

Topic :-Anatomy Of Flowering Plants

- 1 **(b)**
Next to the endodermis lies a few layers thick-walled parenchymatous cells referred to as pericycle. Initiation of lateral roots and vascular cambium during secondary growth takes place in these cells
- 2 **(d)**
In the upper epidermis of monocots (*e.g.*, wheat, maize, cereals, grasses), there are some large cells found in groups which are known as motor cells or bulliform cells. These cells help in rolling of leaves in dry conditions
- 3 **(b)**
Companion cells are present between the sieve tubes in the phloem of angiosperms. There are living cells with a large nucleus that controls the activity of non-nucleated sieve tubes
- 4 **(c)**
The vascular bundles, in which xylem and phloem occur as separate bundles are known as radial vascular bundles, *eg*, root.
- 5 **(b)**
In old trees, the greater part of secondary xylem is dark brown due to the deposition of organic compounds like tanins, resins, oils, gums, aromatic substances and essential oils in the central or innermost layers of the stem. These substances make it hard, durable and resistant to the attacks of microorganisms and insects. The region comprises dead elements with highly lignified walls and is called heart wood
- 6 **(a)**
The parenchymatous cells which lies between the xylem and the phloem are called conjunctive tissue

- 7 **(d)**
I, II and III.
The monocot stem has a sclerenchymatous hypodermis, a large number of scattered vascular bundles, each surrounded by a sclerenchymatous bundle sheath, and a large, conspicuous parenchymatous ground tissue. Vascular bundles are conjoint and closed. Peripheral vascular bundles are generally smaller than the centrally located ones. The phloem parenchyma is absent and water-containing cavities are present within the vascular bundles
- 8 **(a)**
The activity of cambium is under the control of many physiological and environmental factors. In temperate regions, the climatic conditions are not uniform through the year. In the spring season, cambium is very active and produces a large number of xylary elements having vessels with wider cavities. The wood formed during this season is called spring wood or early wood
- 9 **(c)**
The meristem that occurs in both roots and shoots and produce the woody axis and appear later than the primary meristem are called the **secondary meristem**
- 10 **(c)**
Secondary growth is the growth in girth of stem and roots. Anamolous or abnormal secondary growth is found in some monocot stems such as *Yucca, Dracaena, Aloe, Agave*, etc.
- 11 **(d)**
Vessels are absent in some angiosperms *e.g., Drimys*. This is a homoxylous angiosperm.
- 12 **(a)**
In monocot stem, vascular bundles are conjoint, collateral and closed.
- 13 **(a)**
Sorghum (family-Poaceae) is a monocot plant. The leaves of monocot do not contain palisade parenchyma, because the mesophyll of monocot leaf is not differentiated into palisade and spongy parenchyma, all being thin-walled, chlorophyllous and irregularly compactly arranged with fewer intercellular spaces.
- 14 **(d)**
Schmidt (1924) proposed tunica-carpus theory, which states the presence of two distinct zones in angiospermic shoot apices. The peripheral zone is called tunica and the inner core of cells called corpus surrounded by tunica.

- 15 **(b)**
Sapwood is also known as alburnum. It is the outerward or peripheral wood of the plant, consisting of living cells and is light in colour and weight. Alburnum represents the functional part of secondary xylem (wood), where tracheids and vessels are not plugged by tyloses and secondary metabolites are not deposited in tracheary elements.
- 16 **(a)**
The root apical meristem occupies the tip of root, while shoot apical meristem occupies region of stem apex
- 17 **(b)**
Vascular system includes vascular bundles, which can be seen in the veins and the midrib. The size of the vascular bundles are dependent on the size of the veins. The veins vary in thickness in the reticulate venation of the dicot leaves. The vascular bundles are surrounded by a layer of thick walled bundle sheath cells
- 18 **(c)**
The meristem, which lies between the regions of permanent tissues is called **intercalary meristem**. Intercalary maristem is a primary meristem.
- 19 **(a)**
Lenticels.
At certain regions, the phellogen cuts off closely arranged parenchymatous cells on the outer side instead of cork cells. These parenchymatous cells soon rupture the epidermis, forming a lens-shaped openings called lenticels. Lenticels permit the exchange of gases between the outer atmosphere and the internal tissue of the stem. These occur in most woody trees
- 20 **(a)**
After three years, the nail will be one metre above the soil because plants show only apical growth. Only tip of tree will grow, lower part of tree will remain constant.

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

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