

Chapter 6

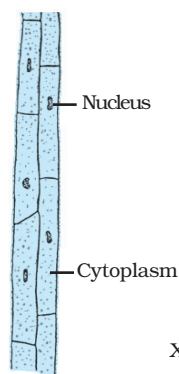
ANSWERS

Multiple Choice Questions

- | | | | |
|---------|---------|---------|---------|
| 1. (b) | 2. (c) | 3. (b) | 4. (b) |
| 5. (b) | 6. (c) | 7. (d) | 8. (b) |
| 9. (c) | 10. (c) | 11. (c) | 12. (c) |
| 13. (b) | 14. (b) | 15. (c) | 16. (b) |
| 17. (c) | 18. (c) | 19. (c) | 20. (b) |
| 21. (d) | 22. (b) | 23. (a) | 24. (a) |
| 25. (d) | 26. (d) | 27. (c) | 28. (a) |
| 29. (a) | 30. (c) | 31. (b) | 32. (c) |
| 33. (c) | | | |

Short Answer Questions

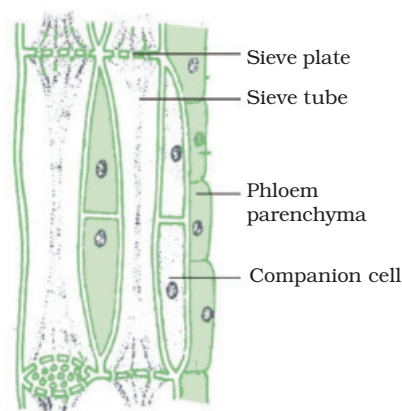
34. **Hint**— Fat acts as subcutaneous insulation of body for thermoregulation
35. a—v; b—iv; c—iii; d—i; e—ii; f—vi;
36. a—i; b—ii; c—iv; d—iii; e—v;
37. **Hint**— Because of transpiration
38. **Hint**— Xylem consists of tracheids, vessels, xylem parenchyma and xylem fibres.



Xylem parenchyma

39. **Hint**—Sieve tubes, companion cells, phloem fibres and phloem parenchyma.

Section of phloem

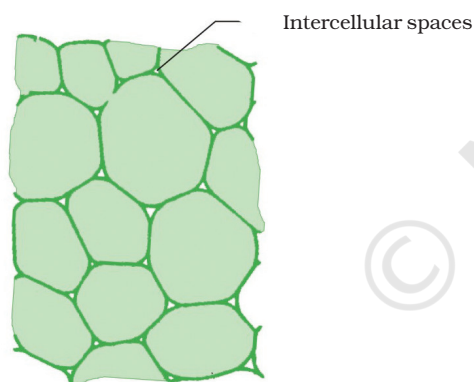


40. (a)—T, (b)—T, (c)—F, (d) —T, (e)—F
41. Voluntary muscles can be moved by conscious will when we want them to move. For example, muscles of limbs or skeletal muscles. Involuntary muscles function on their own. We cannot start or stop them from working by our desire. examples are cardiac muscles and smooth muscles.
42. (a)—V, (b)—I V, (c)—V, (d) —I V
43. (a) squamous epithelium
(b) columnar epithelium
(c) cuboidal epithelium
(d) respiratory tract
44. **Hint**— Due to aerenchyma present in the swollen petiole.
45. **Hint**- Epidermis having thick cuticle and waxy substances to prevent the invasion of parasites.
46. (a) suberin (b) sieve tubes (c) calcium and phosphorus
47. **Hint**—Epidermis is important for plants due to the following reasons
(i) it gives protection
(ii) helps in gaseous exchange
(iii) checks water loss
(iv) root hairs arising from epidermis helps in absorption of water and minerals.
48. (a) Xylem and phloem
(b) Stomata
(c) Suberin
(d) Sclerenchyma
(e) Collenchyma
(f) Xylem; phloem
(g) Water; minerals
(h) food; leaf

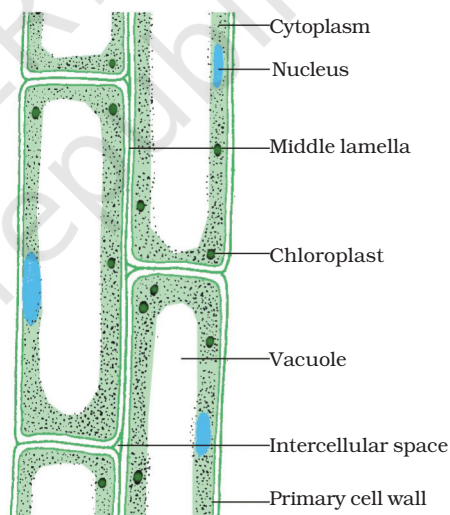
Long Answer Questions

49. Differences between parenchyma and sclerenchyma.

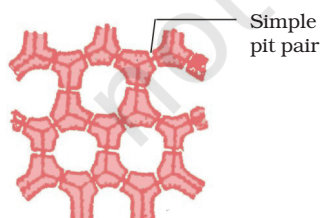
Parenchyma	Sclerenchyma
<ol style="list-style-type: none"> (1) Cells are thin walled and unspecialised (2) These are living cells (3) Cells are usually loosely packed with large intercellular space (4) Stores nutrient and water in stem and roots (5) Some cells contain chlorophyll called chlorenchyma and perform photosynthesis. Other cells have large air cavities called aerenchyma which provide buoyancy to the hydrophytic plants 	<ol style="list-style-type: none"> (1) Cells are thick walled and lignified (2) Tissues are made up of dead cells (3) No intercellular spaces between the cells are found (4) Provides strength to the plant parts (5) The cells are long and narrow, make the plant hard and stiff. The tissue is present in the stem around vascular bundles, in veins of leaves and hard covering of seeds and nuts.



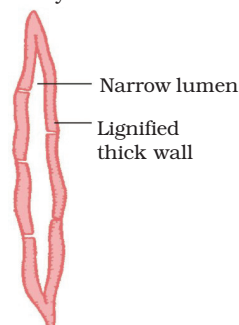
T.S. Parenchyma



L.S. Parenchyma



T.S. Sclerenchyma



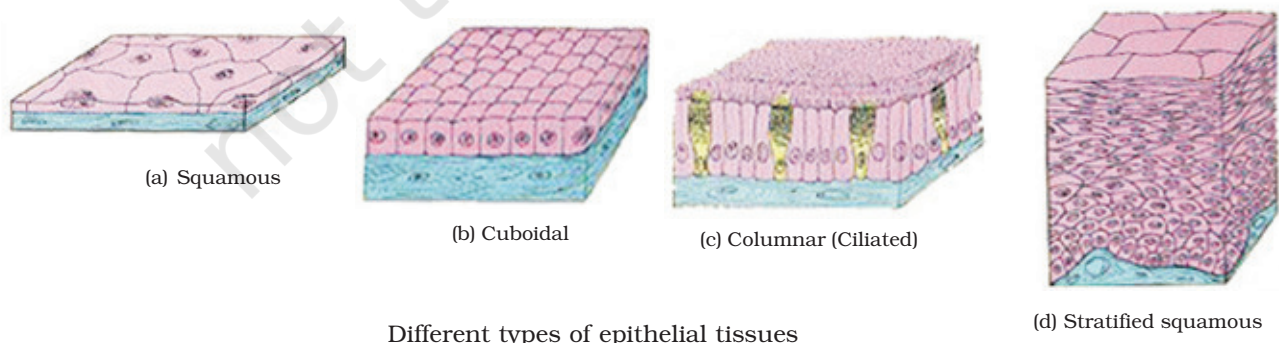
L.S. Sclerenchyma

- 50.** Epithelial tissues are the covering or protective tissues in the animal body. Epithelium covers most organs and cavities within the body and keep different body systems separate. The skin, the lining of the mouth, the lining of blood vessels, lung alveoli and kidney tubules are all made of epithelial tissue. Epithelial tissue cells are tightly packed and form a continuous sheet. They have only a small amount of cementing material between them and almost no intercellular spaces. The permeability of the cells of various epithelia play an important role in regulating the exchange of materials between the body and the external environment and also between different parts of the body. Regardless of the type, all epithelia are usually separated from the underlying tissue by an extracellular fibrous basement membrane.

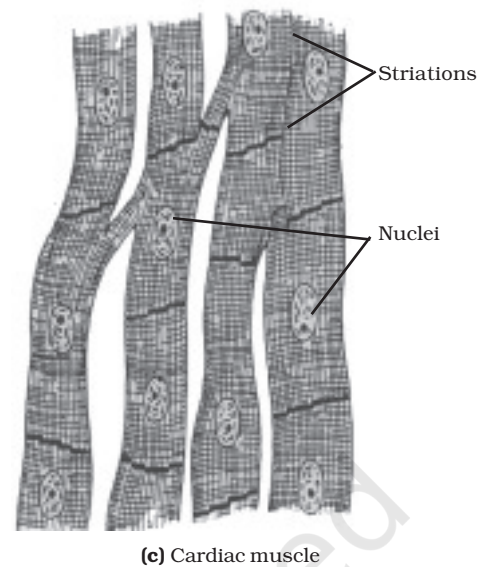
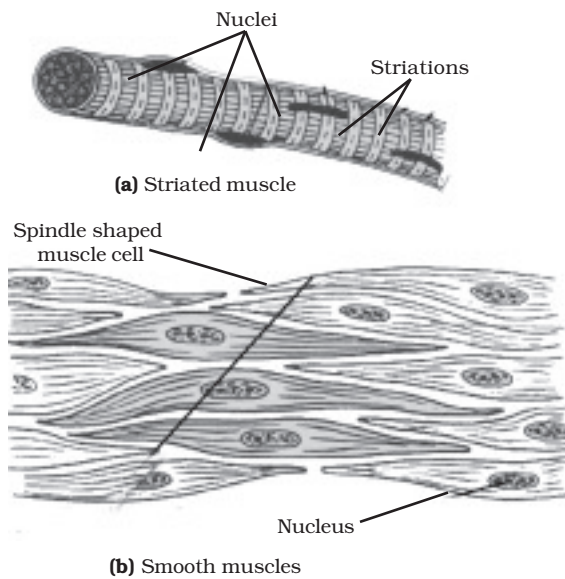
Epithelial tissues are of following types— (1) Simple squamous epithelium (2) Stratified squamous epithelium (3) Columnar epithelium, and (4) Cuboidal epithelium. These tissues differ in structure that correlate with their unique functions. For example, in cells lining blood vessels or lung alveoli, where transportation of substances occurs through a selectively permeable surface, there is a simple flat kind of epithelium. This is called the simple squamous epithelium. Simple squamous epithelial cells are extremely thin and flat and form a delicate lining. The skin, oesophagus and the lining of the mouth are also covered with squamous epithelium. Skin epithelial cells are arranged in many layers to prevent wear and tear. Since, they are arranged in a pattern of layers, the epithelium is called stratified squamous epithelium.

Where absorption and secretion occur, as in the inner lining of the intestine, tall epithelial cells are present. This columnar epithelium facilitates movement across the epithelial barrier. In the respiratory tract, the columnar epithelial tissue also has cilia, which are hair-like projections on the outer surfaces of epithelial cells. These cilia can move, and their movement pushes the mucus forward to clear it. This type of epithelium is thus ciliated columnar epithelium.

Cuboidal epithelium forms the lining of kidney tubules and ducts of salivary glands, where it provides mechanical support. Epithelial cells often acquire additional specialisation as gland cells, which can secrete substances at the epithelial surface. Sometimes a portion of the epithelial tissue folds inward, and a multicellular gland is formed. This is glandular epithelium.



51.



52. **Hint—**

- No need of storage.
- Because they are lignified.
- Presence of stone cells (sclerenchyma)
- Presence of Collenchyma.
- Sclerenchyma.

53. **Characteristics**

- Cells of cork are dead at maturity
 - These cells are compactly arranged
 - Cells do not possess intercellular spaces.
 - Cells possess a chemical substances suberin in their walls
 - They are several layers thick.
- As plants grow older, a strip of secondary meristem replaces the epidermis of the stem. Cells cut on the outer side by this meristem are called cork.
- They are protective in function for older stem/twigs/branches. They are impervious to gases and water.

54. Both xylem and phloem consist of more than one type of cells, which coordinate to perform a common function.

Xylem	Phloem
Consists of tracheids, vessels, xylem, parenchyma and xylem fibres They transport water and minerals vertically from soil to aerial parts of the plant. Most of the cells except xylem parenchyma are dead cells	Consist of sieve tubes, companion cell, phloem parenchyma and phloem fibres. They transport food from leaves to other parts of the plant. Most of the cells except phloem fibres are living cells.

55.

Meristematic	Permanent
Cells of this tissue divide throughout their life. They are located at specific regions of the plant viz: apical lateral, intercalary Cells of this tissue are very active, have dense cytoplasm, thin walls and prominent nuclei. They lack vacuoles Cell wall is cellulosic.	They lose the ability to divide to take up specific function. They are distributed throughout the plant body. They are vacuolated, vary in shape and size. Their cell wall may be thick. Cell wall is made up of cellulose/ lignin/ suberin.

- (b) The loss of ability to divide by taking up a permanent shape, size and function is called differentiation.
- (c) Simple: Parenchyma/collenchyma/sclerenchyma
Complex: Phloem/xylem