

SEMESTER – I
Micro technique, Angiosperm Anatomy and Reproductive botany
Course Code: BO1131

I. Write a short note on the following. All questions compulsory. (10 x 01 = 10)

1. Pollinium
2. Fixative
3. Dendrochronology
4. Hydathodes
5. Anthesis
6. Coleorhizza
7. Dermatocalyptrogen
8. What is Palynology?
9. Comment on closed vascular bundle.
10. What is Coleoptile?
11. Name a complex tissue.
12. Write a note on Orthotropous ovule
13. What is middle lamella?
14. What are tyloses?
15. Name a killing and fixative fluid.
16. Define exarch condition.
17. Define endarch condition.

II. Answer any eight (8 x 2 = 16 marks)

1. Name a fixative.
2. Give an example for a lateral meristem.
3. Who proposed apical cell theory
4. Differentiate protoxylem and metaxylem
5. What are root hairs? What is its function?
6. Give an example for a simple permanent tissue.
7. Differentiate open and closed vascular bundles.
8. What is the function of endosperm?
9. What is meant by counter staining? Give one example.
10. Describe the classification of meristem based on its position.
11. Explain the structure of vascular bundles in monocot stem.
12. Describe the classification of meristem based on its position.
13. What is meant by concentric vascular bundles?
14. What are the functions of parenchyma?
15. Name the components of xylem.
16. Differentiate collateral and bi- collateral vascular bundles.
17. Differentiate heart wood and sap wood.

18. What is tapetum? What is its function?
19. Differentiate exine and intine.
20. What is triple fusion?
21. Describe pollinium.
22. What are the difference between fusiform initials and ray initials?
23. Compare ring porous and diffuse porous wood.
24. Differentiate radicle and plumule.
25. What are the functions of tapetum?
26. What are synergids?
27. Mention two mechanisms of pollination in plants.
28. Differentiate radial and conjoint vascular bundles.
29. How tyloses are formed?
30. What are hydathodes?
31. Differentiate primary and secondary meristems.
32. Explain double staining. Give an example.
33. What is the purpose of killing in microtechnique?
34. Give an example for the primary meristem.
35. Who proposed the term 'meristem'?
36. Give an example for a natural stain.
37. What is Histogen theory?
38. What are annual rings?
39. Describe glandular tissue.
40. Describe mesophyll tissue.
41. Draw a labelled diagram of bicollateral vascular bundle.
42. Explain lenticels and their functions.
43. Give an account on laticiferous tissue.
44. Write a note on Tapetum
45. Distinguish between Endothecium and Endothelium.
46. Write down the structure of monocot embryo
47. Comment on FAA

III. Answer any six (6 x 4 = 24 marks)

1. What are the purposes of killing and fixation in microtechniques?
2. Discuss the characteristics of meristematic cells.
3. Describe the Korper – Kappe theory with a diagram.
4. Give a detailed account on the components of phloem.
5. Explain anatomy of dicot leaf.
6. Compare and contrast the stelar structures of dicot and monocot root.
7. Draw a labelled cellular diagram of the primary structure of dicot stem.
8. Briefly describe the structure of dicot embryo.
9. Explain the classification of ovules.

10. Explain the preparation of FAA. What are the uses of FAA?
11. What are the differences between primary and secondary xylem?
12. Explain the classification of meristem based on its position in the plant body.
13. With a suitable diagram, explain the structure of vascular bundle of dicot stem.
14. Differentiate heart wood and Sap wood.
15. Draw a labeled diagram of the T.S of a dorsiventral leaf.
16. Explain the structure of dicot embryo.
17. Describe the wall structure of pollen grains.
18. What are the differences between monocot and dicot embryo?
19. Explain the salient features of periderm.
20. Distinguish between monocot and dicot root
21. Describe phloem and its function.
22. Describe microsporogenesis.
23. Describe different types of endosperm
24. Describe anomalous secondary thickening of Boerhaavia stem.
25. Explain Hydathodes and the phenomenon of guttation.

IV. Write essay on any two of the following. (2 x 15 = 30 marks)

1. Write an essay on anomalous secondary thickening in Boerhaavia with a labeled cellular diagram.
2. Explain the theories of apical organization of shoot apex. Draw neat diagram.
3. Write an essay on structure, classification and functions of simple permanent tissues.
4. Explain the structures of *Polygonum* type embryo sac with a labeled diagram.
5. With suitable diagrams, explain the theories of apical organization of shoot apex in plants.
6. With suitable diagram, explain the primary structure of dicot stem.
7. Draw a labeled cellular diagram of the T.S. of a mature anther. Explain its structure.
8. Explain meristematic tissues and various theories of apical organization of stem
9. Give an account of normal secondary thickening in a dicot stem with labelled diagrams
10. Describe megasporogenesis and development and structure of *Polygonum* type of embryosac.
11. Write an essay on permanent tissues with suitable diagrams.