

Topic :-Anatomy Of Flowering Plants

- 1 (c)
In dicot stems, the cells of cambium present between primary xylem and primary phloem are intrafascicular cambium. The cells of medullary cells, adjoining these intrafascicular cambium becomes meristematic and form the interfascicular cambium. Thus, a continuous ring of cambium is formed
- 2 (d)
In dicotyledonous roots, initiation of lateral roots and vascular cambium during the secondary growth take place in pericycle cells.
- 3 (b)
Root stem transition occurs in hypocotyl region of axis.
- 4 (b)
Monocots have **atactostele**, in which vascular bundles are arranged into more than one ring and they are usually found at the centre of stem.
- 5 (a)
The leaves of dicot plants are anatomically differentiated into epidermis, mesophyll tissue and vascular bundles. Mesophyll tissue is divided into upper **palisade tissue**, consisting of closely arranged cells with **numerous chloroplasts** and **lower spongy tissue**, which consists of loosely arranged cells separated by large air spaces. The cells of spongy tissue have fewer chloroplasts, hence most of the photosynthesis occur in palisade tissue.
- 6 (a)
All tissues except epidermis and vascular bundles constitute the ground tissue or fundamental tissue. It consists of simple tissues such as parenchyma, collenchyma and sclerenchyma. Ground tissue includes cortex, pericycle, medullary rays. In leaves the ground tissue consists of mesophyll.

- 7 **(a)**
In monocotyledons, the vascular bundles have no cambium present in them. Hence, they don't form secondary tissue and referred to as closed vascular bundles. Generally, monocotyledons have the closed vascular bundles
- 8 **(a)**
Sieve tubes are elongated tubular conducting channels of phloem. Each sieve tube is formed of several cells called **sieve tube members, sieve tube cells** or **sieve elements**. Sieve tube members are placed end to end. The end walls are generally bulged out. They may be transverse or oblique. They have many small pores or sieve pits. Each sieve pore is lined by a layer of **callose**. Due to the presence of sieve pits. The end walls are commonly called **sieve plates**
- 9 **(a)**
Exarch It is the condition of vascular bundles in which the protoxylem (earlier formed xylem) lies toward the outside and metaxylem (later formed xylem) lies toward inward
Endarch It is the condition of vascular bundles in which the protoxylem (earlier formed xylem) lies toward the inner side and metaxylem (later formed xylem) lies outside
- 10 **(d)**
All except IV.
Epidermal cells are elongated compactly arranged and form continuous layer called epidermis. Stomata are present in epidermis of leaves and regulate process of transpiration and gaseous exchange. The epidermal hairs, i.e., root hairs, unicellular elongations and trichomes, multicellular elongation of epidermis on root and shoot helps in absorbing water and preventing water loss, respectively.
All of these.
The outside of the epidermis is often covered with waxy thick layer called cuticle, which prevents the loss of water. Cuticle is absent in roots.
In grasses (monocotyledons), the guard cells are dumb-bell shaped and in dicotyledonous (bean, castor, pea), the guard cells are bean or kidney-shaped
- 11 **(a)**
In dicot root, the vascular cambium is completely secondary in origin. It originates from the tissue located just below the phloem bundles, *i.e.*, portion of pericycle tissue
- 12 **(c)**
In the formation, the heart wood and sap wood, it is not necessarily that the wood formed in previous years is darker than newer wood

- 13 **(d)**
Under extremely dry conditions, the cuticle is reinforced by a layer of wax. This wax checks the excessive loss of water from the epidermal layer
The epidermis of aerial parts usually bears a number of minute pores called stomata. Each stomata performs the gaseous exchange in plants
Ground tissue system of leaves is called mesophyll. Mesophyll is made up of two types of photosynthetic cells, palisade and spongy
- 14 **(c)**
Vessel is a long cylindrical tube-like structure made up of many cells called vessel members, each with lignified walls and a large central cavity. The vessel cells are also devoid of protoplasm. Vessel members are interconnected through perforations in their common walls. The presence of vessels is a characteristic feature of angiosperms
- 15 **(a)**
The anatomy of the monocot root is similar to the dicot root in many respects. It has epidermis, cortex, endodermis, pericycle, vascular bundles and pith. As compared to the dicot root, which have fewer xylem bundles, there are usually more than six (polyarch) xylem bundles in the monocot root. Pith is large and well-developed. Monocotyledonous roots do not undergo any secondary growth
- 16 **(b)**
Vessels are long, tubular having lignified cell wall and are components of xylem tissue. The cross wall (end wall) at both the ends of vessels, dissolves and form a pipe-like channel. They function in ascent of sap in angiosperms.
Conduction of food materials occurs through the sieve tubes, which are cellulose, thin-walled and are component of phloem tissues.
- 17 **(c)**
Idioblast (modified parenchyma cells) and collenchyma are simple permanent tissue and apical meristems are simple meristematic tissue. Conducting tissues (*i.e.*, xylem and phloem) are complex conducting tissue made up of different types of cells.
- 18 **(b)**
A–parenchyma, B–collenchyma, C–sclerenchyma
- 19 **(d)**
A-Endodermis B-Conjunctive tissue C-Protoxylem D-Metaxylem E-Phloem F-Pith
- 20 **(d)**
Pericycle is the external layer of stele. It forms a single layer between endodermis and conducting tissues. The roots or root branches are produced endogenously from the pericycle.

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	c	d	b	b	a	a	a	a	a	d
Q.	11	12	13	14	15	16	17	18	19	20
A.	a	c	d	c	a	b	c	b	d	d

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