

M.Sc. BOTANY
FIRST SEMESTER
HIGHER CRYPTOGAMS, GYMNOSPERMS & PALEOBOTANY
MSB-102

(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

(PART-A : Objective)

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1x20=20

- Characteristics gemma cup are found in:
a. *Riccia*
b. *Pellia*
c. *Anthoceros*
d. *Marchantia*
- Protonema is:
a. A fossil pteridophytes
b. A part of sporophytes of *Funaria*
c. A juvenile phase of moss gametophytes
d. None of the above
- Common name of *polytrichum* is:
a. Hairy cap moss
b. Tuft moss
c. Cold moss
d. Maiden hair moss
- Alternation of generation in which the alternating individuals are dissimilar is called:
a. Heterologous
b. Homologous
c. Isomorphic
d. Isologous
- Venter is the part of:
a. Antheridium
b. Archegonium
c. Sporangium
d. Antheridium
- Ginkgo* resembles fern in possessing:
a. Motile and ciliated spermatozooids
b. Endospermic embryo
c. Presence of pollen chamber
d. None of these
- Which of the following is the only living fossil?
a. *Cycas*
b. *Pinus*
c. *Taxus*
d. *Ginkgo*
- Which of the following shows close resembles with dicot angiosperms?
a. *Gnetum*
b. *Ginkgo*
c. *Pinus*
d. None of these
- Cordaitales resembles with:
a. Cycads
b. Ginkgoales
c. Coniferales
d. All of these
- Heterospory is found in:
a. *Selaginella*
b. *Isoetes*
c. *Marselia*
d. All of the above

11. Fern's prothallus normally is:

- a. Haploid
- b. Diploid
- c. Triploid
- d. Tetraploid

12. Heterosporous pteridophytes always produce:

- a. Monoecious gametophytes
- b. Dioecious gametophytes
- c. Homothallic gametophytes
- d. None of these

13. A stele without a central pith is called:

- a. Solenostele
- b. Protostele
- c. Dictyostele
- d. Siphonostele

14. Which of the following is a fossil pteridophyte?

- a. *Lycopodium*
- b. *Lygodium*
- c. *Psilotum*
- d. *Rhynia*

15. Antherozoids of fern are:

- a. Spherical
- b. Coiled
- c. Multiflagellate
- d. All of the above

16. Telome theory was given by:

- a. Zimmermann
- b. W. Fleming
- c. Tejo and Laven
- d. None of these

17. Most primitive type of stele found in pteridophytes:

- a. Protostele
- b. Dictyostele
- c. Siphonostele
- d. Plectostele

18. The thin walled portion of the sporangial wall:

- a. Stomium
- b. Tapetum
- c. Annulus
- d. None of these

19. The nutritive layer of the sporangium:

- a. Annulus
- b. Tapetum
- c. Stomium
- d. None of these

20. Types of sporangia found in pteridophytes:

- a. Three
- b. One
- c. Two
- d. Four

== * * ==

(PART-B : Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

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

1. What are the parameters for classifying bryophytes into three divisions? Mention the salient features of these three divisions. 10
2. What are the various kinds of apical cells found in bryophytes? Discuss the range of gametophytic thallus structure in bryophytes. 10
3. What are the various kinds of stele found in Pteridophytes? Comment on the evolutionary tendencies exhibited among stellar structure. 10
4. How heterospory is advanced over homosporous? Describe the tentative evolutionary process to achieve heterospory. 4+6=10
5. What are the characteristic features of the class Filicopsida? Describe with suitable diagram the important types of soral structures in ferns. 3+7=10
6. Characterize the order Gnetales. Citing important features of vascular elements establish its phylogenetic relationship with angiosperms. 3+7=10
7. What are the major differences between Coniferopsida and Cycadopsida? Describe a modern classification of gymnosperms. 4+6=10
8. What is carbon dating? How ages of the fossils are determined? What is meant by cellular permineralization? 2+5+3=10

== *** ==