D1BBT2301 (PAGES 2) **Reg.No.....**

Name: .....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

(Regular/Improvement/Supplementary)

BOTANY

GBOT1B01T: ANGIOSPERM ANATOMY AND MICROTECHNIQUE

Time: 2 Hours **Maximum Marks: 60**

SECTION A: Answer the following questions. Each carries *two* marks.

(Ceiling 20 Marks)

1. What are the two main types of laticifers? How do they differ in structure and function?
2. List out the major chemical components of plant cell walls.
3. Differentiate between heartwood and sapwood.
4. What role does magnification play in photomicrography? How is it achieved?
5. How do monocot and dicot plants differ in the arrangement and organization of vascular bundles within their stems?
6. Give a specific example of dicotyledonous plant known for its unique medullary vascular bundles and explain how these bundles behave at the time of secondary growth.
7. Explain the purpose of microtomy in histology.
8. Describe the general structure and functions of parenchyma cells.
9. How do concentric vascular bundles differ from collateral vascular bundles in terms of structure and arrangement?
10. Why is vital staining considered an important technique in cell biology?
11. Differentiate between storied and non-storied cambium.
12. Explain the basic process of maceration. How is it used to study plant tissues.

SECTION B: Answer the following questions. Each carries *five* marks.

(Ceiling 30 Marks)

13. How does stelar secondary growth take place in the stem of *Bignonia*? Discuss its adaptive advantages.
14. Describe the formation and behavior of vascular cambium during secondary growth in dicot roots.
15. Outline the step-by-step process of tissue dehydration. Explain the importance of effective dehydration in ensuring high-quality histological sections.

(PTO)

16. What defines xylem as a complex tissue in angiosperms? Describe the components of xylem tissue.
17. Give the composition of any two common fixatives used to preserve the structural integrity of biological specimens.
18. What are hydathodes? Where are they typically found? Describe their structure and function.
19. Describe the technique used to take accurate measurement of plant structures at the microscopic level.

SECTION C: Answer any *one* question. Each carries *ten* marks.

20. Explain the occurrence and types of non-living inclusions in plant cells with examples.
21. Compare and contrast the different types of microscopes used in botanical research. Explain their working principles, applications, and advantages in various scientific fields.

(1 x 10 = 10 Marks)