

B.Sc. DEGREE EXAMINATION, APRIL 2022
BRANCH V(a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
FOURTH SEMESTER

COURSE : MAJOR – CORE
PAPER : ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS
TIME : 3 HOURS MAX. MARKS: 100

SECTION - A

A. ANSWER THE FOLLOWING 18 Marks
I. Choose the correct answer (1x5=5)

- Among simple tissue, _____ is a dead cell and lacks protoplasm.
(a) Parenchyma (b) Sclerenchyma (c) Collenchyma (d) Chlorenchyma
- The innermost layer of cortex in a dicot stem is
(a) Endodermis (b) Stele (c) Pericycle (d) Pith
- Korper kappe theory is proposed by
(a) Nageli (b) Clowes (c) Schuepp (d) Hanstein
- The hairs present in the epidermis of leaf is known as
(a) Spines (b) Subsidiary (c) Stomata (d) Trichomes
- Entry of pollen tube through the integument is called
(a) Porogamy (b) Mesogamy (c) Chalazogamy (d) Endogamy

II. Fill in the blanks: (1x5=5)

- The primary endosperm has _____ number of chromosomes.
- Vascular cambium is composed of _____ and _____ initials.
- The three nuclei of the micropylar end forms the _____.
- Protoxylem located in the center surrounded by the metaxylem is called as _____.
- The special openings seen on tree trunk through which respiration is possible are called _____.

III. State True or False (1x4=4)

- After fertilization, the zygote develops into an embryo.
- Vascular bundles are surrounded by a layer of parenchymatous cells called bundle cap.
- Presence of cortical bundle is a characteristic of *Helianthus*.
- Vessels are found in Gymnosperms.

IV. Match the following (1x4=4)

- | | | |
|------------------|---|--------------|
| 15. Eustele | - | Root |
| 16. Mechanical | - | Dicot stem |
| 17. Calyptra | - | Monocot stem |
| 18. Atactostele. | - | Sclerenchyma |

V. ANSWER ANY SIX OF THE FOLLOWING QUESTIONS IN 50 WORDS EACH:**(6x3=18)**

19. Parenchyma
20. Heart wood and Sap wood
21. Stomatal types
22. Casparian band
23. Nodal arrangement
24. Tapetum
25. Leaf abscission
26. Hydathodes
27. Any three types of ovules

SECTION - B**ANSWER ANY FOUR OF THE FOLLOWING QUESTIONS IN ABOUT 200 WORDS EACH. DRAW DIAGRAMS WHEREVER NECESSARY.****(4x6=24)**

28. Outline the structure of an anther.
29. Differentiate Isobilateral and Dorsiventral leaf.
30. List the components of Xylem tissue.
31. What are Meristems? How are they classified?
32. Elaborate the structure and formation of Vascular cambium.
33. Analyze the different stages of dicot embryo development.

SECTION - C**ANSWER ANY TWO OF THE FOLLOWING QUESTIONS IN ABOUT 1000 WORDS EACH. DRAW DIAGRAMS WHEREVER NECESSARY.****(2x20=40)**

34. Elaborate on the theories of organization of shoot apex.
35. Compare the anatomy of dicot stem and monocot stem.
36. *Nyctanthus* and *Boerhaavia* shows anomalous primary growth – Justify.
37. a) Illustrate the process of double fertilization.
b) How do apomixes occur in plants?
