

**Topic :- Anatomy Of Flowering Plants**

- 1      **(c)**  
Tracheids are elongated and their cell walls are usually extensively thickened by deposition of lignin. Water flows from one tracheid to another through unthickened regions (pits) in the cell walls.
  
- 2      **(a)**  
Cells arranged in multiple layers between epidermis and pericycle constitutes the cortex. *It is divided into three regions*  
(i) Hypodermis, few layer of collenchymatous cells  
(ii) Cortical layer cells, rounded thin walled parenchymatous cells  
(iii) Endodermis
  
- 3      **(b)**  
Jute fibres occur in long wedge-shaped bundles outside the xylem (*i.e.*, phloem fibres). It is most important of bast fibres and comes second in production only to cotton among natural fibres.
  
- 4      **(a)**  
Sieve tube cells are studied during the translocation of solutes because they have interconnected lumen. Sieve tubes takes part in the conduction of organic food
  
- 5      **(b)**  
Vascular tissue, pericycle and pith are stellar regions, and are formed from plerome.
  
- 6      **(d)**  
Endodermis is the innermost limiting layer of cortex which separates the vascular tissue from cortical cells. In some dicots the endodermal cells bear characteristic thickening on their walls, the Casparian thickenings. The thickenings are restricted to radial and inner tangential walls.

- 7 **(d)**  
Cork cambium or phellogen cells divided perclinically cutting off cells towards the outside and inside. The cells cut off towards the outside become suberised and dead. These are compactly packed in radial rows without intercellular spaces and form cork or phellem. Cork is impervious to water due to suberin and provides protection to underlying tissues. The cells cut off from cork cambium towards inside add to the cortex and are called secondary cortex cells on phelloderm.
- 8 **(a)**  
In phloem, sieve tubes possess the perforated oblique or transverse sieve plates. Sieve plates are called simple when they consists of one region of pores (*e.g., Cucurbita, Nicotiana*) or compound when they consists of several pored regions separated by bars or wall thickenings (*e.g., Vitis*).
- 9 **(c)**  
In hydrophytes, root caps are absent.
- 10 **(c)**  
The guard cells possesses chloroplast and regulate the opening and closing of stomata
- 191 **(d)**  
Intercalary meristematic tissues are intercalated in between the permanent tissues. They may be present either at the base of internodes (*e.g., grasses, wheat, etc*) or at the base of leaf (*e.g., Pinus*) or at the base of node (*e.g., mint*). The activity of intercalary meristem also add to the length of plant or its organs.
- 12 **(d)**  
Sieve plates are formed by two adjoining end walls of neighbouring sieve elements of sieve tube of phloem. At maturity, these become impregnated with callose pad, which may be seasonal callose (for only limited unfavourable period) or definitive callose (formed permanently in functionless old sieve tubes).
- 13 **(d)**  
Cullulase, hemicellulose, pectin. *All of the above*  
The **collenchyma** occurs in layers below the epidermis in dicotyledonous plants. It is found either as a homogenous layer or in patches. It consists of cells which are much thickened at the corners due to the deposition of cellulose, hemicellulose and pectin. Collenchymatous cells may be oval, spherical or polygonal and often contain chloroplasts. These cells assimilate food when they contain chloroplasts. Intercellular spaces are absent. They provide mechanical support to the growing parts of the plant such as young stem and petiole of a leaf

- 14 **(c)**  
**Complete Tissue** They are permanent tissue which contains more than one type of cells. All type of cells of a complex tissue work as a unit. The common complex permanent tissues are conducting tissue, xylem and phloem
- 15 **(d)**  
When the protoxylem elements lie at the periphery and metaxylem in the centre, the condition is said to be **exarch**. Here, the direction of development is centripetal, *e.g.*, root.
- 16 **(b)**  
When xylem and phloem groups are located on different radii, the bundles are said to be radial, *e.g.*, root. The protoxylem element lie at the periphery and metaxylem in the centre, this condition is called exarch, *e.g.*, root
- 17 **(d)**  
Stele is the innerside of endodermis, such as pericycle, vascular bundles and pith
- 18 **(c)**  
The cork (phellem) is impervious to water due to suberin deposition in the cell wall
- 19 **(d)**  
Xylem and phloem are called the heterogenous tissues
- 20 **(c)**  
When phloem is surrounded by xylem on all sides, such concentric vascular bundle is called **amphivasal** or **leptocentric**. Such vascular bundle is found in *Dracaena, Yucca, Aloe*, etc.

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

**P E**