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Reg. No. : .....

Name : .....

First Semester M.Sc. Degree Examination, August 2021.

Botany

BO 213 : HISTOLOGY, REPRODUCTIVE BIOLOGY, MICROTECHNIQUE AND HISTOCHEMISTRY

(2019 Admission onwards)

Time : 3 Hours Max. Marks : 75

I. Answer the following questions.

1. Differentiate necrophylactic periderm from exophylactic one.
2. What is nemec phenomenon?
3. What are the functions of fixatives?
4. Mention the functions of cell types of phloem.
5. Comment on tapetal membrane.
6. What is meant by vital staining?
7. How ray initial is different from fusiform one?
8. What are the functions of synergids?
9. What is PAS staining?
10. What cytological changes observed during meristem differentiation?

(10 × 1 = 10 Marks)

II. Answer the following in not more than 50 words.

11. (a) Explain seasonal variation of cambial activity.

OR

(b) How extractives influence the quality of wood?

12. (a) Briefly mention important pollen viability tests

OR

(b) Comment on post-pollination changes of the embryo sac.

13. (a) Comment on obturator.

OR

(b) Differentiate between apogamy and apospory

14. (a) Write short note on trilacunar leaf trace.

OR

(b) Discuss the role of wood anatomy in relation to taxonomy.

15. (a) Differentiate sporophytic and gametophytic system of incompatibility with suitable examples

OR

(b) Write a note on cereal endosperm.

(5 × 2 = 10 Marks)

III. Answer the following questions in not more than **150** words.

16. (a) Explain the histochemical methods for the localization of lipids.

OR

(b) What is the importance of killing and fixing? Explain the properties of chemical reagents used for this purpose

17. (a) Comment on phyllotaxy.

OR

(b) Describe the pattern of abnormal secondary growth in *Amaranthus*.

18. (a) Explain the genetics of self-incompatibility.

OR

(b) What is polyembryony? How it is classified?

19. (a) Briefly explain the techniques for embedding and staining of plant materials.

OR

(b) Explain the different types of microtome with their advantages.

20. (a) Briefly explain the structure of wood and mention different types.

OR

(b) Comment on root-stem transition with necessary diagrams.

21. (a) Explain in detail megasporogeneis with special emphasis on its physiology and biochemistry.

OR

(b) With suitable diagrammatic sketches explain the classification of tetrasporic embryo sacs.

22. (a) Explain the classification of biological stains with their chemistry.

OR

(b) Briefly explain pollen wall development with suitable diagram

(7 × 5 = 35 Marks)

IV. Answer the following in not more than **250** words.

23. (a) With necessary diagrams explain the structure and developmental aspects of xylem elements.

OR

(b) Discuss briefly the organization of shoot and root apex with special emphasis on the development of shoot and root.

24. (a) Compare the embryogeny in dicots with that of monocots.

OR

(b) Compare the tissue processing techniques required in light microscopy with that of electron microscopy.

(2 × 10 = 20 Marks)

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