

M.Sc. BOTANY
First Semester
LOWER PLANT DIVERSITY-II
(MSB - 102)

Duration: 3Hrs.

Full Marks: 70

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

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any *five* of the following questions:

1. Give an account of the external and internal morphology in the sporophytes of Sphagnales. Discuss their evolutionary significance. (6+4=10)
2. What do mean by alternation of generation? Give an account on alternation of generation in Bryophytes citing suitable example. (2+8=10)
3. Write notes on: (5+5=10)
 - a. Role of bryophytes in soil conservation.
 - b. Telome Theory for evolution of land plants.
4. Discuss the origin and organization of sorus in ferns. Is there any protective structures found in them? (5+5=10)
5. "*Anthoceros* is a synthetic genus". Justify it. (10)
6. Differentiate between with suitable examples: (5×2=10)
 - a. Thallose and foliose liverworts
 - b. Eusporangiate and leptosporangiate ferns
7. What is heterospory? Discuss its importance in origin of seed habit in pteridophytes. Name two heterosporous pteridophytic species of North East. (2+6+2=10)

8. Write an account of the group psilotales. State its importance as ancestor of modern pteridophytes. (5+5=10)

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Duration: 20 minutes

Marks – 20

(PART A- Objective Type)

I. Choose the correct answer:

1×20=20

- (i) Which of the following is true about bryophytes?
a. They possess archegonia b. They contain chloroplast
c. They are thalloid d. All of above
- (ii) Moss spore germinate to produce
a. Protocorm b. protonema
c. leafy gametophyte d. leafy sporophyte
- (iii) Spores of pteridophytes are
a. haploid b. diploid c. triploid d. tetraploid
- (iv) Ligule and cone are present
a. *Selaginella* b. *Lycopodium*
c. Isoetes d. *Psilotum*
- (v) Xylem like structures present in some mosses are called
a. steroids b. leptoids c. tracheids d. hydroids
- (vi) Pteridophytes differ from Bryophytes in having
a. motile sperms b. archegonia
c. vascular tissue d. spores
- (vii) Rhizoids of *Anthoceros* are
a. multicellular b. unicellular
c. branched d. septate
- (viii) Presence of air cavities in *Equisetum* stem indicate
a. Xerophytic feature b. Hydrophytic feature
c. Mesophytic features d. Halophytic features
- (ix) Which is not found in *Selaginella*?
a. Heterospory b. Homospory
c. Heterophylly d. Ligule

- (x) Sporangia bearing leaf is called a
 a. Sporophyll b. Spermogonia
 c. Ligule d. Sorus
- (xi) The bryophytes lack true
 a. roots b. stems c. leaves d. all of the above
- (xii) The young leaves of ferns show
 a. Cyclic ptyxis b. Rotate ptyxis
 c. Circular ptyxis d. Circinate ptyxis
- (xiii) In *Funaria*, calyptra is derived from
 a. Antheridium b. Capsule
 c. Columella d. Archegonium
- (xiv) Which one of the following is known as peat moss?
 a. *Funaria* b. *Sphagnum*
 c. *Pogonatum* d. *Polytrichum*
- (xv) Which is not a part of moss sporophyte?
 a. Operculum b. Peristome
 c. Calyptras d. Columella
- (xvi) The sporophytic plant body of bryophytes is known as
 a. sporogonium b. sporocarp
 c. sporoderm d. sporophylls
- (xvii) Sexual reproduction in bryophytes is always
 a. isogamous b. anisogamous
 c. oogamous d. homosporous
- (xviii) Gametophytic generation in fern is represented by
 a. Main plant body b. Sorus containing sporangia
 c. Heart shaped prothallus d. Thallamus
- (xix) Protosteles are found in
 a. bryophytes b. pteridophytes
 c. Gymnosperms d. Only on mosses
- (xx) Which of the following shows incipient heterospory?
 a. *Selaginella* b. *Marsillea*
 c. *Equisetum* d. *Lycopodium*
