chapter No. 6

# Anotomy OF Flowering Plants

Q.1 State the location & Function of different types of meristems. ?

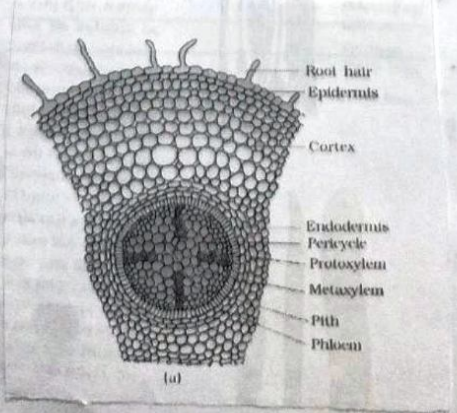
→ - Growth in plants is largely restricted to Specialised of active cell division called meristems.
- The meristems which occurs at the tips of root & shoots & produce primary tissue are called apical meristems.
- Root apical meristem occupies the tip of a root while the shoot apical meristem occupies the distant most region of the stem.
- During the formation of leaves & elongation of stem. Some cells 'left behind' from shoot apical meristem, constitute the axillary bud.
- Such bud present in the axils of leaves & are capable of forming a branch or a flower.
- The meristem which occurs between mature tissue known as intercalary meristem.
- They occur in grasses & regenrate parts removed by the grazing herbivores.
- Both apical & intercalary meristem are primary meristem.
- The meristem that occurs in mature region of roots & shoots of many plants, particularly those produce woody axis & appear later than primary meristem is called lateral meristem.

Q No. 2 - Describe internal structure of a dicot root?

1] Epiblema :-
- The outermost layer is epiblema
- From the outside of the epiblema, unicellular roots extend.

2] Cortex :-
- It consist of several layers of thin coated parenchyma cells with intercellular spaces.
- These cells contain starch grains.

3] Endodermis :-
- The innermost layer of the cortex called endodermis.
- It contains cells having a parallel shapes & no intercellular spaces.
- The tangential as well as radial walls of the endodermal cells have deposition of water impermable, waxy material Suberin in the form of casparian strips.
- Next to endodermis lies a few layer of thick walled parenchymatous cells referred to as pericycle.
- The parenchymatous cells which lie betn the xylem & phloem are called conjuctive tissue.
- All tissue on the innerside of the endodermis such as pericycle, vascular bundles & pith constitute the stele.



Q. No. 3 Describe the elements of xylem with suitable diagram.

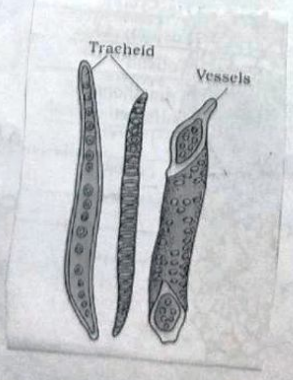
→ - The complex tissue are made of more than one type of cells & those work together as unit.
- xylem & phloem constitute complex tissue in plant.
- xylem functions as conducting tissue for water & minerals from roots to the stem & leaves.
- It compose of ~~four~~ different element.

1] Tracheids - Tracheids are elongated or tube like cells with thick & lignified walls & tapering ends.
- These are dead & without protoplasm.
- Their function to help in the conduction of water & mineral.

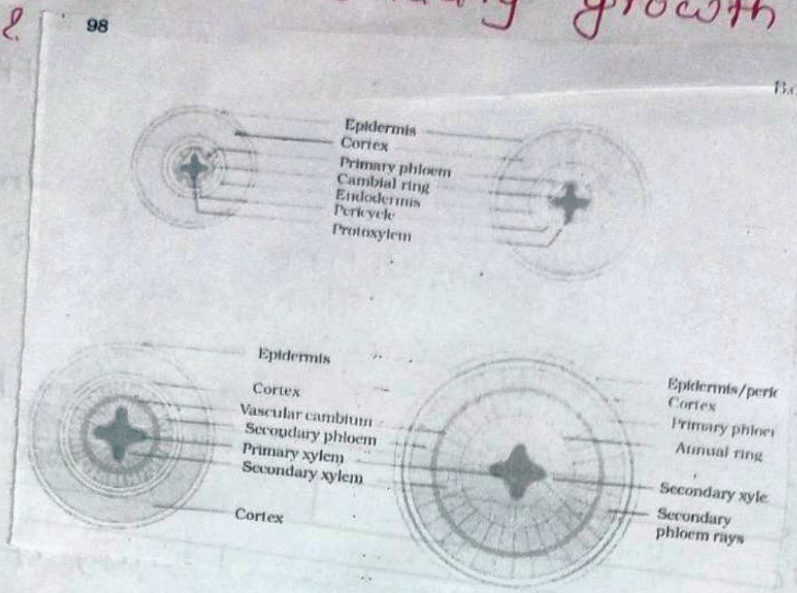
2] Vessel - Vessels is long cylindrical tube like structure made up of many cells called vessel members.
- Vessels are also devoid of protoplasm.
- They help in conduction of food & water from the roots to the upper parts of plant.

3] Xylem parenchyma :- These are living & thin walled & their cell walls are made up of cellulose.
- They stored food material in the form of starch or fat & other substances like tannins.

4] Xylem fibres :- These are highly thickened walls & obliterated central lumens. These may be either septate or aseptate.



Q. No 4. Explain Secondary growth of roots &




→ In dicot root, vascular cambium is competely Seconday in origin.
- It originate from the tissue located just bellow the phloem. bundles, a portion of pericycle tissue above the protoxylem forming complete & continuous wavy ring.
- which later become circular.
- ~~the plan~~ It charecterised by a increase in the thickness.
- ring of cambium is formed from intrafas- cicular cambium present betn xylem & pholem. & the medullary cells present
- The cells which cambium forms ~~too~~ towards the periphery, from secondary pholem & xylem. toward pith.
- It consist of three sub-zone.
- ~~The cote hyp~~ The peripheral region of Secondary xylem conduct coarser & lighter in colour & know as Sapwood.
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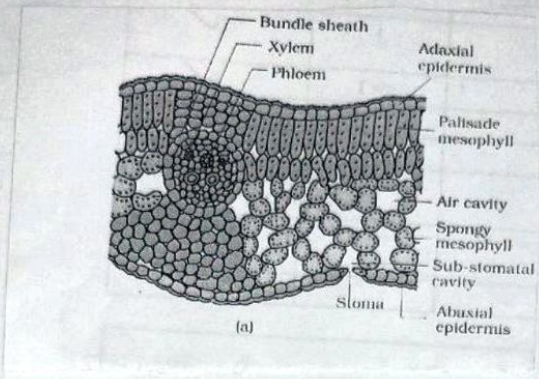
Q. No. 5 Describe characteristics of dorso-ventral leaf & Draw the diagram.




- The vertical section of dorsoventral leaf through through the lamina shows three main parts, namely
1] Epidermis - It covers both upper surface & lower surface of the ~~leaf~~ leaf has a conspicuous cuticle.
- The abaxial epidermis generally bears more stomata than the adaxial epidermis.
2] mesophyll - The Tissue beth the upper & the lower epidermis is called the mesophyll. Mesophyll possess chloroplast & carry out photosynthesis. is made up of parenchyma.
- It has two types of cells.
a] Palisade parenchyma - The adaxially placed is made up of elongated cells, which are arranged vertically & Parallel to each other.
b] Spongy parenchyma - The oval or round & loosely arranged, situated bellow the palisade cells & extends to lowed epidermis.
- The vascular system includes vascular bundles which can be seen in the midrib.
- The size of vascular bundle is dependent on size of the vein.
- The vascular bundle are surrounded by the layer of thick walled bundle sheath cells.
& find the position of xylem in vascular bundle.

Q. N6 – Describe Secondary growth of dicot stem ?

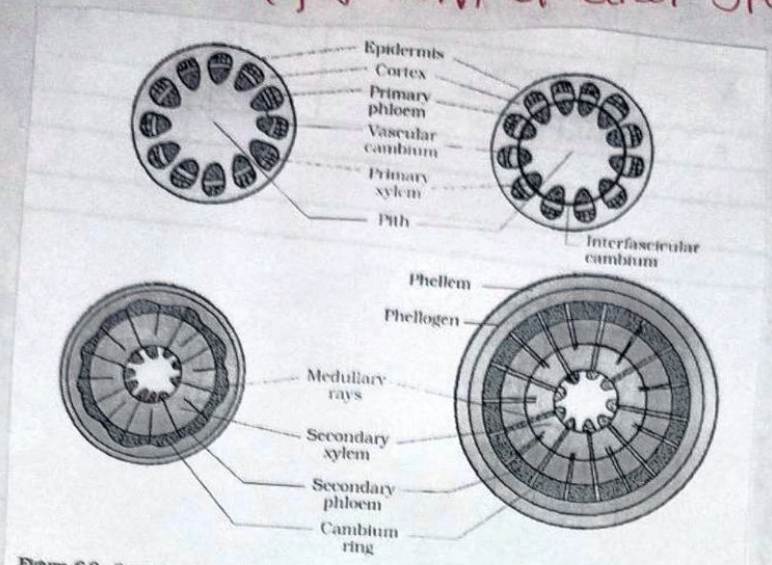



Figure 6.9 Secondary growth in a dicot stem (diagrammatic) – stages in transverse views

→ In dicot stem, the cells of cambium present between primary xylem & primary phloem called intrafascicular cambium.

- The cambial ring become active & being to cut off new cells, both towards the inner & outer sides.
- The cells cut off towards pith.
- mature into Secondary xylem & the cells cut off towards periphery mature into secondary phloem.
- The cambium is more active on the inner side than the outer.
- As result the amount of secondary xylem produce is more than secondary phloem. & soon forms a compact mass.
- The primary & secondary phloem get gradually crushed due to the continued formation & accumulation of secondary xylem.
- At some places the cambium forms narrow band of parenchyma, which passes through the secondary xylem & the secondary phloem in the radial direction.
- These are secondary medullary rays.

The activity of cambium is control of many physiological & environmental factors.