

Anatomy of Flowering Plants — CBSE Pattern Test 2

Class 11 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 2 — CBSE Pattern (90 minutes, 40 marks)

Class 11 Biology · Anatomy of Flowering Plants · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- Intercalary meristem is found at the
 - base of the internode
 - root apex
 - shoot apex
 - cambium
- Sclerenchyma cells are
 - dead and lignified
 - living
 - thin-walled
 - always green
- Tracheids and vessels are the conducting elements of
 - xylem
 - phloem
 - epidermis
 - cortex
- The number of xylem bundles in a dicot root is usually
 - 2 to 4
 - many (more than 6)
 - 1
 - none
- In a monocot stem, vascular bundles are
 - scattered
 - in a ring
 - absent
 - radial
- Palisade mesophyll is rich in
 - chloroplasts
 - starch
 - lignin
 - water
- Cork cambium produces
 - cork (phellem)

- (B) xylem
 - (C) phloem
 - (D) pith
8. Annual rings are formed due to
- (A) seasonal activity of cambium
 - (B) apical growth
 - (C) leaf fall
 - (D) grafting
9. Which meristem causes secondary growth?
10. What are sieve tubes?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. What is the pericycle?
12. How are vascular bundles arranged in a monocot stem?
13. Where are stomata mainly found in a dicot leaf?
14. What is cork cambium?

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. State two characteristics of meristematic cells.
16. Name the four elements of phloem.
17. What are radial vascular bundles?
18. What is the role of the periderm?

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe the elements of xylem and their functions. (b) Compare the internal structure of a dicot root and a monocot root.
20. (a) Describe the internal structure of a monocot stem. (b) Explain the formation of annual rings and their significance.

Answer Key (Marking Scheme)

- Q1 — (A) base of the internode. Q2 — (A) dead and lignified. Q3 — (A) xylem. Q4 — (A) 2 to 4. Q5 — (A) scattered. Q6 — (A) chloroplasts. Q7 — (A) cork (phellem). Q8 — (A) seasonal activity of cambium.
- Q9 — Lateral meristem (cambium).
- Q10 — Sieve tubes are the living conducting elements of phloem that transport food.
- Q11 — The pericycle is a layer between the endodermis and the vascular bundles that gives rise to lateral roots.
- Q12 — Scattered throughout the ground tissue (atactostele).
- Q13 — Mainly on the lower surface.
- Q14 — Cork cambium is a lateral meristem in the cortex that forms cork outward and secondary cortex inward.
- Q15 — Thin-walled, living, with dense protoplasm and no vacuoles (active division).
- Q16 — Sieve tubes, companion cells, phloem parenchyma and phloem fibres.
- Q17 — Vascular bundles where xylem and phloem lie on different radii (as in roots).
- Q18 — The periderm replaces the epidermis and protects the plant during secondary growth.

Q19 — (a) Tracheids and vessels (conduction), xylem parenchyma (storage), xylem fibres (support). (b) Dicot root: 2–4 radial bundles, small pith; monocot root: polyarch bundles, large pith.

Q20 — (a) Epidermis, sclerenchymatous hypodermis, ground tissue with scattered vascular bundles (each with a bundle sheath), no distinct pith. (b) Seasonal activity of vascular cambium forms early and late wood; each annual ring corresponds to one year's growth and helps estimate the age of the plant.