

**M. Sc. BOTANY**  
**FIRST SEMESTER**  
**HIGHER CRYPTOGAMS: GYMNOSPERMS & PALAEBOTANY**  
**MSB - 102**

Duration: 3 Hrs.

Marks: 70

PART : A (OBJECTIVE) = 20  
PART : B (DESCRIPTIVE) = 50

[ PART-B : Descriptive ]

Duration: 2 Hrs. 40 Mins.

Marks: 50

**[ Answer question no. One (1) & any four (4) from the  
rest ]**

1. Compare the gametophytic structure of eusporangiate pteridophytes with proper examples. 10
2. Discuss the theories of the evolution of Bryophytes. Explain with examples. 10
3. Give a comparative account of the sporophytes of Riccia and Anthoceros. Give diagrams. 5+5=10
4. Define the term stele? Describe with diagram the various types of stele in Pteridophytes. 2+8=10
5. What is heterospory? Describe briefly the origin and significance of heterospory in pteridophytes. 2+4+4 = 10
6. Write the classification of Gymnosperm given by Prof. D. D Pant (1957). 10
7. Discuss the affinities of the Cordailtales with other fossils and living Gymnosperms. 10
8. Describe briefly the various process of fossilization. 10

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**[ PART-A : Objective ]**

**Choose the correct answer from the following:**

**1×20=20**

1. *Zosterophyllum* is a
  - a. Fossil algae
  - b. Fossil bryophytes
  - c. Fossil Pteridophytes
  - d. Fossil Gymnosperms
2. Rhynia belongs to a geological period
  - a. Devonian
  - b. Permian
  - c. Carboniferous
  - d. Cambrian
3. Name of the aquatic species of *Riccia*
  - a. *R. discalon*
  - b. *R. fluitans*
  - c. *R. gangetica*
  - d. *R. melanospora*
4. Endophytic blue green algal (*Nostoc*) is found within the bodies of
  - a. *Riccia*
  - b. *Marchantia*
  - c. *Anthoceros*
  - d. *Sphagnum*
5. Peristome teeth is found in
  - a. *Marchantia*
  - b. *Pelia*
  - c. *Sphagnum*
  - d. *Poltrichum*
6. The gamete production in Bryophytes involves
  - a. Mitosis
  - b. Meiosis
  - c. Binary fission
  - d. Fragmentation

7. Bryophytes are called the amphibians of the plant kingdom because
  - a. They live both on land and water
  - b. They require water for survival
  - c. Their Reproduction is dependent on water
  - d. Sprophytic generation requires water
8. Pteridophytes differ from Bryophytes and Thallophytes in having
  - a. Vascular tissues
  - b. Motile antherozoids
  - c. Archegonia
  - d. Alternation of generations
9. Which of the following is considered important in the development of seed habit?
  - a. Dependent sporophyte
  - b. Heterospory
  - c. Haplontic life cycle
  - d. Free-living gametophyte
10. The stele present in Equisetum is:
  - a. Haplostele
  - b. Actinostele
  - c. Plectostele
  - d. Siphonostele
11. The stele in which xylem forms several plates is:
  - a. Haplostele
  - b. Actinostele
  - c. Plectostele
  - d. Polycyclic
12. The dominant generation in pteridophytes is
  - a. Haploid
  - b. Gametophytic
  - c. Diploid
  - d. Triploid
13. Sporophyte of Pteris
  - a. is independent of gametophyte from the beginning
  - b. is dependent on the gametophyte only in the beginning
  - c. supplies water and inorganic salt to the gametophyte
  - d. none of these
14. The number of megaspores in *Selaginellarupestris* is
 

a. One	c. Three
b. Two	d. Four
15. Stem is polystelic in
  - a. Selaginella
  - b. Cycas

- c. Pinus
    - d. All of these
  16. The cordaitales represent the most ancient and primitive order of the class
    - a. Cycadopsida
    - b. Coniferopsida
    - c. Bennettitales
    - d. none of the above
- Presence of an endosperm "tent pole" is characteristic feature of
17.
    - a. Ginkgoales
    - b. coniferales
    - c. cycadales
    - d. taxales
  18. Cordaitales resembles cycadas in having
    - a. double leaf traces in both
    - b. endospermic beak in the mature ovules
    - c. xerophytic habitat and aerial stems
    - d. all of the above
  19. The two primitive families of coniferales are
    - a. piaceae and Araucariaceae
    - b. Caytoniaceae and Glossopteridaceae
    - c. Ginkgoaceae and Cycadaceae
    - d. Ephedraceae and Gnetaceae
  20. Which species of pine is known as "Chilgoza pine"
    - a. *Pinusinsularis*
    - b. *Pinusmerkusii*
    - c. *Pinusaramandi*
    - d. *Pinusgerardiana*

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