b> Natural,- vegetable, animal, <del>mineral</del> ; Manmade-cellulosic, <del>synthetic</del> Classification by length – staple, filament	15	8	1	1
3.	<b>Processing cotton fiber and its properties:</b> Processing cotton - Opening, Blending, Carding, Combing, Drawing and <del>Spinning</del> ; <del>Properties-physical, Chemical</del>	15	8	1	1
4.	<b>Processing wool fiber and its properties</b> Types of wool- Pulled, Lamb's Wool; <del>Processing—Shearing, Sorting, Scouring, Oiling, Dyeing</del> ; Properties-Physical, Chemical	15	8	1	1
5.	<b>Processing silk fiber and its properties:</b> <del>History of silk; Cultivation of Silk Worm;</del> Processing- Sorting, Softening, Reeling, Spinning; Properties-Physical, Chemical	15	8	1	1
6.	<b>Origin, manufacture and properties of manmade cellulosic-Rayon fiber</b> Manufacture ; Processing- Spinning, <del>Dyeing</del> ; Properties-Physical, <del>Chemical</del>	15	8	1	1
7.	<b>Origin, manufacture and properties of manmade synthetic fiber-Polyester</b> Manufacture ; <del>Processing—Spinning, dyeing</del> ; Properties-Physical, Chemical	15	8	1	1
8.	<b>Types of yarns :</b>	10	8	1	1

S.No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
	Classification – Simple, Double, Ply, Cord ; Novelty Yarns / <del>Fancy Yarns</del> Yarn twist, <del>yarn fineness</del>				
9.	<b>Fabric construction methods:</b> Major methods-Weaving, <del>Knitting</del> , Other methods -Felting, <del>Non woven, laces, nets</del>	10	8	1	1
10.	<b>Textile finishes :</b> Classification of finishes- mechanical, <del>chemical</del> ; Mechanical- Calendaring, Singeing, <del>Tentering</del> , Napping,; Chemical finishes- Bleaching, <del>Mercerizing, Burnt out</del>	10	2	1	

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	Denier, Thermoplastic, Hydrophilic, Hydrophobic, Elongation, Cohesiveness
2	Unit-2	mineral; synthetic
3	Unit-3	Spinning; Properties-physical, Chemical
4	Unit-4	Processing – Shearing, Sorting, Scouring, Oiling, Dyeing;
5	Unit-5	History of silk; Cultivation of Silk Worm
6	Unit-6	Dyeing; Chemical
7	Unit-7	Manufacture ; Processing- Spinning,
8	Unit -8	Fancy Yarns ,yarn fineness
9	Unit -9	Knitting, , Non woven, laces, nets
10	Unit -10	chemical; Tentering, Mercerizing, Burnt out

## FASHION GARMENT MAKING

1<sup>st</sup> YEAR

### PAPER-III FASHION AND APPAREL DESIGNING [THEORY]

Periods / week: 05

Periods / year 135

S.No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
1.	<b>Introduction to Design :</b> Elements of Designing - <del>Colour</del> , Line, Texture, <del>Shape</del> -Principles of Design - Balance, Rhythm, <del>Proportion</del> , Harmony, Emphasis	20	8	1	1
2.	<b>Colour and colour theory :</b> Colour charts -Prang colour chart; Value, Hue and Intensity; Tints, Shades; Colour harmonies- Monochromatic, Complementary, <del>Split Complementary</del> , Analogous, <del>Triad</del> ; Use of colour in designing	25	16	2	2
3.	<b>Introduction to elements of fashion :</b> Classification of fashion, Definition of fashion Fashion Terminology- Fashion, Style, Garment, Silhouette, <del>Avant Garde</del> , Fad, <del>Craze</del> , Classic, Couture, <del>Knock-Offs</del> ; Fashion cycle-importance and length of cycles Fashion theories- Trickle down, Bottom up, Trickle across; <del>Silhouettes and their types</del>	25	16	2	2
4.	<b>Designing Process :</b> Theme based - designing fashion illustrations, <del>Colours and Textures</del>	25	16	2	2
5.	<b>Designers of India :</b> Famous designers of India- any ten designers and their work for fashion industry	20	16	2	2
6.	<b>Fashion and fabric information :</b> Through different media like films, news papers, magazines, <del>fashion services</del> , <del>fashion advertisements</del> .	20	8	1	1

#### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	Colour, Shape, Proportion
2	Unit-2	Split Complementary, Triad
3	Unit-3	Avant Garde, Knock-Offs; Silhouettes and their types
4	Unit-4	Colours and Textures
5	Unit-5	
6	Unit-6	Fashion services, fashion advertisements.

# FASHION GARMENT MAKING

2<sup>nd</sup> YEAR

## PAPER-I ADVANCED DRESS DESIGNING [THEORY ]

Periods / week: 05

Periods / year 110

S. No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
1.	<b>Garment Making Principles :</b> Drafting, Draping and Flat pattern designing- Definition, advantages and disadvantages of each type	10	8	1	1
2.	<b>Handling methods for various fabrics</b> Handling of Chiffon, Georgette, <del>Pile fabrics, Velvets, Lace fabrics,</del> One way design fabrics, Satins, Fabric preparation techniques; Types of layouts and cutting methods.	10	8	1	1
3.	<b>Selection of Clothing :</b> Selection of fabrics and garment styles according to age, occasion, <del>figure type,</del> fashion, <del>colour</del> suitability for Children , Adolescents, Adults, <del>old age people.</del>	10	8	1	1
4.	<b>Types of Sleeves:</b> Basic sleeve and its adaptation into different sleeve types- Puff Sleeve and Its variations, Bell Sleeve, Bishop Sleeve, Kimono Sleeve <del>Raglan Sleeve,</del> Umbrella Sleeve, <del>Leg-O Mutton;</del> Suitability of sleeves types to figure types	20	10	2	1
5.	<b>Drafting Yokes :</b> Definition; Types of yokes. Selection of yoke design for different dresses, <del>Creating variety</del>	10	8	1	1
6.	<b>Drafting of Collars :</b> Introduction to different collar types; Terms used in collars ; <del>Creating variety in collar designs</del>	20	10	2	1
7.	<b>Pattern Grading :</b> Introduction to Grading, Grading Principles, Methods of Grading, <del>Grading Machine;</del> <del>Grading Procedure for Basic Slopers</del>	10	8	1	1
8.	<b>Automation in Garment Industry :</b> Importance, <del>Laying,</del> cutting, sewing and finishing equipment	20	8	1	1

### DELETED TOPICS

S .NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	advantages and disadvantages of each type
2	Unit-2	Pile fabrics, Velvets, Lace fabrics,
3	Unit-3	figure type, colour
4	Unit-4	Raglan Sleeve, Leg-O Mutton; Suitability of sleeves types to figure types
5	Unit-5	Creating variety
6	Unit-6	Creating variety in collar designs
7	Unit-7	Grading Machine; Grading Procedure for Basic Slopers
8	Unit -8	Laying

## FASHION GARMENT MAKING

2<sup>nd</sup> YEAR

### PAPER-II TRADITIONAL TEXTILES [THEORY]

Periods / week: 05

Periods / year 110

S.No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
1.	<b>Study of Motifs:</b> Types of Motifs - Geometric, Natural <del>Abstract, Stylized,</del> ; types of layouts- Side and <del>half drop</del> , Border, all over. Mofits of India - Styles & color combinations	25	16	2	2
2.	<b>Hand Woven Fabrics of India:</b> Study of Dacca Muslins, Chanderi, Potala, <del>Paithani</del> , Pitambari, Himurs, Armus, <del>Baluchar, Buttedar</del> , Pochampalli; Motifs used, colours used in these textiles	30	18	3	2
3.	<b>Traditional Dyed, Painted and Printed textiles of India:</b> Bandhani's, <del>Kalamkari, Madhubani</del> <del>Batik</del> and other resist dyed textiles; Printed textiles of Rajasthan; <del>Proecess</del> , Designs and colours used for different types mentioned above	35	18	3	2
4.	<b>Traditional Embroidered textiles of India:</b> Banjara, <del>Kutch, Kasheeda</del> , Kasuti, Kantha, Chikunkari, <del>Chambarumals</del> , Pulkari	20	16	2	2

#### DELETED TOPICS

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	Abstract, Stylized,; half drop
2	Unit-2	Baluchar, Buttedar,
3	Unit-3	Kalamkari, Madhubani Batik, Process
4	Unit-4	Kutch, Kasheeda, Chambarumals,

## FASHION GARMENT MAKING

2<sup>nd</sup> YEAR

### PAPER-III FASHION GARMENT DESIGNING [THEORY]

Periods / week: 05

Periods / year :110

S. No	Name of the Unit	No. of Periods	Weightage in marks	Short Answer Questions	Problem Questions
1	<b>Designing through flat pattern technique:</b> <del>Principles;</del> terminology Material used; Techniques followed	10	8	1	1
2	<b>Designing through draping</b> Basic tools; Principles of draping	20	10	2	1
3	<b>Fashion Scenario</b>	10	8	1	1
4	<b>Status of Indian apparel Industry</b>	10	8	1	1
5	<b>Fashion Accessories:</b> Bags, Shoes, Jewellery, Hats, Scarves, Ties, Belts and buckles; <del>Terminology used in each;</del> Various Designs	20	10	2	1
6	<b>Study on different costumes styles of India</b> a) Andhra Pradesh b) Tamilnadu c) Karnataka e) Maharashtra f) Punjab g) Rajasthan h) Kashmir i) Gujarat	20	16	2	2
7	<b>Fashion Merchandising and Marketing:</b> Basic terminology, <del>Core Concepts,</del> Product development, Product Pricing, <del>Branded versus unbranded items</del>	20	8	1	1

#### DELETED TOPICS

S .NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	Principles
2	Unit-2	Basic tools,
3	Unit-3	
4	Unit-4	
5	Unit-5	Terminology used in each; Various Designs
6	Unit-6	e) Maharashtra h) Kashmir i) Gujarat
7	Unit-7	Core Concepts ,Branded versus unbranded items



**MODEL QUESTION PAPERS**  
**FASHION GARMENT MAKING**  
**1<sup>st</sup> YEAR**  
**PART- B – VOCATIONAL SUBJECTS**  
**PAPER- I FUNDAMENTALS OF GARMENT CONSTRUCTION**  
**THEORY**

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. Give the broad classification of sewing machines
2. List the types of sewing machines
3. How do you Start tacking?
4. How seams are broadly classified?
5. What is a tuck?
6. Classify the plackets
7. What is true bias?
8. What are the different types of buttonholes?
9. What is a sloper?
10. What is basic equipment required to take body measurements?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write about the different types of cutting tools used in sewing process?
12. Explain the steps involved in Threading the machine
13. Write a short note on temporary hand stitches
14. What are the factors that effect in selection of seams and seam finishes?
15. What are ways of introducing the fullness in garments? Explain about tucks and pleats
16. write good standards of placket
17. what is bias binding / Explain the methods followed
18. Explain the difference between the hooks and eyes
19. what is commercial pattern and discuss about Content of a commercial pattern
20. How do you take upper bodice measurements?

**FASHION GARMENT MAKING**  
**1<sup>st</sup> YEAR**  
**PART- B – VOCATIONAL SUBJECTS**  
**PAPER- II FUNDAMENTALS OF TEXTILES**  
**THEORY**

Time: 3 hrs

Max. Marks: 50

10 x 2 = 20

**SECTION – A**

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. What is filament fibers?
2. How does the vegetable fiber classified?
3. List out uses of cotton.
4. What is felting?
5. What the types of silk?
6. What is rayon fiber?
7. How are polyester fibers formed?
8. What is yarn twist?
9. What is wearing?
10. What is napping?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. What is pilling, staple and filament?
12. Write down the sources of manmade fiber?
13. Write down physical properties of cotton.
14. How is wool classified?
15. Explain about the processing steps of silk fiber.
16. How rayon different from silk fiber?
17. Describe the flow chart of polyester manufacture
18. Write any three types at novelty Yarns with diagrams.
19. What are the parts of loom? Explain with diagram?
20. What are the different types & calendaring?

**FASHION GARMENT MAKING**  
1<sup>st</sup> YEAR  
PART- B – VOCATIONAL SUBJECTS  
PAPER-III **FASHION & APPAREL DESIGNING**  
THEORY

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. What is a story board ?
2. What are catalogues?
3. Who is called as the “Bad Boy of fashion world”?
4. Which designer is famous for block prints?
5. How does a line start ?
6. What is meant by couture?
7. What is the difference between Style and fashion?
8. What are the properties of color?
9. Write short note on the use of color in designing.
10. What is meant by radial balance?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Differentiate between
  - a) chintz and chiffon fabrics. b) Damask and brocade fabrics.
12. what are the basic requirements of a designer?
13. write about Tarun Tahiliani as a designer
14. Write about story boards and their preparation
15. How are color, swatch and illustration boards created?
16. Describe fashion cycle.
17. Write about theories of fashion adoption.
18. What are the different major color harmonies
19. How can harmony be introduced into garments?
20. what are the different types of balance used in clothing

**FASHION GARMENT MAKING**  
**2<sup>nd</sup> YEAR**  
**PART- B – VOCATIONAL SUBJECTS**  
**PAPER-I ADVANCED DRESS DESIGNING**  
**THEORY**

Time: 3 hrs

Max. Marks: 50

10 x 2 = 20

**SECTION – A**

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. What is Draping?
2. What is stay stitching?
3. Write about laced fabrics.
4. List out various parts of sleeve
5. What is Bell sleeve?
6. How do you decorate Yoke?
7. Mention the terms used in collar ?
8. What is Ruffle collar?
9. Write any two grading Principles?
10. Name the sewing machine used of apparel Industry?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Explain in detail about Drafting
12. Write in detail different types of layout.
13. Write short notes  
a) Chiffon b) satin c) Georgette
14. Explain in detail about selection of fabrics?
15. Explain the drafting procedure of Bishop Sleeve?
16. Explain in detail about different types of puff sleeves?
17. Explain about mid-riff yoke?
18. With the help of the diagram explain scalloped collar.
19. Write about the methods of grading
20. Write in detail about catting machine.

**FASHION GARMENT MAKING**  
**2<sup>nd</sup> YEAR**  
**PART- B – VOCATIONAL SUBJECTS**  
**PAPER-II TRADITIONAL TEXTILES**  
**THEORY**

Time: 3 hrs

Max. Marks: 50

**SECTION – A**

10 x 2 = 20

Note: (i) Answer all questions.

(ii) Each question carries **two** marks.

1. Define motif
2. What are realistic motifs
3. What are boRder layouts
4. What do you mean buy Muslin? Explain?
5. Which states of India produce tie and die textiles?
6. What are the types of bhandini's?
7. What is pat in madhubani, Paintings?
8. What is resist dyeing?
9. What is meant by kantha?
10. Explain the stitches used in kasauti work?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.

(ii) Each question carries **six** marks

11. Classify and explain the types of motifs with Examples
12. Define pattern layout. Enumerate the types of pattern layouts with suitable diagrams,
13. Explain the process of wearing Chanderi sarees?
14. Write about the dyeing process of Pochampalli Textiles
15. What are the traditional woven textile in Maharashtra? Explain in brief the process of weaving?
16. Give the detail process of tyeing and dying in Bhandini's of India?
17. Write about the printed textiles of Rajasthan?
18. Give an overview of painted textiles of traditional India?
19. Explain about the Phulkari of Punjab
20. What is chikankari embroidery? Classify and explain about the stitches used in chikankari work

**FASHION GARMENT MAKING**  
**2<sup>nd</sup> YEAR**  
**PART- B – VOCATIONAL SUBJECTS**  
**PAPER-III FASHION GARMENT DESIGNING**  
**THEORY**

Time: 3 hrs

Max. Marks: 50

10 x 2 = 20

**SECTION – A**

Note: (i) Answer all questions.  
(ii) Each question carries **two** marks.

1. Write two uses pivot method?
2. What are the principles used in draping?
3. List out the tools used in draping.
4. What is the history of apparel industry in India?
5. What is fashion?
6. List out the types of shoes
7. What is chokar?
8. List out the costumes of Punjab.
9. What is a choli?
10. What is product pricing?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write in detail about slash and spread method.
12. Describe the various pattern making tools.
13. write the present stations of garment units
14. write about shoes
15. write in detail about varieties of bags
16. What are the points to be considered while draping the garment?
17. Explain in detail about costumes of Andhra Pradesh
18. Write about male and female costumes of Tamil nadu.
19. Describe the following
  - a) Design
  - b) Adaptation
  - c) man fashion.
20. Explain briefly about the history of fashion.

**HOTEL OPERATIONS  
FIRST YEAR  
PAPER – I: FOOD PRODUCTION – I**

Sl. No.	Unit	Periods (hrs)	Weightage in marks	Short Answer questions	Essay type questions.
1.	<b>INTRODUCTION TO COOKERY</b> a) Culinary History: Indian Regional Cuisine, French & International Cuisines b) <del>Aims &amp; Objectives of Cooking</del> – Effect of cooking, characteristics of raw materials: salt, liquids, sweetening, fats & oils, thickening & binding agents, flavourings & seasonings, spices & herbs c) Preparation of Ingredients: <ul style="list-style-type: none"> <li>• Mise-en-place</li> <li>• Terms used in preparation of food</li> </ul> d) <del>Texture</del>	20	16	2	2
2.	<b>PRINCIPLES OF COOKING &amp; MENU PLANNING</b> a) Cooking techniques <ul style="list-style-type: none"> <li>• Methods of heat transfer</li> <li>• Different methods of cooking &amp; their basic rules</li> <li>• <del>Infra red cooking</del></li> <li>• <del>Microwave cooking</del></li> </ul> b) Principles of Menu Planning – points to be considered while planning	20	8	1	1
3.	<b>UNDERSTANDING MAJOR COOKING INGREDIENTS</b> a) Cooking Pulses, rice & cereals b) <del>Vegetable cookery – Classification, composition, cuts &amp; dishes</del> c) Egg Cookery – Structure, composition, use in cookery & bakery, dishes d) Fish cookery – Classification, cuts, selection & purchase guidelines, dishes e) <del>Poultry &amp; Game Cookery – Classification, cuts of chicken, dishes</del> f) Meat Cookery – Pre slaughtering stages, factors affecting quality of meat, tenderizing meat, various cuts of Beef, veal & pork	20	16	2	2
4.	<b>BASIC PREPARATIONS</b> a) <del>Stocks: Definition, types &amp; preparation</del> b) Sauces: Definition, types & preparation, dishes c) Soups: Definition, classification, preparation, International soups d) Salads: parts of salad, classification & types, dressings, classical examples e) <del>Garnishes &amp; Accompaniments</del>	20	16	2	2
5.	<b>KITCHEN OPERATIONS</b> a) The Hierarchy b) Attitude towards work c) Grooming & Personal hygiene d) Duties & responsibilities e) <del>Coordination with other departments</del>	20	8	1	1

Sl. No.	Unit	Periods (hrs)	Weightage in marks	Short Answer questions	Essay type questions.
	f) Kitchen Equipment & tools – types, safety & precautions, general maintenance g) <del>Types of fuels &amp; uses</del> h) Kitchen hazards – accidents & fire				
6.	<b>KITCHEN CONTROLS</b> a) Standard recipe system b) Portion control c) Food cost control d) Waste management e) <del>Garbage disposal</del>	15	6	-	1
7.	<b>INTRODUCTION TO BAKERY &amp; CONFECTIONERY</b> a) <del>Basic principles of Bakery &amp; bakery terms</del> b) Bread <ul style="list-style-type: none"> <li>• Role of various ingredients in bread making</li> <li>• Methods of bread making</li> <li>• Faults &amp; remedies</li> </ul> c) Cakes – Types, manufacturing process, faults & remedies d) <del>Cookies: Types, making, faults &amp; remedies</del> e) Sugar: Importance of sugar, types of sugar, various stages of sugar cookery	20	14	1	2

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	Aims & Objectives of Cooking, Texture
2	Unit-2	<ul style="list-style-type: none"> <li>• Infra-red cooking</li> <li>• Microwave cooking</li> </ul>
3	Unit-3	<ul style="list-style-type: none"> <li>• Vegetable cookery – Classification, composition, cuts &amp; dishes</li> <li>• Poultry &amp; Game Cookery – Classification, cuts of chicken, dishes</li> </ul>
4	Unit-4	<ul style="list-style-type: none"> <li>• Stocks: Definition, types &amp; preparation</li> <li>• Garnishes &amp; Accompaniments</li> </ul>
5	Unit-5	<ul style="list-style-type: none"> <li>• Coordination with other departments</li> <li>• Types of fuels &amp; uses</li> </ul>
6	Unit-6	Garbage disposal
7	Unit-7	<ul style="list-style-type: none"> <li>• Basic principles of Bakery &amp; bakery terms</li> <li>• Cookies: Types, making, faults &amp; remedies</li> </ul>



**HOTEL OPERATIONS  
FIRST YEAR  
PAPER – II: FOOD & BEVERAGE SERVICE – I**

Sl. No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Essay type questions
1.	<b>INTRODUCTION TO HOSPITALITY INDUSTRY</b> a) Growth and development of catering industry b) Career opportunities c) <del>Classification of catering industry</del> d) Types of service operations	20	10	2	1
2.	<b>F&amp;B SERVICE ORGANIZATION</b> a) Classification of F&B service department in a hotel b) Staff organization of F&B service department – Duties & responsibilities c) <del>Coordination with other departments</del> d) Attributes of a waiter	15	10	2	1
3.	<b>RESTAURANT OPERATIONS</b> a) Restaurant equipments : Types, standard sizes, care & maintenance, cleaning & polishing b) Duties of a waiter c) Mise-en-scene & Mise-en-place d) <del>Rules to be observed while laying a table and waiting at a table</del> e) Guest cycle f) Types and styles of food & beverage service: factors to be considered while deciding upon style of service i. Table service: <ul style="list-style-type: none"> <li>• Silver service</li> <li>• American service</li> <li>• English service</li> <li>• French service</li> <li>• Russian service</li> <li>• Gueridon service</li> <li>• Bar</li> </ul> ii. Assisted service <ul style="list-style-type: none"> <li>• Carvery</li> <li>• Buffet</li> </ul> iii. Self service <ul style="list-style-type: none"> <li>• Counter service</li> <li>• Free flow</li> <li>• Echelon</li> <li>• Super market</li> </ul> iv. <del>Single point service</del> <ul style="list-style-type: none"> <li>• <del>Take away</del></li> <li>• <del>Drive through</del></li> <li>• <del>Fast food</del></li> <li>• <del>Vending</del></li> <li>• <del>Kiosk</del></li> <li>• <del>Food court</del></li> </ul> v. Specialized form of service <ul style="list-style-type: none"> <li>• Tray service</li> <li>• Trolley</li> <li>• Home delivery</li> <li>• Lounge</li> <li>• Room service</li> <li>• Drive in</li> </ul> g) Room service	30	16	2	2

Sl. No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Essay type questions
4.	<b>MEALS &amp; MENU PLANNING</b> a) Origin and functions of menu <del>b) Objectives of menu planning</del> c) Types of menu d) Courses of French classical menu e) Types of meals: i. Early morning tea ii. Breakfast (Continental, English, American, Indian) iii. Brunch iv. Lunch v. Afternoon / High tea vi. Dinner vii. Supper f) Non-alcoholic beverages i. Classification (Nourishing, Stimulating & Refreshing) ii. Tea: Origin, manufacturing, types & brands iii. Coffee: Origin, manufacturing, types & brands iv. Juices & soft drinks: Brand names of juices, soft drinks, mineral water, tonic water, energy drinks v. Cocoa and malted beverages: origin and manufacture <del>g) Tobacco</del> i. <del>History</del> ii. <del>Processing of cigarettes, pipe tobacco and cigars</del> iii. <del>Cigars: Parts, shapes, colours, sizes, service, storage</del>	40	22	2	3
5.	<b>SIMPLE CONTROL SYSTEMS</b> <del>a) Necessity of control system in a restaurant</del> b) Functions of a control system c) Forms of KOTs' and Bills d) Triplicate checking system e) Cash handling equipment f) Record keeping	30	10	2	1

**DELETED TOPICS**

S.NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	c) Classification of catering industry
2	Unit-2	a) Coordination with other departments
3	Unit-3	d) Rules to be observed while laying a table and waiting at a table vi. Single point service <ul style="list-style-type: none"> <li>• Take away</li> <li>• Drive through</li> <li>• Fast food</li> <li>• Vending</li> <li>• Kiosk</li> <li>• Food court</li> </ul>
4	Unit-4	a) Objectives of menu planning g) Tobacco iv. History v. Processing of cigarettes, pipe tobacco and cigars Cigars: Parts, shapes, colours, sizes, service, storage
5	Unit-5	a) Necessity of control system in a restaurant

**HOTEL OPERATIONS  
FIRST YEAR  
PAPER – III: ROOM DIVISION OPERATIONS – I**

**Hours – 135, Marks – 50**

Sl. No	Unit	Periods (hrs)	Weightage in marks	Short Answer Questions	Essay type questions
1.	<b>INTRODUCTION TO HOSPITALITY INDUSTRY</b> a) <del>Evolution and growth of the Hospitality Industry</del> • <del>Indian</del> • <del>International</del> b) Classification of hotels • Size • Target Market • Levels of service • Management & affiliation • Star categorization in India • Others c) Types of rooms d) Examples of hotels in each category	10	08	1	1
2.	<b>ROOMS DIVISION – INTRODUCTION</b> a) <del>Functional organization of an all service hotel</del> b) Functional organization of a Rooms division c) Understanding the difference in functional organization, service & facilities between different star categorized hotels d) Hierarchy of Front Office & House Keeping brigades e) Job descriptions of the Accommodation department staff f) Interdepartmental coordination between Front Office & other departments g) Attributes of Front office & Housekeeping staff	20	08	1	1
3.	<b>ROOMS DIVISION LAYOUT</b> a) <del>Layout of hotel lobby</del> b) Layout of hotel house keeping c) Linen room & Laundry	20	06	0	1
4.	<b>FRONT OFFICE OPERATIONS</b> a) Guest cycle b) Formats and equipment used in front office c) Categorization of guests a. FIT b. Groups c. Crews etc... d) Associated functions in the guest cycle and the operating staff e) Basis of charging room tariff a. Check in checkout basis b. 24 hr basis c. Packages f) <del>Different types of tariff</del> a. <del>Rack rate/printed tariff</del> b. <del>Discounted rates</del> i. <del>CVGR</del>	25	16	2	2

Sl. No	Unit	Periods (hrs)	Weightage in marks	Short Answer Questions	Essay type questions
	<del>ii. Government rate.</del> <del>iii. Group rate.</del> <del>iv. Hospitality membership.</del> <del>e. Food plans</del> <del>i. European Plan</del> <del>ii. Bermuda Plan etc...</del> <del>g) Basis for pricing a room</del> <del>a. Hubbart's formula</del> b. Rule of thumb c. Market condition approach d. Day rate. e. Hourly rate				
5.	<b>RESERVATIONS</b> a) Importance of reservations b) Formats & reports used at reservations c) Handling telephonic reservations d) Telephone etiquettes <ul style="list-style-type: none"> <li>• Telephone equipment used</li> <li>• Standard phrases</li> <li>• Handling calls for reservations</li> <li>• Handling calls for enquiries</li> </ul> e) Handling reservations via other media f) Understanding CVGR and credit lists	20	08	1	1
6.	<b>BELL DESK/CONCIERGE – UNIFORMED STAFF</b> a) Organization of bell desk b) Hierarchy of bell desk c) Duties & responsibilities of bell desk staff d) Role of bell desk during check in & check out of guests e) Information directory <ul style="list-style-type: none"> <li>a. Local site seeing</li> <li>b. Shopping</li> </ul> f) Attributes of bell desk personnel	10	10	2	1
7.	<b>HOUSE KEEPING</b> a) Cleaning Equipment and its uses <ul style="list-style-type: none"> <li>• Classification of equipment</li> <li>• Mechanical equipment</li> <li>• Containers, brushes, mops &amp; broom</li> </ul> b) Cleaning agents and their uses <ul style="list-style-type: none"> <li>• Classification of cleaning agents</li> <li>• Types</li> </ul> <del>e) Guest Supplies</del> <del>d) Bed making</del> e) Various formats used in House keeping	25	16	2	2
8.	<b>COMPUTERIZATION OF HOTELS</b> a) Names of software used at hotel b) Advantages & disadvantages of computers c) Equipment used in IT department	10	08	1	1

DELETED TOPICS

<b>S .NO</b>	<b>Unit No. Name of the Unit</b>	<b>Topic /Sub Topic to be Deleted in detail heads</b>
1	Unit-1	e) Evolution and growth of the Hospitality Industry <ul style="list-style-type: none"><li>• Indian</li><li>• International</li></ul>
2	Unit-2	a) Functional organization of an all service hotel
3	Unit-3	a) Layout of hotel lobby
4	Unit-4	Different types of tariff <ul style="list-style-type: none"><li>a. Rack rate/printed tariff</li><li>b. Discounted rates<ul style="list-style-type: none"><li>i. CVGR</li><li>ii. Government rate.</li><li>iii. Group rate.</li><li>iv. Hospitality membership.</li></ul></li><li>c. Food plans<ul style="list-style-type: none"><li>i. European Plan</li><li>ii. Bermuda Plan etc...</li></ul></li></ul> Basis for pricing a room <ul style="list-style-type: none"><li>d. Hubbart's formula</li></ul>
5	Unit-5	
6	Unit-6	
7	Unit-7	c) Guest Supplies d) Bed making
8	Unit -8	

**HOTEL OPERATIONS  
SECOND YEAR  
PAPER – I : FOOD PRODUCTION – II**

(110 hrs, 50 marks)

Sl. No.	Unit	Periods (hrs)	Weightage in marks	Short answer questions	Essay type questions
1.	<b>INDIAN CUISINE</b> a) Introduction to Indian food b) Spices used in Indian cookery <del>e) Masala mix used</del> d) Basic gravies e) Famous cuisines of India – (concise) <ul style="list-style-type: none"> <li>• Kashmiri</li> <li>• Punjabi</li> <li>• Mughalai &amp; Awadhi</li> <li>• Hyderabadi</li> <li>• Gujarati</li> <li>• Rajasthani</li> <li>• Marathi</li> <li>• Bengali</li> <li>• Goan</li> <li>• Chettinad</li> <li>• Kerala</li> <li>• Andhra</li> </ul>	30	18	3	2
2.	<b>INTERNATIONAL CUISINES</b> a) French & nouvelle cuisine b) Italian cuisine c) Oriental cuisine	30	16	2	2
3.	<b>KITCHEN HYGIENE AND SANITATION</b> a) Food laws b) Food additives <del>e) Food adulteration</del> d) Causes of food spoilage e) Common food & water borne diseases and their prevention	20	16	2	2
4.	<b>ADVANCED BAKERY</b> a) Pastry <ul style="list-style-type: none"> <li>• Short crust</li> <li>• Laminated</li> <li>• Choux</li> <li>• Puff</li> </ul> b) Icings and pastry cream <ul style="list-style-type: none"> <li>• Basic icing and pastry cream</li> <li><del>• Uses in confectionary</del></li> </ul>	30	18	3	2

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	a) Masala mix used
2	Unit-2	
3	Unit-3	a) Food adulteration
4	Unit-4	Uses in confectionary

**HOTEL OPERATIONS**  
**SECOND YEAR**  
**PAPER – II FOOD & BEVERAGE SERVICE – II**

(Hours: 110, Marks: 50)

S. No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Essay type questions
1.	<p><b>ALCOHOLIC BEVERAGE</b></p> <p>A. Introduction and definition</p> <p>B. Production of alcoholic</p> <ul style="list-style-type: none"> <li>• Fermentation process</li> <li>• Distillation process</li> </ul> <p>Classification with examples</p> <p><b>WINES</b></p> <p>A. Definition &amp; history</p> <p>B. Classification with example</p> <ul style="list-style-type: none"> <li>• Table/still/natural</li> <li>• Sparkling</li> <li>• Fortified</li> <li>• Aromatized</li> </ul> <p>C. Production of wines</p> <p>D. Food &amp; Wine Harmony</p> <p>E. Storage of wines</p> <p>Wine terminology (English &amp; French)</p> <p><b>BEER</b></p> <p><del>A. Introduction &amp; Definition</del></p> <p><del>B. Types of Beer</del></p> <p><del>C. Production of Beer</del></p> <p><del>D. Storage</del></p> <p><b>SPRITS</b></p> <p>A. Introduction and Definition</p> <p>B. Production of spirits</p> <ul style="list-style-type: none"> <li>• Pot –still method</li> <li>• Patent still method</li> </ul> <p>C. Production of</p> <ul style="list-style-type: none"> <li>• Whisky</li> <li>• Rum</li> <li>• Gin</li> <li>• Brandy</li> <li>• Vodka</li> <li>• Tequila</li> </ul> <p>D. Different Proof spirit</p> <ul style="list-style-type: none"> <li>• American Proof</li> <li>• British Proof (Sikes scale)</li> <li>• Gay Lussac (OIML Scale)</li> </ul>	25	10	2	1
2.	<p><b>DISPENSE &amp; COCKTAIL BARS</b></p> <p>A. Introduction and definition</p> <p>B. Bar layout- physical layout of bar</p> <p><del>C. Bar stock alcohol &amp; non alcohol beverages</del></p> <p>D. Bar equipments</p>	25	16	2	2
3.	<p><b>FUNCTION CATERING</b></p> <p><b>BANQUETS</b></p> <p>a. History</p> <p>b. Types</p> <p>c. Organization of banquet department</p> <p>d. Duties and responsibilities</p>	20	16	2	2

S. No.	Name of the Unit	No. of periods	Weightage in marks	Short answer questions	Essay type questions
	e. Sales f. Booking Procedure g. Banquet menus h. Banquet Protocol & Toasting <b>BUFFET:</b> a. <del>Introduction and types</del> b. <del>factors to plan buffet</del> c. <del>equipment</del>				
4.	<b>FOOD COST CONTROL</b> a) Introduction to Cost Control b) Define Cost Control c) <del>The Objectives and advantages of Cost Control</del> d) Basic costing e) Food costing <b>FOOD CONTROL CYCLE</b> <del>Stages in food control cycle</del>	20	16	2	2
5.	<b>KITCHEN STEWARDING</b> a. Importance b. Duties and responsibilities c. Staffing d. <del>Record keeping</del> e. <del>Inventory</del>	20	16	2	2

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	<b>BEER</b>  A. Introduction & Definition B. Types of Beer C. Production of Beer D. Storage
2	Unit-2	C Bar stock- alcohol & non alcohol beverages
3	Unit-3	<b>BUFFET:</b> a. Introduction and types b. factors to plan buffet c. equipment
4	Unit-4	c) The Objectives and advantages of Cost Control <b>FOOD CONTROL CYCLE</b> Stages in food control cycle
5	Unit-5	d. Record keeping e. Inventory



**HOTEL OPERATIONS**  
**SECOND YEAR**  
**PAPER – III ROOM DIVISION OPERATIONS – III**  
**Hours – 110, Marks – 50**

Sl. No.	Unit	Periods (hrs)	Weightage in marks	Short answer questions	Essay type questions.
1.	<b>FRONT OFFICE BASICS</b> <ul style="list-style-type: none"> <li>• Guest Cycle - recapitulation</li> <li>• <del>Understanding the relation between Reservations &amp; Registration</del></li> <li>• Interdepartmental coordination between Front Office &amp; House Keeping</li> <li>• Glossary of terms used at Front Office &amp; House Keeping</li> </ul>	10	02	1	-
2.	<b>REGISTRATION</b> <ol style="list-style-type: none"> <li>a) Formats used at hotel reception</li> <li>b) A day as a front office assistant               <ol style="list-style-type: none"> <li>a. <del>Pre registration of guests</del></li> <li>b. VIP blocks</li> <li>c. Rooms inventory</li> <li>d. Flight schedule</li> </ol> </li> <li>c) Check in procedure for               <ol style="list-style-type: none"> <li>a. FIT                   <ol style="list-style-type: none"> <li>i.DFIT</li> <li>ii.FFIT</li> </ol> </li> <li>b. Group/Crew</li> <li>c. VIP/CIP/DG</li> <li>d. Walk in</li> </ol> </li> <li>d) Check in procedure               <ol style="list-style-type: none"> <li>a.Receiving of guests</li> <li>b.Filling of relevant forms</li> <li>c.Key handling</li> <li>d.Mode of payment &amp; advance payment policy</li> <li>e.Room allotment</li> </ol> </li> </ol>	10	08	1	1
3.	<b>RESPONSIBILITIES DURING GUEST STAY</b> <ol style="list-style-type: none"> <li>a) Message handling</li> <li>b) <del>Paging</del></li> <li>c) Mail handling</li> <li>d) Complaint handling etc...</li> </ol>	10	08	1	1
4.	<b>CHECK OUT AND SETTLEMENT OF BILLS</b> <ol style="list-style-type: none"> <li>a) Standard guest check out procedure</li> <li>b) <del>Check out procedure at Front Office &amp; House Keeping</del></li> <li>c) Handling various methods of payment               <ol style="list-style-type: none"> <li>a. Cash</li> <li>b. Credit card</li> <li>c. Bill to company</li> <li>d. Travel agents vouchers etc...</li> </ol> </li> </ol>	15	08	1	1
5.	<b>INTRODUCTION TO GUEST ACCOUNTING</b> <ul style="list-style-type: none"> <li>• Vouchers</li> <li>• <del>Folios</del></li> <li>• Ledgers</li> <li>• VTL</li> </ul>	10	08	1	1
6.	<b>CLEANING ROUTINES</b> <ol style="list-style-type: none"> <li>a) A day as a House keeping assistant</li> <li>b) Guest room cleaning               <ul style="list-style-type: none"> <li>• Cleaning process</li> <li>• Contents of guest room</li> </ul> </li> </ol>	10	08	1	1

	<ul style="list-style-type: none"> <li>• Furniture</li> <li>• Fixtures</li> <li>• Bed, Mattresses, Bedding</li> <li>• Soft furnishings</li> </ul> <p>e) <del>Public area cleaning</del></p> <ul style="list-style-type: none"> <li><del>• Lobby</del></li> <li><del>• Corridors</del></li> <li><del>• Public restrooms</del></li> <li><del>• Elevators &amp; Staircases etc...</del></li> </ul>				
7.	<b>HOUSE KEEPING SUPERVISION</b> <ul style="list-style-type: none"> <li>• Role of a HK supervisor</li> <li>• Duties &amp; responsibilities of a supervisor</li> </ul>	10	02	1	
8.	<b>DIFFERENT SURFACES USED IN HOTELS AND THEIR CARE</b> <ul style="list-style-type: none"> <li>a) Wood &amp; laminates</li> <li>b) Stone &amp; ceramics</li> <li>e) <del>Leather, rubber &amp; rexine</del></li> <li>d) Metals</li> <li>e) Glass</li> </ul>	15	08	1	1
9.	<b>FABRICS USED AT HOTELS AND THEIR CARE</b> <ul style="list-style-type: none"> <li>a) Construction of cloth (warp/weft)</li> <li>b) Uniforms</li> <li>c) Upholstery</li> <li>d) Soft furnishings</li> <li>e) Washing/dry cleaning – chemicals used</li> </ul>	10	08	1	1
10	<b>SAFETY &amp; SECURITY</b> <ul style="list-style-type: none"> <li>a) Theft by employee &amp; guests</li> <li>b) <del>Fire, Bomb threats</del></li> <li>c) Types of Keys &amp; Key control – guestroom keys, department keys</li> <li>d) First aid <ul style="list-style-type: none"> <li>a. Breathing disorders – asthma</li> <li>b. Cardiac arrest</li> <li>c. Burns &amp; scalds</li> <li>d. Fainting</li> </ul> </li> </ul>	10	08	1	1

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	<ul style="list-style-type: none"> <li>• Understanding the relation between Reservations &amp; Registration</li> </ul>
2	Unit-2	<ul style="list-style-type: none"> <li>a. Pre registration of guests</li> </ul>
3	Unit-3	<ul style="list-style-type: none"> <li>a) Paging</li> </ul>
4	Unit-4	<ul style="list-style-type: none"> <li>b) Check out procedure at Front Office &amp; House Keeping</li> </ul>
5	Unit-5	<ul style="list-style-type: none"> <li>• Folios</li> </ul>
6	Unit-6	<ul style="list-style-type: none"> <li>d) Public area cleaning <ul style="list-style-type: none"> <li>• Lobby</li> <li>• Corridors</li> <li>• Public restrooms</li> </ul> </li> </ul> <p>Elevators &amp; Staircases etc...</p>
7	Unit-7	
8	Unit -8	<ul style="list-style-type: none"> <li>e) Leather, rubber &amp; rexine</li> </ul>
9	Unit -9	
10	Unit -10	<ul style="list-style-type: none"> <li>b) Fire, Bomb threats</li> </ul>

**HOTEL OPERATIONS**  
**FIRST YEAR**  
**PAPER I: FOOD PRODUCTION – I**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. What is Quick Bread?
2. Define pulses
3. Define Soup
4. Define a Menu
5. What is Cake?
6. Name any two Hand Tools
7. What is Grilling?
8. What is yoghurt?
9. Mention any two ingredients of bread
10. What do you mean by pastry?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Explain about the types in Cakes
12. Write about the types of Bread.
13. What are the precautions while handling kitchen equipment?
14. Write about the classification of fruits.
15. Write the classical Cuts of Fish with description.
16. Mention the types of Dairy Products.
17. Write about steps involved in cutting chicken.
18. Write about the following Cereal Products.  
a) Barley b) Millet c) Maize
19. Write the rules to be followed in vegetable Crockery to retain color and nutrients.
20. Write about the Classification of Soups.

**Model question Paper**  
**HOTEL OPERATIONS**  
**FIRST YEAR**  
**PAPER II: FOOD & BEVERAGE SERVICE – I**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. Name any two types of Catering
2. What is Inn?
3. Who is Sommelier?
4. Who is Chef de Rang.?
5. Name any two Restaurant Equipments
6. Define linen.
7. Define Menu
8. What do you mean by breakfast
9. Expand KOT
10. Mention any two modes of payment

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write about the Attributes of a water.
12. Write the features and advantages of Bars, Night clubs and Lounges
13. Write about the following Glass wares (a) Shot Glass (b) Tulip Glass (c) Red wine Glass
14. Write about the equipment handling in a restaurant
15. Write about the Growth and Development of Catering Industry.
16. Write about the classification of catering industry
17. Write the functions of menu
18. Write about continental breakfast
19. Write about the methods of order taking
20. Write the various billing methods with description

**Model question Paper**  
**HOTEL OPERATIONS**  
**FIRST YEAR**  
**PAPER III: ROOM DIVISION OPERATION – I**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. What is full service hotel?
2. Expand FIT
3. What is no show?
4. Expand HRACC
5. Write any two names of brooms.
6. What is computer?
7. Define Crew
8. What is bell desk?
9. What is front office?
10. Who is father of computer?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Classify hotels based on size
12. Write the features of full service hotel.
13. Explain about functions of room division dept. in a hotel
14. What are the Equipments used in front office?
15. What are the reservation modes?
16. Discuss about various types of food plans.
17. What are the attributes of housekeeping staff?
18. How does Computer help in hotel operation?
19. What are the advantages of computer in hotel industry?
20. Write the function of linen room.

**HOTEL OPERATIONS  
SECOND YEAR  
PAPER I: FOOD PRODUCTION – II**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions

10x2=20

(ii) Each question carries 2 marks

1. Define Cuisine
2. What is the differences between awadh and mughalai Cuisine?
3. List out any four special equipment used for oriental cuisine
4. Define Cookery
5. Name any two water borne diseases.
6. Expand BIS.
7. What are the uses of royal Icing
8. How to make chocolate ganache?
9. What u pastry?
10. Name the different gravies.

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.

(ii) Each question carries **six** marks.

11. Explain about the Hyderabad cuisine.
12. What are the different spices used in Indian cuisine
13. Explain about Rajasthan cuisine.
14. Write briefly about Italian Cooking
15. List out the common equipment for French Cooking
16. Write briefly about the fruit products order-1955
17. What are the Causes of food Spoilage?
18. Write the procedure of making puff pastry?
19. What is the difference between dairy whipping cream& Non-dairy whipping Cream?
20. What are the different spices used in Indian Cuisine?

**HOTEL OPERATIONS  
SECOND YEAR  
PAPER II: FOOD & BEVERAGE SERVICE – II**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions

10x2=20

(ii) Each question carries 2 marks

1. Define what a beverage
2. What is wine?
3. What is bar?
4. What is cocktail shaker?
5. Define package.
6. What is cycle menu?
7. Expand FIFO.
8. What do you mean by standard recipe?
9. What is inventory?
10. Who is kitchen stewarding manager?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.

(ii) Each question carries **six** marks.

11. What is proof? Explain various scales used for measuring alcoholic strengths.
12. Explain the pot-still and the patent- still methods.
13. Draw the layout of model crowded bar with neat label
14. Differentiate between dispense bar and Cocktail bar.
15. What are the factors to be considered while planning a buffet
16. Explain about function catering.
17. What are the benefits of food cost Control?
18. What are the points must be remember, while controlling the food cost ?
19. Describe the Food wastage Dispensers.
20. Explain the process of the mechanical dish washing

**Model question Paper**  
**HOTEL OPERATIONS**  
**SECOND YEAR**  
**PAPER III: ROOM DIVISION OPERATION – II**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. What is No show.
2. Which guest is called walk in?
3. What is parcel Register?
4. Who is bell boy?
5. What u VTL?
6. What is a room Amenity?
7. What items come under floor linen?
8. Mention 5 characteristics of ceramic floor.
9. What is knitting?
10. Define master key.

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. List the various stages in the guest cycle in a hotels.
12. Mention the various modes by which bills can be settled in a hotel
13. What are the points to be taken Care while handling a guest complaint in a hotel?
14. Explain the various methods of payments
15. Explain the use of paid out. Voucher with the help of a diagram of the format
16. Write a note on Bed making.
17. Examine the duties of Floor Supervisor.
18. How is glass treated during cleaning Explain?
19. List and explain various chemicals used in the laundry
20. What is the first aid given during a guest suffering from Cardiac arrest?



**OPHTHALMIC TECHNICIAN**

I YEAR

**PAPER – I: ANATOMY, PHYSIOLOGY & PHARMACOLOGY (THEORY)**

Theory: 135 hours

Marks: 50

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
1.	<b>Anatomy of the Eye</b>	<b>25</b>			
	<ul style="list-style-type: none"> <li>• Lids</li> <li>• Conjunctiva Cornea and Sclera</li> <li>• Iris and Ciliary body</li> <li>• Lens and Vitreous</li> <li>• retina and Choroid</li> <li>• Ocular Muscles</li> <li>• Cranial Nerves – I, II, III, IV and VII</li> <li>• Lacrimal Apparatus.</li> <li>• Orbit and its immediate relations.</li> </ul>		16	2	2
2.	<b>Physiology</b>	<b>50</b>			
	<ul style="list-style-type: none"> <li>• General Physiology of the Eye and Introduction</li> <li>• Cornea and Lens</li> <li>• Pupillary Reflexes</li> <li>• <del>Visual Acuity and form sense</del></li> <li>• Night Vision</li> <li>• Colour Vision</li> <li>• Accommodation</li> <li>• Convergence</li> <li>• Production of Aqueous</li> <li>• <del>Aqueous dynamics [ Intra Ocular Pressure ]</del></li> <li>• Visual Fields</li> <li>• <del>Extrinsic Muscles</del>, Actions and ocular Movements.</li> </ul>		26	4	3
3.	<ul style="list-style-type: none"> <li>• Ocular Pharmacology and Pathology</li> <li>• Mode of therapy Eg. Drops, Oral, Injection etc.</li> <li>• Commonly used Drugs in Ophthalmology.</li> <li>• Antibiotics</li> <li>• <del>Anti-inflammatory</del></li> <li>• <del>Anti-Allergie</del></li> <li>• <del>Mydriatics &amp; Miotics.</del></li> <li>• Antiseptics</li> <li>• Methodology of applying medication to the Eye.</li> <li>• Aseptic Techniques.</li> <li>• Urine Examination.</li> <li>• Albumin</li> <li>• Sugar</li> <li>• Deposits.</li> <li>• General Information on</li> <li>• Infection</li> <li>• Inflammation</li> <li>• Hypersensitivity.</li> <li>• BP and Diabetics.</li> </ul>	60	32	4	4
	<b>Total</b>	<b>135</b>			

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	
2	Unit-2	<ul style="list-style-type: none"> <li>• Visual Acuity and form sense</li> <li>• Aqueous dynamics [ Intra Ocular Pressure ]</li> <li>• Extrinsic Muscles,</li> </ul>
3	Unit-3	<ul style="list-style-type: none"> <li>• Anti-inflammatory</li> <li>• Anti-Allergic</li> <li>• Mydriatics &amp; Miotics.</li> </ul>

**OPHTHALMIC TECHNICIAN**  
**I YEAR**  
**PAPER – II: PHYSICAL & PHYSIOLOGICAL ASPECTS OF SPECTACLES.**  
**[THEORY]**

Theory: 135 hours

Marks : 50

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
	<b>Elementary basics of light and vision</b>	<b>70</b>			
1.	Principles of Refraction		6	-	1
2.	Retinoscopy, Principles & Practice.		8	1	1
3.	Eye as refractive apparatus.		4	2	-
4.	Myopia and correction		6	-	1
5.	Hypermetropia and its correction.		2	1	
6.	Astigmatism and its correction		2	1	
7.	Presbyopia and its correction.		2	1	
8.	Prescription of Glasses.		2	1	
9.	Aphakia and <del>Pseudophakia and its correction.</del>		6		1
10.	Low Visual Aids		8	1	1
	<b>Optics</b>	<b>65</b>			
11.	Ophthalmic Glasses		6	-	1
12.	<del>Physical forms and sizes and shapes</del> [ spherical – concave and convex]		6	-	1
13.	Astigmatic lenses [ cylindrical and ptoric lenses]		6	-	1
14.	Prisms and its uses		6	1	1
15.	Prismatic effect		2	1	
16.	<del>Chemistry of lens</del>		2	1	
17.	Optical aberrations		8	1	
18.	Chemistry of frames		4	1	
19.	Measurement of power [ lens meter and <del>Geneva</del> lens measure ]		4	2	
20.	General Introduction of contact lens.		8	2	1

**DELETED TOPICS**

S .NO	Topic /Sub Topic to be Deleted in detail heads
1	<ul style="list-style-type: none"> <li>• Chemistry of lens</li> <li>• Geneva Lens Measure</li> <li>• Retraction through Prism</li> <li>• Pseudophakia</li> <li>• Pseudophakia Correction</li> <li>• Physical forms of lenses</li> </ul>

**OPHTHALMIC TECHNICIAN**

I YEAR

**PAPER – III: COMMUNITY OPHTHALMOLOGY AND HEALTH EDUCATION**

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
<b>I.</b>	<b>Examination of the Eye</b>	<b>10</b>	<b>10</b>		
<b>II.</b>	<b>Practical Demonstration of Eye problems and their management and referral</b>				
a)	Conjunctivitis	2	6	-	1
b)	Cataract	10	2	1	-
c)	Vitamin-A Deficiency	7	2	1	-
d)	Injuries and Occupational hazards	2	2	1	-
e)	Refractive Errors.	10	6	-	1
f)	Eye Donation	12	4	2	-
g)	Certain terms	10	4	2	-
	1. Incidence				
	2. prevalence				
	3. Epidemics				
	4. Enderics				
<b>III</b>	<b>Community Ophthalmology</b>				
a)	Screening and Survey of the School Children.	12	8	1	1
b)	Eye Screening of the Industrial workers.	10	6		1
c)	Eye Camps.	5	2	1	
d)	Detection of the Blind and their rehabilitation, and with note on preventable, permanent and reversible blindness and visually handicapped.	10	8	1	1
e)	Reading problems in children.	3	2	1	
f)	Statistical evaluation of the surveys.	4	2	1	
g)	Detection of eye diseases due to Nutritional disorders.	2	2	1	
h)	Industrial hazards and protection of Industrial Hazards.	2	2	1	
i)	Governmental and Non-Governmental agencies serving the Community in the field of Ophthalmology.	10	4	2	
<b>IV.</b>	<b>Health Education.</b>				
a)	Blindness and Causes	10		2	1
b)	Nutrition	10	4	2	
c)	Environmental Sanitation and water supply, sewage, disposal.	2	2	1	
d)	Specific Measures for	10	4	2	
	1. Blindness and causes				
	2. Xerosis				
	3. Trachoma				
	4. Conjunctivitis				
	5. Cataract.				

**DELETED TOPICS**

S .NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	
2	Unit-2	1. Incidence 2. prevalence 3. Epidemics 4. Enderics
3	Unit-3	reversible blindness and visually handicapped. Statistical evaluation of the surveys. Detection of eye diseases due to Nutritional disorders.
4	Unit-4	Environmental Sanitation and water supply, sewage, disposal.

**OPHTHALMIC TECHNICIAN**

II YEAR

PART B – VOCATIONAL SUBJECTS

**PAPER – I: SPECTACLE LENS GRINDING DISPENSING OF SPECTACLES (THEORY)**

Theory: 110 hours

Marks: 50

S.No	NAME OF THE UNIT	No. Of Periods	Weight age in marks	Short answer questions	Essay/ Problem questions
<b>1.</b>	<b>Special Lens Grinding</b>	<b>50</b>	<b>36</b>	<b>6</b>	<b>4</b>
	a) Types of Lens b) Principles of Grinding c) Bifocal Grinding d) Cylindrical Grinding e) <del>Prismatic Lens Grinding</del> f) Aberrations and base curves g) Aphakic Glasses h) <del>Ingredient of Material</del> [Grinding Powder, Pads, Tools, Laps etc.]				
<b>II.</b>	<b>Dispensing of Spectacles</b>	<b>60</b>	<b>36</b>	<b>6</b>	<b>4</b>
	a) Human Eye and Spectacles, Intrapupillary distance b) Bifocals and Multifocal requirements, types centering c) Protective Glasses. d) Lens form and thickness effective, equivalent and vertex power. e) Trial lenses and Frames. f) Frame types and specific indications g) Faces and related spectacles measurements h) Bi-focal fitting i) cylindrical j) Measurement of spectacle lens, power and foci meter.				

**DELETED TOPICS**

S .NO	Unit No. Name of the Unit	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	i) Prismatic Lens Grinding h. Ingredient of Material [Powder, Pads, Laps etc.]
2	Unit-2	

**OPHTHALMIC TECHNICIAN**

II YEAR

**PAPER – I: I COMMON OCULAR DISEASES & PRIMARY OPERATION THEATRE PROCEDURES  
(THEORY)**

Theory: 110 hours

Marks: 50

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
<b>I.</b>	<b>Introduction of common EYE Diseases.</b>	<b>40</b>	<b>30</b>	<b>4</b>	<b>3</b>
	[ Symptoms and Detection ] a) Conjunctivitis b) Lid infection c) Styes d) Sub-conjunctival Haemorrhage e) Eye-Allergy f) Coaneal Ulcer g) Cataract h) Vitamin-A Deficiency i) Injuries.				
<b>2.</b>	<b>Routine Investigations</b> a) <del>Tension Taking [ Tono-meter]</del> b) Colour vision c) visual fields d) Various instrument and their principles. e) <del>Fluorescence staining and techniques.</del> f) Lacrimal test g) Urine – 1. Albumin 2. Sugar	<b>40</b>	<b>30</b>	<b>3</b>	<b>3</b>
<b>3.</b>	<b>Operation Theatre Procedure</b> O.T Minor Surgery [ Introduction to Techniques and preparation of the patient] a) Asepsis – How to achieve and sterilization b) <del>Anesthetic agents</del> and where indicated. c) Carrying out pre-operative and post operative instructions. d) Bandaging the Eye. f) Syringing.	<b>30</b>	<b>20</b>	<b>3</b>	<b>2</b>

**DELETED TOPICS**

S .NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	
2	Unit-2	a) Tension Taking [ Tono meter] e) Fluorescence staining and techniques.
3	Unit-3	b) Anesthetic agents

**OPHTHALMIC TECHNICIAN**

**II YEAR**

**PAPER – III: REFRACTIVE ERRORS, MAINTENANCE OF INVESTIGATIVE INSTRUMENTS & EQUIPMENT [THEORY]**

S.No	NAME OF THE UNIT	No. Of Periods	Weightage in marks	Short answer questions	Essay/ Problem questions
<b>I.</b>	<b>Refractive Errors</b>	30	18	3	2
	1) Symptomatology and Management of Hypermetropia 2) Symptomatology and Management of Myopia. 3) Symptomatology and Management of Astigmatism. 4) Presbyopia. 5) Aphakia 6) Squint 7) <del>Contact lens: prescription and practice</del>				
<b>II.</b>	<b>Explanation and Maintenance of Equipment</b>	30	16	2	2
	a) Trial Set b) Torches c) Ophthalmoscope d) Slit lamps e) Keratometers. f) Surgical Instruments g) Foci meter [ Lensometer]				
<b>III.</b>	<b>Special Investigations</b>	40	26	4	3
	<b>1. Visual Acuity Charting</b> a) Distant b) Near c) With Pin Hole d) Colour Vision.				
<b>IV.</b>	<b>Maintenance of Medical Records and Staisicals.</b>	10	8	1	1

**DELETED TOPICS**

S .NO	Unit No.	Topic /Sub Topic to be Deleted in detail heads
1	Unit-1	1. 7. Contact lens: prescription and practice
2	Unit-2	
3	Unit-3	
4	Unit-4	<b>Maintenance of Medical Records and Staisicals.</b>

**OPHTHALMIC TECHNICIAN  
FIRST YEAR  
PAPER – I: ANATOMY, PHYSIOLOGY & PHARMACOLOGY (THEORY)**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions

10x2=20

(ii) Each question carries 2 marks

1. Define visual field?
2. What is convergence?
- 3 How do you check papillary Reflexes?
4. Draw neat labelled diagram of eye?
5. What do you mean by divergence & eyes?
6. What are photoreceptor cells?
7. What do you mean by eye orbit?
8. How does metabolism take place in Cornea?
9. Is the Cornea covered by conjuction?
- 10 What is the use of the eye?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.

(ii) Each question carries **six** marks.

11. Give specifications of eye orbit with diagram?
- 12 Explain the anatomy of eye lids.
- 13 Write about Iris?
14. Explain briefly about cornea?
15. Write about physiology of the eye?
16. How do you perform visual field tests?
- 17 Write about Sterilization?
- 18 Important of Urine examination related to Eye?
- 19 Waite about Tear film?
- 20 What do you understand by ocular Pharmacology?

**OPHTHALMIC TECHNICIAN  
FIRST YEAR  
PAPER – II: PHYSICAL & PHYSIOLOGICAL ASPECTS OF SPECTACLES.**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. Define LIGHT?
2. Define LASER and LASIKT
3. What are sign conventions?
4. Commonly used ophthalmic LASERS
5. What is the difference between H.M.C and SRC?
- 6 what is the use of Jackson's cross Cylinder
7. What does 'OD' and 'OS' represent in Ophthalmic Prescription?
8. Write about presbyopia?
9. What are aberrations?
10. What do you mean by “N.V” Add in prescription?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Explain briefly Aphakia?
12. Write about myopia with diagrams?
13. Explain briefly the properties of light
14. Explain Sign Conventions with diagram?
15. Waite about Astigmatism?
- 16 Waite about Properties of light?
17. Explain barely about Retinoscopy?
- 18 Explain briefly Snellen's Charts?
- 19 How is retraction done in Children?
- 20 Write all about Hypermetropia.



**OPHTHALMIC TECHNICIAN  
FIRST YEAR  
PAPER – III: COMMUNITY OPHTHALMOLOGY AND HEALTH EDUCATION**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. Define Blindness?
2. What are all the causes for Red eye?
3. Draw a neat labelled diagram of Eye.
4. Define squint?
5. What are the causes for Childhood blindness?
6. What are Bitot's spots?
7. What is corneal xerosis?
8. What is a chalazion?
9. Write about Eye donation
10. What is Human Eye?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write about vitamin A Deficiency?
12. Explain briefly about Cataract?
13. What is conjunctivitis?
14. Write about Trachoma?
15. Write about Eye Camps?
- 16 Explain all parts of Human Eye.
17. What are Common Eye Problems and their causes?
- 18 What is the purpose of School Screening?
- 19 What are good eye-health habits?
- 20 Write about Industrial Eye Screening?

**OPHTHALMIC TECHNICIAN  
SECOND YEAR  
PAPER – I SPECTACLE LENS GRINDING DISPENSING OF SPECTACLES (THEORY)**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. What is base curve?
2. How do you measure I.P.D?
3. Define Prism.
4. Write about Bi-focal grinding?
5. What is a trial frame?
6. Draw frame specifications, diagrams
7. How do you do cylindrical grinding?
8. What is Frame PD?
9. Write about bifocal fitting?
10. Write about Lens-loam"

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write about the types of lenses.
12. Write about Aphakic glasses.
13. Write steps about lens grinding.
14. Write about Multifocal-fitting.
15. Write in detail about Lensometer.
16. Write about Centration Of lenses.
17. Write about trial lenses.
18. What are the different types of frames available?
19. Write complete dispensing of frame.
20. Write about Human eye.

**OPHTHALMIC TECHNICIAN  
SECOND YEAR  
PAPER – II COMMON OCULAR DISEASES & PRIMARY OPERATION THEATRE PROCEDURES**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. Write about pink-eye?
2. What is a Style?
3. Write about Injuries to eye?
4. Define vision field?
5. What is a Keratometer?
6. Write about sub-conjunctival Haemorrhage
7. How do you achieve Asepsis?
8. Draw diagram of Lacrimal Apparatus.
9. What are the Causes for eye- Allergy?
- 10 write about albumin?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write about lid-infections?
12. Explain briefly Corneal ulcer?
- 13 Write about Vitamin-A Deficiency
14. Write about pre and post-operative instructions to patients?
15. Write about minor O.T Procedures?
16. Write about bandaging to eye?
17. Explain briefly Sac-syringing?
18. Draw a neat labelled diagram of eye lid?
19. Explain briefly Colour vision
20. How do you do visual field Tests?

**OPHTHALMIC TECHNICIAN**  
**SECOND YEAR**  
**PAPER – III REFRACTIVE ERRORS, MAINTENANCE OF INVESTIGATIVE INSTRUMENTS & EQUIPMENT [THEORY]**

Time: 3 hrs

Max Marks: 50

**Section - A**

Note: (i) Answer all the questions  
(ii) Each question carries 2 marks

10x2=20

1. How do you check distant vision?
2. Write about Pin-hole?
3. How do you check for Colour vision?
4. Write about Presbyopia.
5. What is Aprakia?
6. What is the use of occluder?
7. What is Myopia?
8. Define contact lens? '
9. Uses of Torch light in retraction.
10. How do you Check Near Vision?

**SECTION - B**

5 x 6 = 30

Note: (i) Answer any **five** questions.  
(ii) Each question carries **six** marks.

11. Write about Symptomatology and management of Hypermetropia?
12. Explain briefly instigmatism?
13. Explain Slit-lamp with diagrams?
- 14 Write briefly about visual acuity.
- 15 What are the advantages of contact lens?
16. Write about ophthalmoscope
17. Explain briefly Trial Set?
18. Why do we use keretometer?
19. Explain briefly squint?
20. Name some surgical Instruments?