CBSE TEST PAPER-02

CLASS - XI BIOLOGY

(Anatomy of Flowering Plants)

General Instruction:

- All questions are compulsory.
- Question No. 1 to 3 carry one marks each. Question No. 4 to 6 carry two marks each. Question No. 7 and 8 carry three marks each. Question No. 9 carry five marks.

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1. When does vascular bundle refer to as closed bundles.

2. Name the aerating pores in the bark of stems.

3. What are sclereids?

4. What are tracheary elements? Of what use are these to plants?

5. Distinguish between collenchymas& sclerenchyma.

6. Why large number of stomata are seen on lower surface of dicot leaves in terrestrial plants.

7. State the location & function of different types of meristems.

8. Describe the internal structure of a dicot root.

9. What is wood? What are its different types?

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[ANSWERS]

1. When cambium is absent,.

2. Lenticels

3. Sclerieds are thick walled, hard & strongly lignified selerenchyma dead cells, with a very narrow lumen, commonly found in pulp of fruits like pear, guava, etc.

4. Tracheary elements are vessels & tracheids. They are conducting cells of the xylem. The xylem vessels have perforations in their end walls while perforations are absent in tracheids, they form a continuous channel through root, stem & leaves for conduction of water & minerals.

5.

COLLENCHYMA	SCLERENCHYMA
i) Living mechanical tissue contains protoplasm	i) Mechanical tissue is dead.
ii) Thickening in cell wall due to deposition of cellulose, hemicelluloses & pectin.	ii) Thickening on cell walls due to deposition of lignin or cellulose or both.
iii) High water content present in cells	iii) Low water content present in cells
iv) The cell may be oval, spherical or polygonal and often contain chloroplasts. Cell lumen is wide.	iv) The cells may be oval, spherical or polygonal and often contain chloroplasts .Cell lumen is narrow.

6. Stomata are found on the epidermis of green aerial parts of plants. They are present in abundance on the lower surface of leaves of dicot plants to reduce the rate of transpiration. As the lower side of leaf is not exposed to much heat by the sun, so less water will be transpired through lower surface.Thus it is required for the regulation of the process of transpiration and to prevent loss of ,ore water from the leaves.

7. A meristem is a group of cells that are in a continuous state of division and thus continuously produce new cells on the basis of location & function, the meristem are of

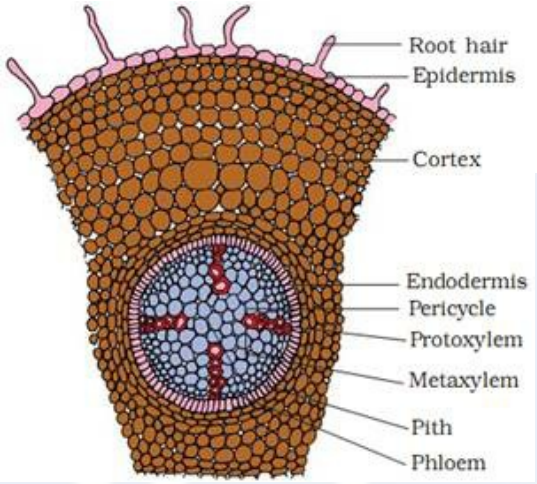
following types:-

a) APICAL MERISTEM:- These are present at the apices of stems, roots & branches the activity of apices of stem adds to length of plant or its parts.

b) INTERCALARY MERISTEM:- These meristems are intercalated in between the permanent tissues. They may be present cither at the base of internode as in stem of various grasses & wheat, the activities of these meristems also add, to length of plant or its organ.

c) LATERAL MERISTEMS:- These meristems are present along the side of the stem these include cambium & cork cambium. The activity of lateral meristem adds to thickness of plan.

8. T.S. of a dicot root shows the following structures:-



a) EPIDERMIS :- The epidermis layer of root is called epiblema also termed as piliferous layer. Unicellular root hairs extend to outside from the epiblema.

b) CORTEX:- It is the main part of root having many layers of rounded parenchymatous cells contain starch grains. Intercellular spaces are present in between them. It stores formed substances.

c) ENDODERMIS:- It lies inner to cortex & contain barrel shaped cells having no intercellular spaces. Radial walls of its cells may have lignified casparian strip water & minerals pass through passage cells to phloem.

d) STELE:- It is the central part of dicot root. Inner to endodermis lays pericycle which is single layered thick only.

e) CONJUNCTIVE TISSUES:- Conjunctive tissue is represented by a group of radially arranged parenchyma cells found in between the vascular bundles. The cells are specialised for storage of water.

f) VASCULAR BUNDLES:- Vascular bundles are described as radial and tetrarch. There are four bundles each of xylem and phloem occurring alternately. Xylem is described as exarch.

9. Botanically, a secondary xylem is called a wood. It is formed by the secondary growth of xylary elements having vessels with wide cavities. It is a product of secondary growth by cambium & constitutes the bulk of plant body in dicot stem & dicot root. Wood can be classified into following categories.

i) Hardwood:- It is wood produced by angiosperms. It consists mainly of xylem vessels & hence called porous wood.

ii) Soft wood:- It is wood produced by gymnosperm. It consists mainly of xylem trachieds & hence called non-porous wood.

iii) Heart wood:- It is the central core of wood formed during secondary growth. It consists of dead cells. The cells are dark in color due to the presence of extractives like gums, resins, tannins, etc.

iv) Sap wood:- It is the peripneral part of wood formed during secondary growth. It consists of living cells. The cells are lighter in colour as extractives are absent.

v) Early wood:- It is the wood formed during favorable, spring season. Vessels & tracheids formed are larger in dimensions.

vi) Late wood:- It is the wood formed during unfavorabl, autumn seasons. The vessels & tracheids formed are smaller in dimensions.