

M.Sc. BOTANY
First Semester
Lower Plant Diversity II
(MSB - 02)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive)=50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

1. Answer *any five* of the following questions

2×5=10

- (a) Why bryophytes are called amphibians of plant kingdom?
- (b) Why the stem like and leaf like structures of moss plant are not called stem and leaves?
- (c) Why the rhizoids are not called roots?
- (d) Give the economic importance of *Sphagnum*.
- (e) Why presence of water is essential in pteridophyte?
- (f) What is rhizophore?
- (g) What are the fern characters of *Marselia*?

2. Answer *any five* of the following questions

3×5=15

- (a) What are the different classes of the division Bryophyta? Give one example of each classes.
- (b) Name two characteristics of the sporophyte of *Anthoceros*.
- (c) Why sporophyte of *Riccia* is considered simple in structure?
- (d) Why pteridophyta is placed under Tracheophyta?
- (e) What is the advantage that archegonia are borne on the ventral surface of fern prothallus?
- (f) Write in brief the morphological nature of the corm of *Isoetes*.
- (g) Write in brief the primitive characters of *Psilotum*.

3. Answer any five of the following questions

5×5 = 25

- (a) Write the characteristic of the gametophytic and sporophytic generations of *Anthoceros*.
- (b) With the help of diagram write structure and spore dispersal mechanism of *Sphagnum*.
- (c) Compare the capsular structure of *Marchantia* with *Polytrichum*.
- (d) Write in brief the structure and development of the sporocarp of *Marsilea*.
- (e) Compare the structural difference of the sporophyte bearing organs of *Lycopodium* and *Equisetum*.
- (f) Distinguish between homosporous and heterosporous. Write in brief the structure of a Heterosporous pteridophyte you have studied.
- (g) With labeled diagram describe the different types of prothallai found in *Lycopodium* species.

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(The figures in the margin indicate full marks for the questions)

Duration: 20 minutes

Marks – 20

PART A- Objective Type

I. Choose the correct options from the following questions:

1×20= 20

1. Pteridophytes differ from mosses in having
 - a) Independent gametophyte
 - b) Dependent gametophyte
 - c) Independent and dormant sporophyte
 - d) Flagellate antherozoids.

2. Multicellular branched rhizoids and leafy gametophyte are found in
 - a) All pteridophytes
 - b) Some pteridophytes
 - c) All bryophytes
 - d) Some bryophytes

3. Bryophytes are dependent on water because
 - a) Archegonium has to remain filled with water for fertilization.
 - b) Water is essential for fertilization for their homosporous nature.
 - c) Water is essential for vegetative propagation.
 - d) The sperms can easily reach up to egg in the archegonium.

4. Which of the following is called resurrection plant?
 - a) *Pellia*
 - b) *Selaginella*.
 - c) *Equisetum*
 - d) *Lycopodium*

5. One of the following plants have contributed to coal formation
 - a) Pteridophytes.
 - b) Gymnosperms
 - c) Bacteria
 - d) Archebacteria

6. The Bryophytes lack true
 - a) Roots
 - b) Stems
 - c) Leaves
 - d) All of these

7. Which of the following one belong to gametophytic phase in Funaria?
 - a) Capsule
 - b) Operculum.
 - c) Apophysis
 - d) Calyptra

8. Which of the following propagates through leaf tip?
 a) Sprout leaf plant b) *Marchantia*
 c) Moss d) Walking fern
9. In a moss, the sporophyte
 a) Manufactures food for itself, as well for the gametophyte.
 b) Is partially parasite on the gametophyte
 c) Produces gametes that give rise to the gametophyte
 d) Arises from a spore produced from the gametophyte
10. In Which plant the body represent gametophytic phase and bear haploid Gametophytes
 a) *Galidium* b) *Riccia*
 c) *Lycopodium* d) *Equisetum*
11. The middle sterile part of capsule is called
 a) Protonemata b) Columella
 c) Spore sac. d) Foot
12. The sporophyte of *Riccia* is represented by
 a) Foot seta and capsule b) Spore sac only
 c) Foot and capsule d) Spores and elaters
13. Heterosporous pteridophytes always produce
 a) Monoecious gametophyte
 b) Dioecious gametophyte
 c) Homothallic gametophyte
 d) None of the above
14. The term prothallus apply to
 a) A plant body not differentiated in the root stem and leaves
 b) Reduced gametophyte in life cycle
 c) Reduced sporophyte
 d) A stage before formation of thallus
15. Rhizophore of *Selaginella* is
 a) Root b) Stem c) Organsui-generis d) None of the above
16. Carinal canal is found in the stem of
 a) *Marsilea* b) *Equisetum* c) *Psilotum* d) *Isoetes*
17. Plectostelic condition is found in the stem of
 a) *Lycopodium clavatum* b) *Lycopodium cernum*
 c) *Lycopodium volubile* d) *Lycopodium pithyodes*
18. The chief function of the indusium of fern is
 a) Protective b) To produce sporophyll c) To produce spores d) No function
19. Which of the following is an incipient heterosporous pteridophyte?
 a) *Lycopodium* b) *Selaginell* c) *Equisetum* d) *Isotes*
20. Amphiphloic siphonostele is found in the stem of
 a) *Marsilea* b) *Lycopodium* c) *Selaginella* d) *Osmunda*
