



Attempt questions first; check the separate key afterward. Use labelled diagrams where asked. Give scientific reasons; answer key covers closed questions.

A. Very short answers - 1 mark each

1. Name the tissue system containing stomata.
2. Name the living xylem element.
3. Name the generally dead phloem element at maturity.
4. What does an open vascular bundle contain?
5. Is xylem exarch in a typical root?
6. Is xylem endarch in a typical stem?
7. Name the water-impermeable material of Casparian strips.
8. Name the large motor cells in many grass leaves.

B. Short answers / practice - 2 marks each

9. Distinguish meristematic and permanent tissues.
10. Compare parenchyma, collenchyma and sclerenchyma.
11. Relate sclerenchyma wall structure to its function.
12. Compare xylem vessels and tracheids.
13. Explain sieve tubes and companion cells as a functional unit.
14. Describe the epidermal, ground and vascular tissue systems.
15. Draw a stoma with guard cells and label its parts.
16. Compare monocot and dicot guard-cell shapes.
17. Differentiate radial and conjoint vascular bundles.
18. Explain open and closed vascular bundles.
19. Describe the endodermis and pericycle in a root.
20. State the origin of lateral roots.

C. Application / reasoning - 3 marks each

21. Compare a typical dicot and monocot root in xylem number and pith.
22. Explain the arrangement of vascular bundles in dicot and monocot stems.
23. Why is a typical monocot vascular bundle called closed?
24. Compare dorsiventral and isobilateral leaves.
25. Relate palisade tissue arrangement to photosynthesis.
26. Explain the role of spongy mesophyll air spaces.
27. How do bulliform cells influence leaf rolling?
28. A section has scattered closed vascular bundles. Identify it.
29. A section has radial polyarch xylem and large pith. Identify it.
30. Why are root hairs suitable for absorption?
31. Compare cuticle and Casparian strips in location and role.

D. Extended practice - 5 marks each

32. Draw labelled transverse sections of dicot and monocot roots and compare them.
33. Draw labelled dicot and monocot stem sections and explain diagnostic differences.
34. Draw and explain a dorsiventral leaf, relating tissue arrangement to function.
35. Compare simple and complex permanent tissues with constituent cells and functions.

ANSWER KEY - Numerical / closed questions

- 1) Epidermal tissue system. 2) Xylem parenchyma.
3) Phloem fibres. 4) Cambium between xylem and phloem. 5) Yes. 6) Yes. 7) Suberin. 8) Bulliform cells. 20) Pericycle. 28) Typical monocot stem. 29) Typical monocot root.