

# **Question bank for F.Y. B.Sc. Botany**

**Paper-I Diversity Of Lower And Higher Cryptogams**

**Paper-II Economic And Applied Botany**

**-Prepared by-**

Chairperson, Members Of Board of Studies and Experienced  
teachers in Botany Of  
North Maharashtra University,  
Jalgaon.

**-Approved by-**

Dean, Science faculty,  
North Maharashtra University,  
Jalgaon.

# Botany paper I

## Diversity of Lower and Higher cryptogams

### Term-I

#### Chapter: 1 Diversity of Lower cryptogams

##### 2 Marks Questions:

1. Define diversity? Explain diversity in algae
2. What is diversity? Explain diversity in fungi
3. The study of algae is known as -----
  - a) Mycology
  - b) Phycology
  - c) Taxonomy
  - d) Physiology
4. The branch which deals with study of fungi is known as-----
  - a) Physiology
  - b) Ecology
  - c) Mycology
  - d) Phycology
5. Thalloid and non flowering plants are known as -----
  - a) Angiosperm
  - b) Thallophyta
  - c) Gymnosperm
  - d) Dicotyledons

#### Chapter: 2 Algae

##### 2 Marks Questions:

1. What is epiphytic algae
2. What is symbiotic algae
3. The reserve food material in algae is -----
  - a) cellulose
  - b) starch
  - c) protein
  - d) glycogen
4. The cell wall in algae is made up of-----
  - a) Chitin
  - b) cellulose

- c) pectin
- d) glycogen
- 5. Fusion between gametes of equal sizes is called -----
  - a) Isogamy
  - b) Anisogamy
  - c) Oogamy
  - d) Dichotogamy
- 6. Fusion between gametes of unequal sizes is called -----
  - a) Dichotogamy
  - b) Anisogamy
  - c) Oogamy
  - d) Isogamy
- 7. An alga growing on aquatic animal is called-----
  - a) Epizoic
  - b) Endozoic
  - c) Epiphytic
  - d) Terrestrial
- 8. The algae growing in seawater is known as -----
  - a) Freshwater algae
  - b) Terrestrial algae
  - c) Marine algae
  - d) Lithophytic algae

**4 Marks Questions:**

1. Give the general characters of algae.
2. Describe the methods of vegetative reproduction in algae.

**6 Marks Questions:**

1. Describe the range of thallus in algae.
2. Describe the methods of asexual reproduction in algae.
3. Describe the methods of sexual reproduction in algae.

**Chapter : 3 Classification of Algae**

**2 Marks Questions:**

1. Name the reserve food material found in Rhodophyta.
2. Name the reserve food material found in Cyanophyta.
3. What is the reserve food material in brown algae.
4. Name any two classes of algae in which motile cells are absent.
5. Plastids are absent in-----
  - a) Cyanophyta
  - b) Chlorophyta
  - c) Rhodophyta

- d) Phaeophyta
6. Motile cells are absent in the life cycle of -----
- a) Chlorophyceae
  - b) Euglenophyceae
  - c) Cyanophyceae
  - d) Chrysophyceae
7. Sexual reproduction absent in -----
- a) Cyanophyta
  - b) Chlorophyta
  - c) Phaeophyta
  - d) Rhodophyta
8. Xanthophyll is the principal pigment in the member of the----
- a) Chlorophyceae
  - b) Cyanophyceae
  - c) Xanthophyceae
  - d) Rhodophyceae
9. Which of the following has prokaryotic cells -----
- a) *Nostoc*
  - b) *Ulothrix*
  - c) *Sargassum*
  - d) *Spirogyra*
10. Desmophyceae and Dinophyceae are the classes of -----
- a) Pyrophyta
  - b) Phaeophyta
  - c) Chlorophyta
  - d) Chrysophyta
11. Sex organs are surrounded by sterile sheath in -----
- a) *Chara*
  - b) *Ulothrix*
  - c) *Sargassum*
  - d) *Nostoc*
12. Members of the Bacillariophyceae are commonly called as -----
- a) Blue greens
  - b) Grass green
  - c) Diatoms
  - d) Red algae

**4 Marks Questions:**

1. Give the importance characters of Cyanophyta.
2. Give the distinguishing features of Rhodophyta.
3. Give the distinguishing characters of Euglenophyta.

**6 Marks Questions:**

1. Give the outline classification of algae upto classes as given by G.M. Smith with suitable example of each.

2. Enlist the major divisions of algae as per G.M.Smith and give the distinguishing features of any one.
3. Give the distinguishing features of Chlorophyceae and Phaeophyceae.

## Chapter: 4 Study of Life History of *Ulothrix*

### 2 Marks Questions:

1. What is the function of hold fast in *Ulothrix*?
2. What is heterothallism?
3. Differentiate Macro and Microzoospores in *Ulothrix*
4. Differentiate aplanospores and Hypnospores
5. Girdle shaped chloroplast is found in -----
  - a) *Sargassum*
  - b) *Ulothrix*
  - c) *Sirogyra*
  - d) *Nostoc*
6. Multicellular, uniseriate and unbranched filamentous alga is -----
  - a) *Volvox*
  - b) *Vaucheria*
  - c) *Ulothrix*
  - d) *Pandorina*
7. *Ulothrix* produces-----
  - a) Quadriflagellate microspores
  - b) Biflagellate microspores
  - b) Quadriflagellate macrospores
  - d) all of above
8. Plant body of *Ulothrix* is -----
  - a) Sporophytic
  - b) Gametophytic
  - c) Parasitic
  - d) None of above
9. The flagella of zoospores in *Ulothrix* are ----- in position
  - a) Posterior
  - b) lateral
  - c) anterior
  - d) All of above
10. Zoospores are product of ----- reproduction in *Ulothrix*
  - a) Asexual
  - b) Vegetative
  - c) Sexual
  - d) Parthenogenesis

### 4 Marks Questions:

1. Sketch label and describe structure of cell in *Ulothrix*.
2. Describe the various types of zoospores in *Ulothrix*.
3. Give the classification with reasons of *Ulothrix*.

4. Palmella stage in *Ulothrix*.

**6 Marks Questions:**

1. Give the classification and external morphology of *Ulothrix*.
2. Sketch, label and describe *Ulothrix* filament.
3. Describe the various methods of asexual reproduction in *Ulothrix*.

**Chapter: 5 Study of Life History of *Sargassum***

**2 Marks Questions:**

1. How vegetative reproduction takeplace in *Sargassum*?
2. What is monoecious and dioecious?
3. Distinguish primary and secondary laterals in *Sargassum*
4. Sterile cavities present on leaves and air bladder of *Sargassum* are called as-----  
--
  - a) Conceptacles
  - b) Cryptoblasts
  - c) holdfast
  - d) None of above
5. Sexual reproduction in *Sargassum* is -----type
  - a) Isogamous
  - b) Anisogamous
  - c) Oogamous
  - d) None of above
6. *Sargassum* plant body is -----
  - a)Haploid
  - b)Diploid
  - c) Triploid
  - d) Monoploid
7. Which of the following is called as -----
  - a) *Volvox*
  - b) *Sargassum*
  - c) *Spirogyra*
  - d) *Ulothrix*
8. In *Sargassum* the part of the Oogonium that forms the psuedostalk is called as-----
  - a) Exochite
  - b) Mesochite
  - c) Endochite
  - d) stalk cells
- 9.The product of photosynthesis in sargassum is -----
  - a) Starch
  - b) Protein
  - c) Manitol
  - d) Glycerol

**4 Marks Questions:**

1. Give the systematic position of *Sargassum*.
2. Describe the process of fertilization in *Sargassum*
3. Give the graphical life cycle of *Sargassum*.
4. Describe the sex organs of *Sargassum*.
5. What are the functions of holdfast and air bladder of *Sargassum*.

**6 Marks Questions:**

1. Draw a labelled diagram and describe external morphology of *Sargassum*.
2. Sketch, label and describe T.S. of axis of *Sargassum*.
3. Sketch label and describe female conceptacle of *Sargassum*.
4. Sketch label and describe female conceptacle of *Sargassum*.

**Chapter: 6 Economic Importance of Algae**

**2 Marks Questions:**

1. Diatomaceous earth is obtained from -----
  - a) *Diatom*
  - b) *Sargassum*
  - c) *Ulothrix*
  - d) *Spirogyra*
2. Agar- agar is obtained from -----
  - a) *Ulothrix*
  - b) *Spirogyra*
  - c) *Gracillaria*
  - d) *Nostoc*

**4 Marks Questions:**

1. Explain the role of algae in petroleum and gas.
2. Write note on Agar-agar and diatomite.
3. Role of algae in space travel.
4. Explain spoilage of water reservoir by algae.

**6 Marks Questions:**

1. Role of algae in agriculture and industry.
2. Give the application of algae in food and medicine.
3. Describe harmful effect of algae.

**Section II : (FUNGI)**

**Chapter-7 Fungi**

**2 Marks Questions:**

- 1-What is coenocytic Mycelium?
- 2-What is obligate parasite?
- 3-What is plasmogamy?
- 4-The study of fungi is known as -----
  - a) Mycology
  - b)Phycology
  - c)Ecology
  - d)Taxonomy
- 5-Reserve food material in fungi is-----
  - a)cellulose
  - b)starch
  - c)protein
  - d)Glycogen & oil
- 6-Cell wall in fungi is made up of -----
  - a)Pectine
  - b)Chitin
  - c) Protein
  - d)Glycine
- 7-The mass of hyphae is known as -----
  - a) Penicillium
  - b) Mycelium
  - c) Plasmodium
  - d) Pseudopodium
- 8-Vegetative stage in Myxomycetes is called as-----
  - a) Plasmodium
  - b) Mycelium
  - c) Hypha
  - d) Pseudopodium

#### **4 Marks Questions:**

1. Describe thallus structure in Fungi.
- 2.Explain Oogamous reproduction in Fungi.
- 3.Explain gamatangial copulation in Fungi.
- 4.Describe Isogamy and Anisogamy in Fungi.

#### **6 Marks Questions:**

1. Describe the general characters of Fungi?
- 2.Describe the methods of reproduction in Fungi
- 3.What are Fungi? Give the habit and habitat of Fungi.
- 4.Describe the modes of nutrition in Fungi.

### **Chapter-8—Classification of Fungi**

#### **2 marks Questions:**

- 1.Aseptate mycelium is found in class-----

- a)Ascomycetes
  - b)Basidiomycetes
  - c)Myxomycetes
  - d)Phycomycetes
- 2.Septate mycelium is found in -----
- a)Ascomycetes & Myxomycetes
  - b)Basidiomycetes & Phycomycetes
  - c)Ascomycetes & Basidiomycetes
  - d)Ascomycetes & Phycomycetes
- 3.Ascocarp type of fruiting bodies are found in class-----
- a)Ascomycetes
  - b)Basidiomycetes
  - c)Phycomycetes
  - d)Myxomycetes
- 4.Basidiomycetes produces -----type of fruiting bodies
- a)Ascocarp
  - b)cleistothecium
  - c)Basidiocarp
  - d)Basidiospore
- 5.The fungi in which sexual reproduction is absent are classified in class-----
- a)Ascomycetes
  - b)Deuteromycetes
  - c)Phycomycetes
  - d)Myxomycetes
- 6.The mycelium in ascomycetes is -----
- a)Dikariotic
  - b)Monokariotic
  - c>Diploid
  - d)Multinucleate
- 7.What are zoospores?
- 8.Describe basidium
- 9.Eucarpic thallus
- 10.Holocarpic thallus
- 11.Conidium
- 12.Conidiophore

**4 Marks Questions:**

- 1-Give the characters of Deuteromycetes
- 2- Give the characters of Phycomycetes
- 3-Give the characters of Myxomycetes
- 4-Give the characters of Ascomycetes

**6 Marks Questions:**

- 1.Give outline classification of fungi as per G.M.Smith upto classes giving example of each class.
- 2.Differentiate class Phycomycetes and Ascomycetes.

3. Differentiate Div.-Myxomycophyta and Eumycophyta.
4. Describe the general characters of Basidiomycetes.

## Chapter-9 Study of Life History of *Albugo*

### 2 Marks Questions:

#### Describe-

- 1-Pustules of *Albugo*
- 2-White rust
- 3-Basipetal arrangement of sporangia
- 4-Sporangiophore
- 5-Oogamy in *Albugo*
- 6-Zoospore in *Albugo*
- 7-Hypertrophy
- 8-*Albugo* belongs to class-----
  - a)ascomycetes
  - b)Basidiomycetes
  - c)Myxomycetes
  - d)Phycomycetes
- 9-Female sex organ in *Albugo* is known as-----
  - a)Ascogonium
  - b)Oogonium
  - c)Archegonium
  - d)Antheridium
- 10-Sporangial arrangement in *Albugo* is -----succession
  - a)Basipetal
  - b) Acropetal
  - c)Centripetal
  - d)Centrifugal
- 11-White rust of crucifer is caused by-----
  - a)*Aspergillus*
  - b)*Agaricus*
  - c)*Albugo*
  - d)*Mucor*
- 12-All species of *Albugo* are -----
  - a)Facultative Parasites
  - b)Obligate parasites
  - c)Saprophytes
  - d)Epiphytes
- 13-In *Albugo* the structure which absorb food material from host is called-----
  - a)Mycelium
  - b)Haustoria
  - c)Rhizoids

- d)Conidium
- 14-Zoospores in *Albugo* are -----
- anteriorly biflagellate
  - laterally biflagellate
  - Quadriflagellate
  - Uniflagellate

**4 Marks Questions:**

- Give the graphic representation of life cycle of *Albugo*.
- Describe V.S. of leaf passing through sorus in *Albugo*.
- Explain fertilization in *Albugo*.
- Describe oogonium in *Albugo*.
- Sketch, label and describe antheridium of *Albugo*.
- Describe structure of hypha in *Albugo*.

**6 Marks Questions:**

- Give systematic position and symptoms of white rust caused by *Albugo*.
- Describe the asexual reproduction in *Albugo*.
- Describe the sexual reproduction in *Albugo*.
- With the help of labeled diagrams describe germination of oospore in *Albugo*.
- Sketch, label and describe sex organs in *Albugo*.

**Chapter-10 Study of Life history of *Eurotium***

**2 Marks Questions:**

- What is ascogenous hypha?
- What is ascocarp?
- What is ascus?
- Mode of nutrition in *Eurotium*
- What is dikarion?
- What is conidiophore?
- Explain conidial arrangement in *Eurotium*
- Discuss “*Eurotium* is homothallic”
- Aspergillus is -----stage of *Eurotium*
  - Perfect
  - Imperfect
  - Sexual
  - Vegetative
- Female sex organ in *Eurotium* is known as-----
  - Oogonium
  - Antheridium
  - Archegonium
  - Ascogonium
- The type of ascocarp in *Eurotium* is known as-----
  - Cleistothecium
  - Perithecium
  - Apothecium

- d)None of the above
- 12-Generally each ascus in *Eurotium* contain -----number of ascospores
- 7
  - 32
  - 8
  - 6
- 13-Conidia in *Eurotium* are -----
- terminally solitary
  - Solitary
  - in basipetal chain
  - in acropetal chain
- 14-Fertilization in *Eurotium* is by -----
- gametangial contact
  - gametangial copulation
  - oogamous
  - isogamous
- 15-Terminal unicellular part of ascogonium in *Eurotium* is known as -----
- archegonium
  - antheridium
  - trichogyne
  - oogonium

#### 4 Marks Questions:

- 1.Give the graphic representation of life cycle of *Eurotium*
- 2.Describe thallus structure in *Eurotium*
- 3.Sketch and label the conidia formation in *Eurotium*
- 4.Classify *Eurotium* giving reasons
- 5.Describe the process of fertilization in *Eurotium*
- 6.Discuss “*Eurotium* is perfect stage of *Aspergillus*”
- 7.Write a note on Cleistothecium

#### 6 Marks Questions:

- 1.Give the habit, habitat and systematic position of *Eurotium*.
- 2.Describe asexual reproduction in *Eurotium*
- 3.Sketch, label and describe sex organs in *Eurotium*
- 4.Describe ascocarp, asci, and ascospores in *Eurotium*
- 5.Describe sexual reproduction in *Eurotium*

### Chapter 11-Economic importance of Fungi

#### 2 Marks Questions:

- 1-What are antibiotics?
- 2-What is pathogen?
- 3-Role of Fungi in cheese making
- 4-Role of Fungi in bread making
- 5-Enlist any two organic acids produced by fungi

6-What is Mycorrhiza?

7-Name any two enzymes produced by Fungi

8-One of the common disease caused by fungi is-----

- a)Plague
- b)Cholera
- c)Typhoid
- d)Aspergillosis

09-Penicillin is produced by-----

- a)*Aspergillus*
- b)*Albugo*
- c)*Penicillium*
- d)*Spirulina*

10-Aspergillus is used for production of -----

- a)Penicillin
- b)Streptomycin
- c)Citric acid
- d)Acetic acid

11-One of fungi used as food from following is -----

- a)*Agaricus*
- b)*Albugo*
- c)*Penicillium*
- d)*Aspergillus*

12-----fungus is used in production of Alcohol

- a)*Yeast*
- b)*Albugo*
- c)*Streptomyces*
- d)*Penicillium*

13-Smut and rust diseased are caused by-----

- a)Bacteria
- b)Algae
- c)Viruses
- d)Fungi

#### **4 Marks Questions:**

- 1.Explain the role of fungi in fermentation industries.
- 2.Explain symbiotic activities of fungi.
- 3.Write a note on biodeterioration due to fungi.
- 4.Explain role of fungi in plant diseases.
- 5.Explain role of fungi in human and animal diseases.
- 6.Write a note on “fungi as food”.

#### **6 Marks Questions:**

- 1.Give the economic importance of fungi with respect to agriculture and food.
- 2.Give the applications of fungi in Industries and Medicine.
- 3.Describe the harmful activities of fungi.

## **BOTANY PAPER I (TERM 2<sup>nd</sup>)**

### **SECTION-1- BRYOPHYTES.**

#### **CHAPTER 1- Diversity in Higher Cryptogams**

##### **2 Marks Questions:**

- Q.1 Define diversity?  
Q.2 Which plants are higher cryptogamic plants?

#### **CHAPTER 2- Bryophytes**

##### **2 Marks Questions:**

- Q.1 Give any four characters of bryophytes?

#### **CHAPTER 3 Classification of Bryophytes**

##### **2 Marks Questions:**

- Q.1 Give any two examples of class Hepaticae and Anthocerotaceae.  
Q.2 Give any two examples of class Hepaticae and Musci  
Q.3 Give any two examples of class Anthocerotaceae and Musci  
Q.4 Give any four examples of Bryophytes?  
Q.5 The common term for class Hepaticae  
a) Stone worts  
b) Liver worts  
c) Horn worts  
d) Thorn worts  
Q.6 The common term for Anthoceraceae is  
a) Stone worts  
b) Liver worts  
c) Thorn worts  
d) Horn worts  
Q.7 The common term for class Musci is  
a) Mosses  
b) Sossess  
c) Horn worts  
d) Thorn worts  
Q.8 In Bryophytes essential factor for competition of life is  
a) Water  
b) Soil  
c) Light  
d) Fertilizers  
Q.9 Bryophytes flourish luxuriantly on  
a) Moist soil  
b) Dry soil  
c) Loamy soil  
d) Sandy soil

- Q.10 In Bryophytes the plant body generally is
- Liver shaped
  - Kidney shaped
  - Heart shaped
  - Girdle shaped
- Q.11 Among the land plants Bryophytes are described as
- Amphibious
  - Terrestrial
  - Aquatic
  - Marine
- Q.12 The juvenile stage of gametophyte in mosses is known as
- Gemmae
  - Bulbils
  - Protonema
  - Tubers
- Q.13 The protonema in *Funaria* is composed of
- Leaves and buds
  - Rhizoids and Stolons
  - Rhizoidal and Aerial branches
  - Seta and Capsule
- Q.14 The spores of *Funaria* on germination produce
- Buds
  - Calyx
  - Protonema
  - Sporophyte

#### 4 Marks Questions:

- Q.1 Which plants are higher cryptogamic plants.
- Q.2 How gametophyte of hepaticae differ from that of gametophyte of Musci Externally.
- Q.3 How sporophyte of Hepaticae differs from sporophyte of Musci.
- Q.4 Write on diversity in gametophyte of bryophytes.
- Q.5 Write on diversity in sporophyte of bryophytes.
- Q.6 Write the general characters of bryophytes.
- Q.7 Write a short note on vegetative propagation in bryophyta.
- Q.8 State general characters of bryophytes with reference to reproduction and Sporophyte.
- Q.9 Describe difference between bryophytes and pteridophytes.
- Q.10 Give any four characters of Hepaticae and any two examples of Hepaticae.
- Q.11 Give any four important character of class Anthocerotaceae with two examples Of class.
- Q.12 Write any four important characters of class Musci give two examples of class Musci.

## CHAPTER 4- Study of life history of *Riccia*.

### 2 Marks Questions:

- Q.1 Describe the Rhizoids of *Riccia*.
- Q.2 Give the nature of habitat where *Riccia* grow well.
- Q.3 Sketch and label the thallus of *Riccia* showing external feature.
- Q.4 State the names of methods of Vegetative reproduction in *Riccia*.
- Q.5 Give the name and position of sex organs of *Riccia*.
- Q.6 Give the dehiscence of Antheridium of *Riccia*.
- Q.7 Why sporophyte is dependend on gametophyte in *Riccia*.
- Q.8 Describe dispersal of spores in *Riccia*.
- Q. 9 Write about vegetative reproduction by tubers in *Riccia*.
- Q.10 Describe the structure of Anthrozoid in *Riccia*.
- Q.11 What do you mean by spore tetrad?
- Q.12 Name any two species of *Riccia* known to you.
- Q.13 Describe the position and structure of seeds in *Riccia*.
- Q.14 Describe the position of sporophyte of *Riccia*.
- Q.15 Mention any two differences of *Riccia* and *Funaria* with reference to Sporophyte.
- Q.16 Mention any two differences of rhizoids between *Riccia* and *Funaria*.
- Q.17 Give the position and function of *Riccia* rhizoids.
- Q.18 Comment on upper epidermis of thallus of *Riccia*.
- Q.19 Draw a labeled diagram of structure of spore of *Riccia*.
- Q.20 Describe the structure of spore of *Riccia*.
- Q.21 Describe the habitat of *Riccia*.
- Q.22 Decribe the dehiscence of sporophyte of *Riccia*.
- Q.23 Draw a labelled sketch of rhizoids of *Riccia*.
- Q.24 Draw a labelled sketch of scale of *Riccia*.
- Q.25 Draw a labelled sketch of dorsal view of *Riccia* thallus.
- Q.26 Draw a labelled sketch of ventral view of *Riccia* thallus.
- Q.27 Give function of rhizoids and scales of *Riccia*.
- Q.28 The sporophyte of *Riccia* is
- Independent
  - Dependent
  - Parasite
  - Partially dependent
- Q.29 Male sex gamete of *Riccia* is called
- Spermatia
  - Conidia
  - Sporotia
  - Anthrozoid
- Q.30 Spores of *Riccia* are organized in groups.
- Two
  - Four
  - Six

- d) Five
- Q.31 Draw a labeled diagram of archegonia in *Riccia*.  
Q.32 Draw a labeled diagram of anthredium in *Riccia*.  
Q.33 Write a short note on mechanism of dispersal of spores in *Riccia*  
Q.34 Why air pores in *Riccia* are not called stomata.  
Q.35 Is the sporophyte of *Riccia* wholly dependent on the gametophyte its nutrition and justify your answer.  
Q.36 Draw a neat and labeled diagram of T.S. of thallus of *Riccia*.  
Q.37 Comment on photosynthetic region in *Riccia* thallus.  
Q.38 Describe air canals in thallus of *Riccia*.

#### 4 Marks Questions:

- Q.1 Study of life history of *Riccia*.  
Q.2 Give the systematic position of *Riccia* with two reason at each stage.  
Q.3 Write a short note on fertilization in *Riccia*.  
Q.4 describe the structure of mature anthredium in *Riccia*.  
Q.5 Describe structure of mature archegonium in *Riccia*.  
Q.6 Describe different methods of vegetative reproduction in *Riccia*.  
Q.7 Give the functions of two different regions of *Riccia*.  
Q.8 With a labeled diagram describe sporophyte of *Riccia*.  
Q.9 Write a note on sex organs in *Riccia*.  
Q.10 Describe external morphology of adult gametophyte in *Riccia*.  
Q.11 Draw, label and describe the internal structure of thallus of *Riccia*.  
Q.12 Give position and structure of male sex organ in *Riccia*.  
Q.13 Give position and structure of female sex organ in *Riccia*  
Q.14 Describe dehiscence of sporophyte and dispersal of spores in *Riccia*.  
Q.15 Describe the structure of spores and germination of spores and *Riccia*.  
Q.16 How do the bryophytes differ from pteridophytes in structure of thallus.  
Q.17 Describe the various types of vegetative propagation observed in *Riccia*.

#### 6 Marks Questions:

- Q.1 Describe the gametophyte of *Riccia*.  
Q.2 Give diagrammatic Reproduction and alternation of generation in *Riccia* Thallus.  
Q.3 Describe habitat required for growth of *Riccia*. Give distribution of *Riccia* in India also give systematic position of *Riccia* With reasons.  
Q.4 Sketch, label and describe male and female reproductive structure in *Riccia*.  
Q.5 State the economic importance of bryophytes.

### CHAPTER 5- Study of life cycle of *Funaria*

#### 2 Marks Questions:

- Q.1 Give systematic position of *Funaria*.
- Q.2 Describe habitat required for the growth of *Funaria*.
- Q.3 Describe external morphology of *Funaria* thallus.
- Q.4 Describe apospory in *Funaria*.
- Q.5 Describe protonema in *Funaria*.
- Q.6 Sketch and labeled external morphology of sporophyte in *Funaria*..
- Q.7 Describe the function of foot and seta in *Funaria* sporophyte.
- Q.8 Sketch and label the internal structure of lid of capsule in *Funaria*.
- Q.9 Describe internal structure of foot of sporophyte of *Funaria*.
- Q.10 Describe internal structure of seta of sporophyte of *Funaria*.
- Q.12 Spores of *Funaria* germinate to produce.
- Buds
  - Calyx
  - Protonema
  - None
- Q.13 Anthridia bearing branch in *Funaria* is
- Antheridiochore
  - Antheridiophore
  - Antheridiome
  - None of these
- Q.14 Number of teeth in two sets of *Funaria* peristome are
- 8+8
  - 16+8
  - 16+16
  - 32+32
- Q.15 Moment in peristome teeth is called
- Xerochasy
  - Hydrochasy
  - Serichasy
  - Hygrochasy
- Q.16 Describe the function of conducting strand in stem of *Funaria*.
- Q.17 Describe structure and function of rhizoids in *Funaria*.
- Q.18 Describe structure of spores in *Funaria*.
- Q.19 Explain germination of spores in *Funaria*.
- Q.20 Sketch and labeled the primary protonema in *Funaria*.
- Q.21 Sketch and labeled the gametophyte of *Funaria*.
- Q.22 Compare the chloronemal and rhizoidal branch of primary protonema in *Funaria*.
- Q.23 Sketch and labeled the T.S of leaf of *Funaria*.
- Q.24 Describe vegetative reproduction with the help of bulbils in *Funaria*.
- Q.25 Give the function of perigonal leaf in *Funaria*.
- Q.26 Give the function perichaetial leaves in *Funaria*.
- Q.27 Sketch and labeled the structure of sperm in *Funaria*.
- Q.28 Describe the structure of sperm in *Funaria*.
- Q.29 Describe collumella in capsule of *Funaria*.

- Q.30 Gametophytic phase of *Funaria* consist of two stages viz
- Protenema and leafy gametophyte
  - Megaspore and Meiospore
  - Apospory and Hydrospory
  - None of these
- Q.31 *Funaria* produce two types of sex organs for sexual reproduction are
- Meiospore and Mitospore
  - Apospore and Gametes
  - Antheridia and Archegonia
  - Spermatia and Trichogyne
- Q.32 Antheridium of *Funaria* have two parts.
- Body and stalk
  - Body and leg
  - Body and neck
  - Body and rhizoids
- Q.33 *Funaria* peristome consist of following number of sets of peristome teeth
- Two
  - Three
  - Four
  - Eight
- Q.34 Juvenile stage of *Funaria* Gametophyte is
- Sarconema
  - Protonema
  - Peristome
  - Apospore
- Q.35 Central cylinder of *Funaria* stem perform two important functions are
- Mechanism of dispersal and germination of spores
  - Sporogenesis and fertilization
  - Mitospore production and its germination
  - To give mechanical support and conduction of water and solute
- Q.36 In *Funaria* following cells of archegonia disintegrate before fertilization
- Cortex and medulla
  - Parenchyma and epidermis
  - Neck canal cells and ventral canal cells
  - Theca and trama
- Q.37 Capsule of *Funaria* consist of
- Foot, seta and operculum
  - Foot seta and teeth
  - Apophysis, theca and operculum
  - Foot seta and elaters
- Q.38 Sporophyte of *Funaria* consist of
- Apophysis, theca and operculum
  - Foot, seta and elaters
  - Foot, seta and capsule
  - Body, stalk and teeth
- Q.39 Central axis of *Funaria* internally differentiated into 3 parts as

- a) Epidermis, Hypodermis and cortex
  - b) Epidermis, Hypodermis and medulla
  - c) Epidermis, Cotex and central cylinder
  - d) Hypodermis, Cotex and Medulla
- Q.40 Sketch and labeled the T.S of stem of *Funaria*.
- Q.41 Sketch and label the mature antheridium of *Funaria*.
- Q.42 Sketch and label the mature archegonium of *Funaria*.
- Q.43 Describe the dehiscence of capsule of *Funaria*.
- Q.44 Describe the habit and habitat required for *Funaria*.
- Q.45 Write a note on apophysis in *Funaria*.
- Q.46 Write a short note on Peristome in capsule of *Funaria*.
- Q.47 Draw a labeled diagram of archegonial branch of *Funaria*.
- Q.48 Sketch and label L.S of capsule of *Funaria* sporophyte.

#### 4 Marks Questions:

- Q.1 Describe structure of antherozoid in *Funaria*.
- Q.2 Describe internal structure of main axis of *Funaria*.
- Q.3 Sketch and label the inner structure of V.S of capsule of *Funaria*.
- Q.4 Describe external structure of adult *Funaria* plant bearing capsule.
- Q.5 Write a short note on mode of fertilization in *Funaria*.
- Q.6 Describe external and internal features of leaf of *Funaria*.
- Q.7 Describe any two methods of vegetative propagation in *Funaria*.
- Q.8 Describe structure of antheridium in *Funaria*.
- Q.9 Describe structure of archegonium in *Funaria*.
- Q.10 Give graphic representation of alternation of generation in *Funaria*.
- Q.11 Describe the structure and germination of spore in *Funaria*.
- Q.12 Give systematic position of *Funaria* with atleast two reasons at each stage of Classification.
- Q.13 Describe primary and secondary protonema in *Funaria*.
- Q.14 What are paraphysis, describe position and function of paraphysis in life cycle of *Funaria*.
- Q.15 Describe various types of vegetative reproduction found in *Funaria*.
- Q.16 Describe with labeled diagram structure of antheridiophore in *Funaria*.
- Q.17 Describe archegoniophore in *Funaria* with help of labelled diagram.
- Q.18 Describe with labeled diagram morphology of gametophyte in *Funaria*.
- Q.19 Describe internal structure of capsule of sporophyte of *Funaria*.
- Q.20 Describe dehiscence of capsule and dispersal of spores of *Funaria*.
- Q.21 Describe structure of antheridial branch in *Funaria*.
- Q.22 Give structure of archegonial branch in *Funaria*.
- Q.23 Describe lid and peristome in capsule of *Funaria*.
- Q.24 Describe in detail external morphology of *Funaria* with help of labeled diagram.

### **6 Marks Questions:**

- Q.1 Describe in detail gametophyte in Funaria.
- Q.2 Describe internal structure of leaf and stem of Funaria.
- Q.3 Describe with labeled diagram morphology of sporophyte in Funaria.
- Q.4 Describe structure of spore, germination of spore and structure of primary protonema in Funaria.
- Q.5 What is alternation of generation. Describe alternation of generation with reference to Funaria.
- Q.6 Describe sex organs in Funaria.
- Q.7 Compare morphological features of gametophyte of Riccia and Funaria.
- Q.8 Give comparative account of position and structure of archegonia of Riccia and Funaria.

## **CHAPTER 6-Economic Importance Of Bryophytes**

### **2 Marks Questions:**

- Q.1 State how bryophyte help in soil erosion.
- Q.2 State how bryophyte help in soil building.
- Q.3 State any four uses of peat mosses.
- Q.4 Describe the role of bryophytes in plant succession.
- Q.5 Describe role of bryophyte in conservation of soil.
- Q.6 Describe role of bryophyte in development of soil.
- Q.7 Describe role of bryophyte as packing material.
- Q.8 Describe role of bryophyte in plant growth.
- Q.9 Describe any four medicinal uses of bryophytes.

### **6 Marks Questions:**

- Q.1 Describe various economic importance of bryophytes.

## **DIVERSITY IN HIGHER CRYPTOGAMS**

### **CHAPTER 7- Pteridophytes**

#### **2 Marks Questions:**

- 1. State the nature of habitat required for the growth of pteridophytes.
- 2. The most primitive land plants are
  - a) Bryophytes
  - b) Pteridophytes
  - c) Gymnosperms
  - d) Fungi
- 3. Hydrophytic pteridophyte is
  - a) Lycopodium
  - b) Azolla
  - c) Equisetum
  - d) Selaginella
- 4. Pteridophytes are intermediates between

- a) Bryophytes and Gymnosperms      b) Thallophytes and Bryophytes  
 c) Bryophytes and Angiosperms      d) Gymnosperms and Angiosperms
5. Pteridophytes are called  
 a) Non-vascular cryptogams  
 b) Cellular cryptogams  
 c) Vascular cryptogams  
 d) Non-cellular cryptogams
6. Define eusporangiate type of sporangia.  
 7. Define leptosporangiate type of sporangia.  
 8. Define heterospory.  
 9. What is ligule?  
 10. What is megasporophyll?  
 11. What is microsporophyll?  
 12. Define rhizophore.  
 13. Differentiate between microspore and megaspore.  
 14. Differentiate between microsporangia and megasporangia.  
 15. Describe trabeculae.  
 16. The term vascular cryptogam denote cryptogams with  
 a) Vascular tissue                      b) Non-vascular tissue  
 c) Parenchymatous tissue      d) invisible tissue
17. In pteridophytes sexual reproduction is  
 a) Isogamous type      b) Anisogamous type  
 c) Nanogamous type      d) Oogamous type
18. Spores in pteridophyta are produced in special structures are called  
 a) Sporangia                      b) Archegonia  
 c) Antheridia                      d) gametangia
19. In pteridophyta fertilization occurs in presence of  
 a) Water                              b) Air  
 c) Light                              d) High Temperature
20. The origin of seed habit is associated with  
 a) Homospory                      b) Megasporangia  
 c) heterospory                      d) Microsporangia
21. Write any two features of pteridophytes showing similarities with Bryophytes.  
 22. In what respect the sporophyte of Pteridophytes and Spermatophytes are identical.  
 23. what are homosporous pteridophytes ? Give example.  
 24. What are heterosporous pteridophytes? Give example.  
 25. What is prothallus?  
 26. How rhizophore is considered as supportive feature.  
 27. Explain with labelled diagram Dictyostele.  
 28. Explain Endothecium.  
 29. Define stele, draw and explain protostele.  
 30. Distinguish between perigynium and perithecium.

#### **4 Marks Questions:**

- Q.1 What is diversity? Describe diversity with reference to sporophyte of Pteridophytes.
- Q.2 Write about diversity in habitat of pteridophytes.
- Q.3 Write diversity in male prothallus of pteridophyta.
- Q.4 Write diversity in female prothallus of pteridophyta.
- Q.5 Externally how sporophyte of Selaginella differ from sporophyte of Adiantum.
- Q. 6 State any eight features of pteridophytes
- Q. 7 Write any four distinguishing features of psilophyta.
- Q. 8 Differentiate sporophyte of psilophyta and lepidophyta.
- Q. 9 Write any four distinguishing features of lepidophyta.
- Q. 10 Write any four differences of lepidophyta and calamophyta.
- Q. 11 Explain in brief sporangia in pteridophyta.

### **Chapter-8 Classification of Pteridophytes**

#### **2 Marks Questions:**

- Q1. Plants belonging to division psilophyta
- a) Heterosporous                      b) Homosporous
- c) Without sporous                      d) Isosporous
- Q2. In division Psilophyta the sporophyte consists of under ground
- a) Root system                      b) Rhizoid system
- c) Rhizome and rhizoids                      d) Stem system
- Q3. In division Psilophyta vascular cylinder is
- a) Eustelic                      b) Actinostilic
- c) Protostilic                      d) Siphonostilic

#### **4 Marks Questions:**

- Q1. Differentiate between sporophyte of Calamophyta and Pteridophyta
- Q2. Give in detail distinguishing features of lepidophyta.
- Q3. Give in detail distinguishing features of Psilophyta.
- Q4. Give in detail distinguishing features of Clamophyta
- Q5. Write variation between division psilophyta and lepidophyta
- Q6. Explain characteristic features of lepidophyta give two examples of lepidophyta
- Q7. Explain characteristic features of Pterophyta give two examples.
- Q8. Differentiate between division lepidophyta and pterophyta of pteridophytes.

#### **6 Marks Questions:**

- Q 1. Give account of classification of pteridophytes by G M Smith up to classes with at least two examples of each class.

## Chapter-9 Study of life history of *Selaginella*

### 2 Marks Questions:

- Q1. Give systematic position of *Selaginella* with at least two reasons at each stage of classification.
- Q2. Explain external feature of *Selaginella* thallus.
- Q3. Explain internal feature of *Selaginella* thallus.
- Q4. Describe the stele of stem of *Selaginella*.
- Q5. Sketch and label T.S. of *Selaginella* stem .
- Q6. Sketch and label T.S. of *Selaginella* root.
- Q7. Sketch and label T.S. of Rhizophore of *Selaginella*.
- Q8. Sketch and label L.S. of Strobilus of *Selaginella*.
- Q9. Describe spermatozoid of *Selaginella*.
- Q10. Describe structure of mature embryo in *Selaginella*.
- Q11. Explain stele in *Selaginella*.
- Q 12. Sketch and label the male gametophyte in *Selaginella*.
- Q. 13 Sketch and label the female gametophyte in *Selaginella*.

### 4 Marks Questions:

- Q1. Describe Antheridium of *Selaginella*.
- Q2. Describe structure of mature archegonium of *Selaginella*.
- Q3. Give graphical presentation alternation of generation in *Selaginella*.
- Q4. Describe in brief morphological nature of the rhizophore of *Selaginella*.
- Q5. Write a note on mode of fertilization in *Selaginella*.
- Q 6. Describe in detail external morphology of *Selaginella* plant with the help of labeled sketch.
- Q7. Habit , Habitat & spore of *Selaginella* shows diversity. Explain.
- Q8. With the help of labeled sketch explain – internal structure of *Selaginella* stem.
9. Describe the structure of megasporangium in *Selaginella*.
10. Describe the structure of microsporangium in *Selaginella*.
11. Describe dehiscence of microsporangium and megasporangium in *Selaginella*.
12. Describe spermatozoid with labelled sketch in *Selaginella*.
13. Describe the structure of archegonium in *Selaginella* .
14. Describe the process of fertilization in *Selaginella*.
15. Describe development and structure of mature embryo in *Selaginella*.
16. Describe how heterospory leads to seed habit.
17. Distinguish the rhizophore of *Selaginella* from roots of *Selaginella*.
18. Explain the leaf arrangement of *Selaginella*.
19. Embryo in *Selaginella* is endosporic explain.
20. How rhizophore of *Selaginella* resemble with stem and roots of *Selaginella*. State two characters of each.
21. Mention any two types of vegetative reproduction in *Selaginella*.
22. Explain the habitat required for the growth of *Selaginella*.
23. Explain external feature of leaf of *Selaginella*.
24. Give the external feature of ligule of *Selaginella*.

25. Give the structure of *Selaginella* microspore.
26. Give the structure of megaspore of *Selaginella*.
27. Explain in brief how dehiscence of sporangia takes place in *Selaginella*.
28. Give systematic position of *Selaginella*.
29. Describe structure of microsporangium of *Selaginella*.
30. Describe structure of megasporangium of *Selaginella*.
31. Sketch and label the parts of microsporangium and megasporangium of *Selaginella*.

### 6 Marks Questions:

1. Describe organization of megaspore & development of female gametophyte in *Selaginella*.
2. Explain germination of microspore & development of male gametophyte in *Selaginella*.
3. *Selaginella* is quite distinct from *Adiantum* explain in brief.
4. Describe alternation of generation in *Selaginella*.

## Chapter 10: Study of life history of *Adiantum*

### 2 Marks Questions:

- 1) Give systematic position of *Adiantum*.
- 2) Describe the habitat in which *Adiantum* grows well.
- 3) Describe the structure of spore of *Adiantum*.
- 4) The presence of two types of leaves on plants is called-
  - a) Homophily
  - b) Isophily
  - c) Heterophily
  - d) None of these.
- 5) Spore producing organ in *Adiantum* is –
  - a) Strobilus
  - b) Cone
  - c) Sori
  - d) Rhizome
- 6) Production of two types of spore is referred as –
  - a) Homospory
  - b) Heterospory
  - c) Isospory
  - d) Anisospory
- 7) Why sporophyte and gametophyte are independent in *Adiantum*.
- 8) One of the living genus of pteridophyte is –
  - a) Eklapteris
  - b) *Adiantum*
  - c) Calamostachys
  - d) *Selaginella*.
- 9) Leaves of *Adiantum* are –
  - a) Microphyllous

- b) Simple
  - c) Compound
  - d) Pinnately compound
- 10) Xylem in rhizome of *Adiantum* is –
- a) Endarch
  - b) Polyarch
  - c) Exarch
  - d) Mesarch
- 11) In *Adiantum* sporangia liberate spores through-
- a) annulus
  - b) Indusium
  - c) False indusium
  - d) Stromium
- 12) Prothallus of *Adiantum* is-
- a) Spherical shape
  - b) Rod shaped
  - c) Comma shaped
  - d) Heart shaped
- 13) Antherozoid of *Adiantum* is-
- a) Biflagellate
  - b) Triflagellate
  - c) Tetraflagellate
  - d) Multiflagellate
- 14) Define protostele.
- 15) Explain morphology of rhizome of *Adiantum*.
- 16) Explain morphology of leaf of *Adiantum*.
- 17) Sketch and label the parts of T.S. of stem of *Adiantum*.
- 18) Sketch and label the parts of T. S. *Adiantum* rhizome.

#### 4 Marks Questions:

- 1) Explain stele organization in *Adiantum* stem and rhizome.
- 2) Describe how fertilization takes place in *Adiantum*.
- 3) Classify *Adiantum* with at least two reasons at each stage of classification.
- 4) With neat and labeled diagram describe structure of sporangium and spore in *Adiantum*.
- 5) Describe alternation of generation in *Adiantum*.
- 6) Describe internal structure of root of *Adiantum*.
- 7) Describe T.S. of petiole of leaf in *Adiantum*.
- 8) Describe internal structure of lamina of leaf in *Adiantum*.
- 9) Describe external morphology of sporophyte of *Adiantum*.
- 10) Describe sporophyll in *Adiantum*.

#### 6 Marks Questions:

- 1) Describe with the help of neat and labeled diagram gametophyte of *Adiantum*.

2) Describe the structure of male and female sex organs in *Adiantum*.

## **Chapter 11: Economic importance of Pteridophyte**

### **4 Marks Questions:**

- 1) State in brief any four importance of Pteridophyte.
- 2) Give economic importance of Pteridophyte.

## Paper II- (BOT1.2)

### Question Bank on Economic Botany

#### Chapter-1: Economic Botany

##### 2 Marks Questions

1. What is green revolution?
2. Explain any two importance of economic botany.
3. What is gene center?
4. Give origin of rice and wheat plants.
5. Give origin of cotton and sugarcane plants.
6. Describe Chinese center of origin of cultivated plants.

##### 4 Marks Questions

1. Write short notes on 'Green revolution in India'.
2. Write short notes on 'The South American Centre of origin of cultivated plants'.
3. Write short notes on Scope of economic botany.
4. Write short notes on Plants and human health.
5. How green revolution has been achieved explain it.

##### 6 Marks Questions

1. Describe the role of plants in human welfare.
2. What is economic botany and give its scope.
3. Describe any three center of origin of cultivated plants.

#### Chapter-2: Industrial plant products

##### A) Industrial revolution brought by crops

##### 2 Marks Questions

1. What is industrial revolution?
2. Give botanical name and source of rubber plant
3. What is latex?
4. Give botanical name of sugarcane plant.
5. Give botanical name of cotton plant.

##### 4 Marks Questions

1. Write short notes on ' Sugar industries of Maharashtra'.
2. Write short notes on ' Cotton industries of Maharashtra'.

### **6 Marks Questions**

1. are useful for solving unemployment problems. Explain how cotton crop help for industrial revolution.
2. Explain how sugar industries

### **B) Starch**

#### **2 Marks Questions**

1. Give chemistry of starch.
2. Describe any four characteristics of starch.
3. Describe any two types of starch grains.
4. Give two properties of starch.

#### **4 Marks Questions**

1. Give uses of starch.
2. Give chemistry and characteristics of starch.
3. Describe physical properties of starch.
4. Describe various by-products of starch.
5. Give applications of corn starch.

#### **6 Marks Questions**

1. Describe the process of manufacture of starch from maize.
2. Describe various types of starch grains with suitable examples.

### **C) Sugars**

#### **2 Marks Questions**

1. Give chemistry of cane sugar.
2. Give any four characteristics of cane sugar.
3. Explain the Press mud.
4. Explain the Bagasse.

#### **4 Marks Questions**

1. Describe the morphology of Sugarcane plant.
2. Give importance of molasses.
3. Write short notes on classification of sugar cane juice.
4. Write short notes on concentration of crystallization of sugarcane juice.
5. Give diagrammatic flow sheet of sugar industry.
6. Describe any two by-products of sugar cane industry.
7. Write short notes on Molasses.

### **6 Marks Questions**

1. Describe in brief the process of manufacture of sugar from sugarcane.
2. What is cane sugar? Give its chemistry and characteristics.
3. Enlist the by-products, sugar industry with its uses.

### **D) Oils**

#### **2 Marks Questions**

1. Define the oils.
2. What is oil? And classify the oil.
3. What is volatile oil? And give two characters of it.
4. Give chemical nature of fatty oils.
5. What is fatty oils? Give two characters of it.
6. Explain the following- Vegetable oils.
7. Explain the following- Drying oil
8. Explain the following- semidry oil.
9. Explain the following- Non-drying oil.
10. Give physical properties of fatty oils.
11. Give importance (any four) of fatty oils.
12. Give botanical source and uses of rose oil.

#### **4 Marks Questions**

1. Give difference between essential oil and fixed oil.
2. Classify the fatty oil on their characters
3. What is essential oil? Give chemical nature of it.
4. Give properties of volatile oils.
5. Give source of rose oil and describe the process for obtaining rose oil.
6. Give source of groundnut oil and give its properties.
7. Describe the chemical nature and uses of groundnut oil.

#### **6 Marks Questions**

1. What are oils? Give the sources and process of extraction of fixed oil.
2. Give botanical source, properties and uses of groundnut oil.
3. Give botanical source, method of extraction and uses of rose oil.

### **E) Fibres**

#### **2 Marks Questions**

1. What are fibers?
2. Explain surface fibers with example.
3. Explain surface soft fibers with example.

4. Explain surface leaf fibers with example.
5. Classify the fibers on the basis of commercial uses.
6. Mention the botanical name of cotton and parts used.
7. Explain the Ginning process.
8. Explain lapping and twisting process.
9. Give botanical name of coir and mention the parts used.
10. What is coir dust?

#### **4 Marks Questions**

1. Describe botanical characters of *Gossypium* sp.
2. Describe botanical characters of *Cocos nucifera*.
3. Write short notes on Harvesting and Ginning of cotton.
4. Write short notes on Surface and Hard fibers.
5. Give botanical source and uses of cotton.
6. Give botanical source and uses of coir.

#### **6 Marks Questions**

1. Describe the process of harvesting and Ginning of cotton fiber.
2. Give characteristics of process of coir fiber preparation.
3. Give sources of coir and explain extraction and uses of coir.

#### **F) Rubber**

##### **2 Marks Questions**

1. What is rubber?
2. Give sources of rubber.
3. Give two properties of rubber.

##### **4 Marks Questions**

1. Write short notes on Tapping of latex.
2. Write short notes on processing of rubber.
3. Give sources and properties of rubber.
4. Give uses of rubber.

##### **6 Marks Questions**

1. What is *Hevea* rubber and describe process of manufacture of para rubber.
2. Give properties and uses of rubber.

#### **G) Paper**

##### **2 Marks Questions**

1. What is paper?
2. Mention the sources of raw materials of paper.

3. Explain the Newspaper and Blotting paper.
4. Explain the Fine paper and Paperboard.
5. What is pulp?

#### **4 Marks Questions**

1. Write short notes on – Mechanical process for obtaining pulp.
2. Write short notes on – Chemical process for obtaining pulp.
3. Write short notes on – Kinds of paper.
4. Give uses of paper.
5. Describe the mechanical process for pulping.
6. Describe chemical process for pulping.
7. Write short notes on Calendaring process in paper manufacture.

#### **6 Marks Questions**

1. Describe various process of pulping.
2. Describe the process of manufacturing of paper from pulp.
3. Give sources and raw material for manufacture of paper.
4. Mention the different types of paper products and uses of paper.

### **Chapter-3: Sources of food**

#### **3.1-Cereals**

##### **2 Marks Questions**

1. What are cereals?
2. Give chemical content of wheat grain.
3. Give chemical content of rice grain.
4. Give external morphology of wheat grain.
5. Give external morphology of rice grain.
6. Mention importance of cereals.
7. Describe fruit of cereal in general.

##### **4 Marks Questions**

1. Write short notes on Botanical characteristics of cereal plants.
2. Write short notes on Chemical content and structure of wheat grain.
3. Write short notes on Chemical content and structure of rice grain.
4. Give uses of wheat.
5. Give uses of rice.

##### **6 Marks Questions**

1. Give botanical name, chemical content and uses of rice.
2. Give botanical name, chemical content and uses of wheat.

### **3.2-Pulses**

#### **2 Marks Questions**

1. What are pulses?
2. Give chemical content of Pigeon Pea.
3. Give chemical content of *Cicer arietinum*.

#### **4 Marks Questions**

1. Describe botanical characteristics of pulse yielding plants.
2. Describe importance of pulses.

#### **6 Marks Questions**

1. Mention botanical source, chemical content and uses of Tur.
2. Mention botanical source, chemical content and uses of Chic pea.
3. Mention botanical source and external morphology of Pigeon plant.
4. Mention botanical source and external morphology of Chick pea.

## **Chapter 4: Food adjuncts**

### **4.1-Spices**

#### **2 Marks Questions**

1. What are spices?
2. What are food adjuncts?
3. Give chemical content of black pepper.
4. Mention botanical name and parts used of black pepper.
5. Give chemical constituents of Turmeric.
6. Mention botanical name and parts used of Turmeric.

#### **4 Marks Questions**

1. Write short notes on – Importance of spices.
2. Write short notes on – Food adjuncts.
3. Describe external morphology of black pepper plant.
4. Describe external morphology of Turmeric plant.
5. Give uses of black pepper.
6. Give uses of Turmeric.

#### **6 Marks Questions**

1. Give botanical source, chemical content and uses of black pepper.
2. Give botanical source, chemical content and uses of Turmeric.
3. Describe external morphology and uses of black pepper.
4. Describe external morphology and uses of Turmeric.

## **4.2-Beverages**

### **2 Marks Questions**

1. What are beverages?
2. Mention active principle of Tea.
3. Mention active principle of Coffee.
4. Mention botanical source and parts used of Tea.
5. Mention botanical source and parts used of Coffee.

### **4 Marks Questions**

1. What are beverages? Give importance of beverages.
2. Write short notes on – External morphology of Tea plant.
3. Write short notes on – External morphology of Coffee plant.
4. Give botanical source, chemical content and uses of Tea.
5. Give botanical source, chemical content and uses of Coffee.

### **6 Marks Questions**

1. Mention botanical source, chemical content and uses of Tea.
2. Mention botanical source, chemical content and uses of Coffee.
3. Describe external morphology and uses of Tea.
4. Describe external morphology and uses of Coffee.

## **F.Y.BSc Botany Paper II : Applied Botany**

### **Chapter 1: Introduction to Applied Botany**

#### **2 Marks Questions:**

1. Define applied botany.
2. Enlist the branches of applied botany.
3. Differentiate green house and poly house.
4. Differentiate organic farming and molecular farming.
5. What are biotech food.
6. What is VAM.
7. Name the species used for the control of chick pea stem rot.
8. Give full form of RFLP and RAPD.
9. What is MAS.
10. What is Bt cotton.
11. Define cry gene.
12. What do you mean by genetically modified crop. Name any two.
13. Name two species of herbicides.
14. Name two species of pesticides.
15. Where herbal biscuits are develop.
16. What is plasticulture.

17. What is the scope of applied botany.
18. Comment on the industrial revolution brought by crop plants.

#### 4 Marks Questions:

1. What is applied botany? Specify the important branches of applied botany.
2. What is the scope of applied botany?
3. State the role of applied botany in biodiversity conservation.
4. Comment on biological control.
5. Write briefly on molecular farming.
6. Distinguish between herbal pesticides and fungicides.
7. Comment on green house, poly house and plasticulture.

#### 6 Marks Questions:

1. Define applied Botany and give its scope and importance in brief.
2. Enlist various branches of applied botany and describe the role of plant tissue culture.

## Chapter 2 :Organic Manures and Biofertilizers

#### 2 Marks Questions:

1. Which medium is used for *Rhizobium* culture.
2. Distinguish between Farm Yard Manure and Green Manure.
3. Define Biofertilizers.
4. A Biofertilizer *Rhizobium* can fix atmosphere nitrogen only –
  - a) Symbiotically
  - b) In symbiotic association with leguminous plant
  - c) Inside root nodule cells
  - d) As mentioned in each of these
5. Which of the following is a non-symbiotic biofertilizer –
  - a) *Azotobacter*
  - b) *Rhizobium*
  - c) *Anabaena azollae*
  - d) None of these
6. One of the following is not a biofertilizer, identify
  - a) *Azotobacter*
  - b) *Rhizobium*
  - c) *Anabaena*
  - d) *Clostridium*
7. *Rhizobium* is isolated from –
  - a) Root nodules
  - b) Leaf
  - c) Stem
  - d) None of these
8. Which medium is used for the culturing of *Rhizobium*.
9. *Rhizobium* is a –

- a. Terrestrial saprophytic biofertilizer
  - b. Symbiotic biofertilizer
  - c. Endotrophic fungus
  - d. Ectotrophic fungus
10. What is meant by 'Humus'.
11. Explain what is meant by 'compost'.
12. What is meant by green manure.
13. Which biofertilizer are particularly more helpful in paddy fields.
- a) *Clostridium* and *Azotobacter*
  - b) Mycorrhizae
  - c) Symbiotic and non-symbiotic
  - d) Symbiotic *Rhizobium*
14. Explain the term symbiotic association.
15. Explain the term non-symbiotic association.
16. From which source *Rhizobium* is isolated
17. *Rhizobium* helps to improve
- a) Nitrogen percentage in all agricultural soils
  - b) Nitrogen metabolism in certain crop plants
  - c) Nitrogen contents of soil atmosphere
  - d) All of these
18. Which of the following is not a biofertilizer
- a) *Nostoc*
  - b) *Aulosira*
  - c) *Ulothrix*
  - d) *Tolypothrix*
19. Heterocysts help in N – fixation
- a) All Biofertilizers
  - b) All symbiotic Biofertilizers
  - c) *Nostoc*, *Clostridium*, *Azotobacter*
  - d) *Aulosira*, *Rhizobium*, *Bacillus*, *Polymyxa*
20. The biological nitrogen fixers are called
- a) Micro-organisms
  - b) Diazotrophs
  - c) Organic fertilizers
  - d) All of these
21. Biofertilizers convert nitrogen to
- a) Nitrates
  - b) Ammonia
  - c) Nitrogenase
  - d) Amino acids
22. Define organic manures.
23. Define fertilizers.
24. Explain the term 'Farm Yard Manure'.
25. What is Rhizo fertilizer.
26. What is Azo fertilizer.
27. What is algal biofertilizer.

28. What is chemical constituent of YEMA medium.
29. Enlist the different type of Biofertilizers.
30. Enlist the different methods used for mass culturing of BGA.
31. Enlist the Cyanobacteria (BGA) involved in algal Biofertilizers.
32. What is Azolla fertilizer.
33. "Cyanobacteria are used as biofertilizer" comment.
34. "Azolla is recommended as biofertilizer" comment.
35. Enlist the plants commonly used for green manuring.
36. Enlist the different kinds of fertilizers of biological origin.
37. Paddy fields do not require additional dosage of nitrogenous compound.
38. From the following which one is organic manure –
- Humus
  - Compost
  - Farm Yard Manure
  - All above
39. From the following which one is organic manure –
- Urea
  - Green Manure
  - Vermicompost
  - BGA
40. The Green manuring increases the agricultural crop yield by –
- 10-20 %
  - 30-50 %
  - 60-70 %
  - 100 %
41. Find odd man out –
- Rhizo fertilizer
  - Azo fertilizer
  - Azo spirillum
  - BGA
42. --- medium is used for culturing *Rhizobium*
- Chu's medium
  - YEMA
  - De's medium
  - None of these
43. --- medium is not used for culturing BGA
- YEMA
  - Allen and Anonis
  - Chu's
  - De's
44. --- methods used for mass culturing of BGA
- Open air shallow culture
  - Tank
  - Closed circulation culture
  - All the above
45. --- fertilizers used in Rise cultivation

- a)Algal
  - b)Bacterial
  - c)Fungal
  - d)None of the above
- 46.---is symiotic bacterium
- a)*Azatobacterium*
  - b)*Azospirillum*
  - c)*Bacillus*
  - d)*Rhizobium*
- 47.Find odd man out
- a)*Nostoc*
  - b)*Anabaena*
  - c)*Tolypothrix*
  - d)*Rhizobium*
- 48.Enlist the types of Biofertilizers
- 49.Distinguish between humus and compost.
- 50.Define organic manure.
- 51.Mention any two uses of BGA.
- 52.Give composition of YEMA medium
- 53.Comment on De's modified medium
- 54.What is *Agrobacterium*.
- 55.What is *Tolypothrix*.
- 56.Name any two algae useful in N<sub>2</sub> fixation.
- 57.Give example of symbiotic bacterium used as Biofertilizers
- 58.Give examples of non-symbiotic bacteria.
- 59.Enlist the biological nitrogen fixers.
- 60.Write full form of FYM.
- 61.Name any two Biofertilizers used for rise cultivation.
- 62.What is Azo fertilizer.
- 63.What do you meant by Green manures.
- 64.What do you meant by compost.
- 65.What do you meant by humus.
66. A biofertilizer *Rhizobium* can fix atmospheric nitrogen only-
- a)Symbiotically
  - b)In symbiotic association with leguminous plant
  - c)Inside root nodule cells
  - d)All above
- 67.Which one of the following is a non symbiotic organism
- a)*Azotobacter*
  - b)*Rhizobium*
  - c)*Anabaena Azollae*
  - d)None of these
- 68.One of the following is not a Biofertilizers, identify
- a)*Azotobacter*
  - b)*Nitrosomonas*
  - c)*Anabaena*

- d) *Clostridium*
69. *Rhizobium* is isolated from
- Root nodules
  - Stem
  - Leaf
  - None of these
70. Which medium is used for the culturing of *Rhizobium*
71. Which Biofertilizers are particularly more helpful in paddy fields
- Clostridium and Anabaena*
  - Mycorrhiza
  - Symbiotic and non-symbiotic cyanobacteria
  - Symbiotic *Rhizobium*
72. *Rhizobium* help to improve
- Nitrogen percentage
  - Nitrogen metabolism in certain crop plants
  - Nitrogen contents of soil atmosphere
  - All of these
73. Which of following is not a biofertilizer
- Nostoc*
  - Aulosira*
  - Ulothrix*
  - Topypothrix*
74. The biological N<sub>2</sub> fixers are called
- Micro-organisms
  - Organic fertilizers
  - Diazotrophs
  - All these
75. Biofertilizers convert nitrogen to
- Nitrates
  - Nitrogenase
  - Ammonia
  - Amino acid
76. What is Azo fertilizer
77. What is algal fertilizer
78. What is the chemical content of YEMA medium
79. Enlist the different methods used for mass culture of BGA
80. What is *Azolla* fertilizer.
81. Enlist the plant commonly used for green manuring.
82. "Paddy fields do not require additional dosage of N<sub>2</sub> fixers" comment.

#### 4 Marks Questions:

- Mention the types of organic manures.
- What is the importance of biofertilizers
- Give types of biofertilizers.
- Describe the method of cultivation of BGA.

5. Describe the method of mass culturing of BGA.
6. Comment on Open air shallow culture method.
7. Mention the importance of BGA in agriculture.
8. Write the steps of isolation of *Rhizobium* from root nodules.
9. Describe the methods of *Rhizobium* mass production.
10. Mention the applications of *Rhizobium* in agriculture.
11. Give the method of preparation of De's method.
12. Give the method of application of BGA in agriculture.
13. Explain the importance of organic manure in agriculture.
14. Explain in brief isolation of *Rhizobium* from root nodules of leguminous plants.
15. What is meant by pure culture of *Rhizobium*.
16. Define organic manures and add a note on its importance.
17. Define biofertilizers and add a note on its importance.
18. Explain the preparation of culture medium for BGA culture.
19. Explain mass cultivation of BGA copes air culture method.
20. Explain the mass production of *Rhizobium* fertilizer.
21. Write a short account on biofertilizer.
22. Distinguish humus and compost.
23. Differentiate between farmyard manure and compost.
24. Comment on green manure with example.
25. Enlist symbiotic and non-symbiotic Nitrogen fixing organism.
26. Mention the use of biofertilizer in rice fields.
27. What are *Azo* fertilizers? explain.
28. Highlight the methods of application of *Rhizobium*.

### **6 Marks Questions:**

1. What are biofertilizers? Write their types and importance.
2. What are organic manures? Describe their types and importance.
3. What are biofertilizers. Describe different types of biofertilizers.
4. Give an account of biofertilizers.
5. Define organic manure. Describe different types of organic manures.
6. Give importance of organic manures and biofertilizers in Agriculture.
7. Describe the Venkat Raman's method (1963) of mass cultivation of BGA.
8. Describe the method of preparation of *Rhizobium* pure culture.
9. Give an account of organic manures.
10. Enlist the symbiotic and non-symbiotic organisms used as biofertilizers.
11. Define fertilizer. Add note on organic manures/ biofertilizer.
12. What is BGA fertilizer? Describe the method of mass production of BGA.
13. Explain in short, method of mass production of BGA and its application in Agriculture.
14. Give importance of organic manures and biofertilizers in Agriculture.
15. "Waste generates wealth" explain with reference to manures.

## Chapter 3: Fermentation Technology

### 2 Marks Questions:

1. What is fermentation.
2. Enlist the products of fermentation.
3. "Fermenters are also called bioreactors" explain.
4. Differentiate aerobic fermentation and anaerobic fermentation.
5. What are actinomycetes. How are they useful to fermentation.
6. Mention uses of ethanol.
7. Enlist the microbes used in fermentation.
8. Which species of yeast is used in fermentation.
9. Which species of moulds are used in fermentation.
10. Why actinomycetes are useful in fermentation.
11. What is the source of Penicillin.
12. What is the source of Streptomycin.
13. Which organism is used in fermentation of citric acid.
14. "Fermenters and bioreactors are synonyms or different" comment.
15. Give botanical name of yeast.
16. Explain the following
  - e) Fermenters
  - f) Type of fermentation
  - g) Ferments
17. Define fermentation.
18. Write the species of *Streptomyces* which are used in fermentation process.
19. Describe products obtained from fermentation.
20. Write the steps involved in general process of fermentation.
21. Explain the term "inoculum".
22. Which micro-organisms are utilized in industrial production of ethanol.
23. Describe substrate used for production of ethanol.
24. Describe reactions which takes place at the time of ethanol production.
25. Microbes responsible for the fermentation are called as-
  - a) Ferments
  - b) Fermenters
  - c) Moulds
  - d) Micro-organisms.
26. *Aspergillus*, *Mucor*, *Rhizopus* and *Penicillium* are the examples of-
  - a) Bacteria
  - b) Yeast
  - c) Moulds
  - d) Actinomycetes
27. What is aerobic and anaerobic fermentation.
28. Give scientific reason. "The raw material is used for fermentation is sterilized before the inoculum is added to it".
29. Write a note on upstream processes in the production of ethanol.
30. Write a note on downstream processes in the production of ethanol.
31. What is fermentation. Enlist any two uses of fermentation.

32. Explain preparation of inoculum in general fermentation process.
33. Enlist the organic acids as a product of fermentation.
34. Explain preparation of inoculum in process of production of ethanol.
35. Explain preparation of medium for process of production of ethanol.
36. Explain chemical reaction occurred in process of ethanol production.
37. How absolute alcohol is prepared from ethanol.
38. Enlist the different moulds involved in process of fermentation.
39. Write a note on uses of ethanol.
40. Aerobic fermentation takes place in presence of-
- Nitrogen
  - Carbon dioxide
  - Oxygen
  - Ozone.
41. The yeast involved in process of fermentation is –
- Saccharomyces*
  - Streptomyces*
  - Bacillus*
  - Aspergillus*
42. Actinomycetes \_\_\_\_\_ is used for production of antibiotics.
- Saccharomyces*
  - Streptomyces*
  - Bacillus*
  - Aspergillus*.
43. The common moulds involved in fermentation are-
- Penicillium*
  - Aspergillus*
  - Giberella*
  - All of them.
44. For alcohol fermentation, production medium contains-
- Black strap molasses
  - Proteins
  - Fats
  - None of above.
45. Yeast cells in fermentation broth is separated by-
- Settling
  - Precipitation
  - Distillation
  - Extraction
46. In alcoholic fermentation, product is recovered by-
- Evaporation
  - Distillation
  - Extraction
  - Precipitation
47. Organic acids are recovered by-
- Distillation
  - Precipitation

- c) Extraction
  - d) Evaporation.
48. \_\_\_\_\_ not involved in fermentation process.
- a) Algae
  - b) Bacteria
  - c) Moulds
  - d) Yeast
49. \_\_\_\_\_ alcohol is used in preparation of alcoholic beverages-
- a) Methyl
  - b) Ethyl
  - c) Both
  - d) None

#### **4 Marks Questions:**

1. What are the steps of fermentation process? Elaborate.
2. Enlist the species involved in fermentation.
3. Describe the process of ethanol production.
4. Enlist the various products of fermentation.
5. What are the different methods used in recovery of fermentation process.
6. Write only fermentation process of ethanol.
7. Explain the types of fermentation process.
8. What are basic pre-requisites of any industrial fermentation process.
9. Write flowsheet of production of ethanol.
10. What are different substrates used for alcohol production.
11. What are the uses of ethanol.
12. Mention optimum conditions required for alcohol fermentation.
13. Give the process of recovery of end product of fermentation.

#### **6 Marks Questions:**

1. Define fermentation. Give it's various uses.
2. Give brief account of fermentation process.
3. Give brief account of microbes involved in fermentation.
4. Explain the process of industrial production of ethanol.
5. What is fermentation? Enlist the microbes involved in fermentation and write general process of fermentation.
6. Define fermentation. Describe the general process of fermentation.
7. Define aerobic and anaerobic fermentation and add a note on microbes involved in fermentation.
8. Define fermentation and comment on it's various useful products.

### **Chapter 4: Mushroom cultivation**

#### **2 Marks Questions:**

1. What is 'spawn'.
2. Write edible species of mushroom.

3. Oyster mushroom/ Dhingri mushroom is-
  - a) *Agaricus bisporus*
  - b) *Agaricus campestris*
  - c) *Pleurotus sajor-caju*
  - d) *Amanita phalloides*
4. Generally the edible species of mushroom belongs to class-
  - a) Ascomycotina
  - b) Basidiomycotina
  - c) Deuteromycotina
  - d) Myxomycotina
5. Mushroom protein is rich in two amino acids-
  - a) Alanine and lysine
  - b) Lysine and tryptophan
  - c) Tryptophan and valine
  - d) Lysine and valine
6. Name the species of paddy straw mushroom.
7. Write the name of Button mushrooms.
8. Mention the species of Oyster grown in India.
9. Enlist the amino acids present in mushroom.
10. Why mushroom is rightly been called as “Vegetable meat”.
11. Enlist the vitamins present in mushroom.
12. Separate out edible species of Amanita from that of non edible-
  - a) *Amanita phalloides*
  - b) *Amanita verpa*
  - c) *Amanita muscaria*
  - d) *Amanita coesacea*
13. About \_\_\_\_\_ species of mushrooms are known to be edible.
  - a) 2000
  - b) 200
  - c) 20
  - d) 3
14. European mushroom is species of –
  - a) *Agaricus*
  - b) *Volvariella*
  - c) *Pleurotus*
  - d) None.
15. Paddy straw mushroom is species of –
  - a) *Agaricus*
  - b) *Volvariella*
  - c) *Pleurotus*
  - d) None.
16. Oyster mushroom is species of-
  - a) *Agaricus*
  - b) *Volvariella*
  - c) *Pleurotus*
  - d) None.

17. *Agaricus* \_\_\_\_\_ is edible but *Agaricus* \_\_\_\_\_ is non edible-
- bisporus*
  - xanthoderma*
  - edulis*
  - sajor caju*
18. \_\_\_\_\_ is not a species of *Pleurotus*-
- edulis*
  - flabellatus*
  - ostreatus*
  - sajor caju*
19. \_\_\_\_\_ is edible species of *Amanita*-
- caesacea*
  - muscaria*
  - verpa*
  - phalloides*
20. \_\_\_\_\_ is non edible species of *Agaricus*-
- xanthoderma*
  - biosporus*
  - campestris*
  - arvensis*.
21. The absence of \_\_\_\_\_ in mushrooms make it an ideal food for diabetic patients-
- Starch
  - Proteins
  - Fat
  - Sugar
22. One pound of fresh mushroom provides \_\_\_\_\_ K calories-
- 1200
  - 120
  - 12
  - 1.2
23. What are mushrooms.
24. Comment on edible mushrooms.
25. Comment on non edible mushrooms.
26. Distinguish between edible and non edible mushrooms.
27. What is the botanical name of Oyster mushroom.
28. Name the button mushroom.
29. Name the paddy straw mushroom.

#### 4 Marks Questions:

- Comment on nutritional value of mushrooms.
- Define spawn and write the process of spawn making.
- Briefly write the process of *Pleurotus* cultivation.
- Write an account of important edible species of mushroom for cultivation.
- Write a note on edible mushrooms.
- Write a note on non-edible mushrooms.

8. Enlist the edible species of mushrooms write their nutritional value.
  9. Write a note on "Toad stools".
  10. "Mushrooms are safe food for diabetic cardiac patients", comment.
- Enlist edible and non-edible mushrooms.
7. What are edible and non-edible mushroom.
  8. Explain nutritional value of mushroom.

### **6 Marks Questions:**

1. Describe the process of cultivation of 'Dhingri' mushroom.
2. What is a spawn? Explain the process of spawn making and add a list of edible mushroom.
3. Give nutritional value of mushrooms. Add a note on edible and non-edible mushrooms.
4. What are the uses of mushrooms.
5. What is spawn? Describe the method of spawn making.
6. What are mushrooms? Write the procedure of *Pleurotus* cultivation.

## **Chapter 5: Plant tissue culture**

### **2 Marks Questions:**

1. Define plant tissue culture.
2. Define 'totipotency'.
3. Explain totipotency in brief.
4. What do you mean by explant.
5. What do you mean by surface sterilization.
6. Explain the process of surface sterilization.
7. Explain inoculation in brief.
8. What is 'inoculation'.
9. What is callus.
10. Explain callus formation in brief.
11. Define subculture.
12. Explain sub-culture in brief.
13. Define organogenesis.
14. Give any two applications of plant tissue culture in Agriculture.
15. Give any two uses of plant tissue culture in Horticulture.
16. Give the usefulness of plant tissue culture in the field of medicine.
17. Define media for tissue culture.
18. What is need of plant tissue culture.
19. Explain hardening in brief.
20. Explain the term 'inoculum'.
21. Enlist the chemicals used for surface sterilization of explant.
22. Distinguish between culture and subculture.
23. Distinguish between inoculation and incubation.
24. Who is the father of tissue culture.
25. Why Agar is used in media preparation.

#### **4 Marks Questions:**

1. What is totipotency? Explain.
2. What is tissue culture? Describe the techniques of tissue culture in brief.
3. Write the procedure of M.S. Medium preparation.
4. Comment on organogenesis and formation of plantlet.
5. Mention the application of tissue culture in horticulture.
6. Mention the application of tissue culture in agriculture.
7. Mention the application of tissue culture in medicine.
8. Explain in brief history and scope of plant tissue culture.
9. What is plant tissue culture? Write a note on totipotency.
10. Give the composition of M.S. medium.
11. What is explant. Add a note on surface sterilization.
12. Explain the general techniques used in plant tissue culture.
13. What is inoculation? Explain the process of inoculation in brief.
14. What is incubation? Why it is necessary.
15. Explain subculture in brief. Add a note on callus formation.
16. Give applications of plant tissue culture in horticulture and agriculture.
17. Give applications of plant tissue culture in horticulture and medicine.

#### **6 Marks Questions:**

1. What is medium. Give composition and process of preparation of M.S. Medium.
2. Explain the terms –
  - a) Totipotency
  - b) Callus
  - c) Subculture
3. Explain the terms-
  - a) Surface sterilization
  - b) Inoculation
  - c) Incubation
4. Explain subculture. Add a note on organogenesis & formation of plantlet.
5. What is explant ? Add a note on surface sterilization of explant .
6. Define explant ? What are the general feature of explant. Add a note on inoculation.
7. What is inoculation. Why there is need of inoculation in plant tissue culture.
8. Give application of plant tissue culture in detail.
9. Define tissue culture. Give its application in agriculture and medicine.
10. Define tissue culture. Briefly describe the general techniques of plant tissue culture.
11. Give composition and process of preparation of M.S. Medium.
12. Describe applications of plant tissue culture in any two of the following-
  - a) Agriculture
  - b) Horticulture
  - c) Medicine
13. Explain general process of plant tissue culture

14. Define organogenesis . Explain plantlet formation and hardening

## Chapter 6: Herbal cosmetics

### 2 Marks Questions:

1. Botanical name of Shikakai is-
  - a) *Acacia nilotica*
  - b) *A. concinna*
  - c) *A. catechu*
  - d) *A. arabica*
2. Botanical name of Khair is-
  - a) *Acacia nilotica*
  - b) *A. catechu*
  - c) *A. concinna*
  - d) *A. arabica*
3. Botanical name of Amla is-
  - a) *Phyllanthus acidus*
  - b) *Phyllanthus emblica*
  - c) *Emblica officinalis*
  - d) *Phyllanthus neruri*
4. Botanical name of Bakul is-
  - a) *Acacia nilotica*
  - b) *Mimosa pudica*
  - c) *Mimusops elengi*
  - d) *Acacia catechu*
5. Botanical name of cucumber is-
  - a) *Cucumis sativus*
  - b) *Cucumis setosces*
  - c) *Cucumis melo*
  - d) *Cucumis utilissimus*
6. Botanical name of Turmeric is-
  - a) *Curcuma longa*
  - b) *Curcuma angustifolia*
  - c) *Curcuma decepiens*
  - d) *Curcuma pseudomontana*
7. Pods of Shikakai contains-
  - a) Tannin
  - b) Saponin
  - c) Resin
  - d) Vitamin
8. 'Khair' is obtained from\_\_\_\_\_ of the plant.
  - a) Leaves
  - b) Flower
  - c) Bark
  - d) Fruit
9. For dental care which of the following plants are used-

- a) Khair
  - b) Babool
  - c) Neem
  - d) All of the above.
10. For hair care which of the plants are used-
- a) Neem
  - b) Amla
  - c) Bakul
  - d) Babool
11. For skin care which of the plants are used-
- a) Korphad
  - b) Cucumber
  - c) Sandal wood
  - d) All of the above.
12. Define herbal cosmetics.
13. For preparation of any gel \_\_\_\_\_ is used.
- a) Vasline
  - b) Oil
  - c) Wax
  - d) All above.
14. Aloe-vera gel is prepared from –
- a) stem of plant
  - b) Roots of plant
  - c) Leaves of plant
  - d) Flower of plants.
15. Hibiscus gel is prepared from –
- a) Leaves of Hibiscus
  - b) Flowers of Hibiscus
  - c) Petals of Hibiscus
  - d) Stem of Hibiscus.
16. Mention uses of Korphad in skin care.
17. Mention uses of Sandalwood in skin care.
18. Mention uses of Turmeric in skin care.
19. Mention uses of Shikakai in hair care.
20. Mention uses of Henna in hair care.
21. Mention uses of Hibiscus in hair care.
22. Mention uses of Amla in hair care.
23. Mention uses of Cucumber in skin care.
24. Mention uses of Neem in dental care.
25. Mention uses of Babool in dental care.
26. Mention uses of Khair in dental care.
27. Mention uses of Bakul in dental care
28. What are herbal cosmetics.

**4 Marks Questions:**

1. Give botanical source, family, plant part used and characteristic of any two of following- 1] Korphad 2] Sandal wood 3] Turmeric 4] Cucumber.
2. Give the uses of Heena, Hibiscus and Amla.
3. Give the uses of Babool, Khair and Neem.
4. Give the uses of Sandal wood, Turmeric and Cucumber.
5. Enlist the plants used for hair care. Give their name, characteristic and uses.
6. Enlist the plants used for skin care. Give their name, characteristic and uses.
7. What are herbal cosmetics? Give characteristic, plant part used and uses of *Aloe*.
8. Give botanical source, characteristic, plant part used and uses of Sandal wood.
9. Give botanical source, characteristic, plant part used and uses of Turmeric.
10. Give botanical source, characteristic, plant part used and uses of Cucumber.
11. Give botanical source, characteristic, plant part used and uses of Heena.
12. Give botanical source, characteristic, plant part used and uses of Jaswand.
13. Give botanical source, characteristic, plant part used and uses of Amla.
14. Give botanical source, characteristic, plant part used and uses of Shikekai.
15. Give botanical source, characteristic, plant part used and uses of Neem.
16. Give botanical source, characteristic, plant part used and uses of Khair.
17. Give botanical source, characteristic, plant part used and uses of Bakool.
18. Write the procedure for preparation of *Aloe vera* gel.
19. Write the procedure for preparation of Jaswand gel.

#### 6 Marks Questions:

1. What are herbal cosmetics. Write botanical source, characteristics, part used & uses of herbal cosmetics used in skin care / Hair care / Dental care .
2. Enlist herbal cosmetics of skin care / Hair care / Dental care & Describe their botanical source, characteristics & uses.
3. Write the procedure for preparation of *Aloe vera* gel.
4. Write the procedure for preparation of Hibiscus gel ( Gaswant gel )
5. Describe plants used for hair care. Give their botanical name, characteristics family.
6. Enlist the plants used for skin care, Give their Botanical source, characteristic plant part used & Family.
7. Enlist the plants used for dental care. Give their botanical name plant part used & family.
8. Give botanical name, family, plant part used & characteristic of any 2 of following
  - 1) Neem
  - 2) Babool
  - 3) Khair
  - 4) Bakul

