

BIOLOGY

Chapter 6: Tissues



Important Questions

➤ Multiple Choice Questions:

1. Which tissue is present at the growing tips of stem and roots ?

- (a) Permanent
- (b) Meristematic
- (c) Conductive
- (d) Complex

2. Blood is a type of:

- (a) connective tissue
- (b) muscular tissue
- (c) nervous tissue
- (d) epithelial tissue

3. Brain is composed of:

- (a) muscular tissue
- (b) connective tissue
- (c) nervous tissue
- (d) epithelial tissue

4. The heart of organisms is made up of:

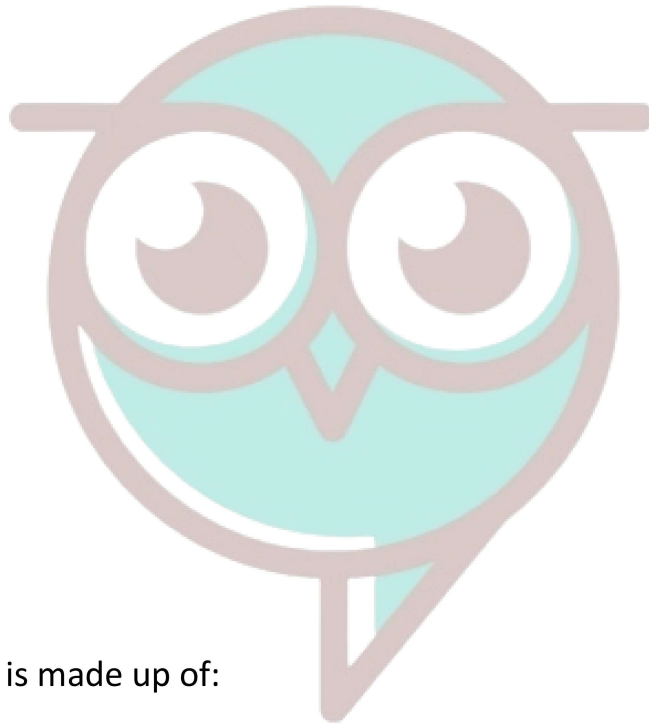
- (a) muscular tissue
- (b) connective tissue
- (c) nervous tissue
- (d) epithelial tissue

5. Skin of hand is composed of:

- (a) muscular tissue
- (b) connective tissue
- (c) nervous tissue
- (d) epithelial tissue

6. Water and minerals are transported by:

- (a) phloem
- (b) cavities
- (c) xylem



Swotters

(d) all of them

7. Stomata are found:

(a) in the epidermis of leaf

(b) in xylem

(c) in phloem

(d) collenchyma

8. Which muscles act involuntarily?

(i) Striated muscles

(ii) Smooth muscles

(iii) Cardiac muscles

(iv) Skeletal muscles

(a) (i) and (ii)

(b) (ii) and (iii)

(c) (iii) and (iv)

(d) (i) and (iv)

9. Which is not a function of epidermis?

(a) Protection from adverse condition

(b) Gaseous exchange

(c) Conduction of water

(d) Transpiration

10. Cartilage is not found in:

(a) nose

(b) ear

(c) kidney

(d) larynx



Swotters

➤ **Very Short Question:**

1. Name the tissues responsible for the movement of the body.
2. How does neuron look like?
3. Name the types of simple tissues.
4. Name the types of complex tissues.
5. Where is apical meristem found?

6. Which tissue make up the husk of coconut?
7. What are the constituents of phloem?
8. Define aerenchyma.
9. What is the utility of tissues in multicellular organisms?
10. Name the two types of tissues.

➤ Short Questions:

1. Give four differences between bone and cartilage.
2. Give the functions of bone.
3. Give the functions of cartilage.
4. What are the functions of areolar tissue?
5. Give difference between xylem and phloem.
6. What are fibres?
7. Name the tissues for the following:
 - (a) Stores fat in animal body.
 - (b) Divides and re-divides to grow in plants.
 - (c) Tissue that joins bone to bone.
 - (d) Covers the external surface of animal body.
8. What is stomata?

➤ Long Questions:

1. Write a note on plant tissues.
2. Show the types of animal tissues using flow chart.
3. What is connective tissue? Explain its types.

➤ Assertion Reason Questions:

1. For two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
 - a. Both Assertion and Reason are correct, and reason is the correct explanation for assertion.
 - b. Both Assertion and Reason are correct, and Reason is not the correct explanation for Assertion.
 - c. Assertion is true but Reason is false.
 - d. Both Assertion and Reason are false.

Assertion: Amoeba is the single cell animal in which single cell carries out all movement like intake of food, gaseous exchange and excretion.

Reason: Amoeba is not unicellular organism.

2. For two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

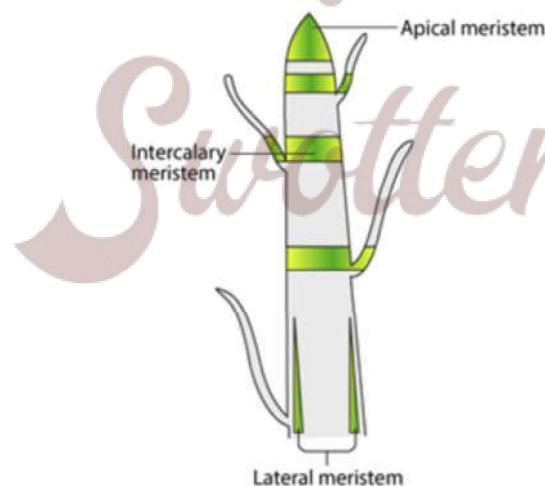
- Both Assertion and Reason are correct, and reason is the correct explanation for assertion.
- Both Assertion and Reason are correct, and Reason is not the correct explanation for Assertion.
- Assertion is true but Reason is false.
- Both Assertion and Reason are false.

Assertion: Amoeba is the single cell animal in which single cell carries

Reason: Amoeba is the single cell organism.

➤ Case Study Questions:

1. The growth of plants occurs only in certain specific regions. This is because the dividing tissue, also known as meristematic tissue, is located only at these points. Depending on the region where they are present, meristematic tissues are classified as apical, lateral and intercalary. New cells produced by meristem are initially like those of meristem itself, but as they grow and mature, their characteristics slowly change and they become differentiated as components of other tissues.



Apical meristem is present at the growing tips of stems and roots and increases the length of the stem and the root. The girth of the stem or root increases due to lateral meristem (cambium). Intercalary meristem seen in some plants is located near the node. Cells of meristematic tissue are very active, they have dense cytoplasm, thin cellulose walls and prominent nuclei. They lack vacuoles.

(i) Which meristem helps in increasing the girth of the plant?

- (a) Primary meristem
- (b) Apical meristem
- (c) Intercalary meristem
- (d) Lateral meristem

(ii) Lateral meristem is responsible for _____.

- (a) Growth of apical portion
- (b) Increase in the length
- (c) Increasing the girth of stem and root
- (d) Growth in parenchyma

(iii) The meristem present at the base of the internode is _____.

- (a) Lateral meristem
- (b) Intercalary Meristem
- (c) Apical Meristem
- (d) All of the above

(iv) What are the characteristic of Meristematic tissue?

(v) Enlist the type of meristematic tissue.

2. Meristematic tissue take up a specific role and lose the ability to divide. As a result, they form a permanent tissue. This process of taking up a permanent shape, size, and a function is called differentiation. Differentiation leads to the development of various types of permanent tissues.

Simple Permanent Tissue

Tissue made of one type of cells, which look like each other. Such tissues are called simple permanent tissue. Parenchyma is the most common simple permanent tissue. It consists of relatively unspecialised cells with thin cell walls. They are living cells. They are usually loosely arranged, thus large spaces between cells (intercellular spaces) are found in this tissue. This tissue generally stores food. In some situations, it contains chlorophyll and performs photosynthesis, and then it is called chlorenchyma. In aquatic plants, large air cavities are present in parenchyma to help them float. Such a parenchyma type is called aerenchyma. Yet another type of permanent tissue is sclerenchyma. It is the tissue which makes the plant hard and stiff. We have seen the husk of a coconut. It is made of sclerenchymatous tissue. The cells of this tissue are dead. They are long and narrow as the walls are thickened due to lignin.

Complex Tissue

Complex tissues are made of more than one type of cells. All these cells coordinate to perform a common function. Xylem and phloem are examples of such complex tissues. They are both

conducting tissues and constitute a vascular bundle. Xylem fibres are mainly supportive in function. Phloem transports food from leaves to other parts of the plant. Except phloem fibres, other phloem cells are living cells.

(i) Tissue made of only one type of cell is termed as _____.

- (a) Simple permanent tissue
- (b) Complex permanent tissue
- (c) Simple Meristematic tissue
- (d) Complex Meristematic tissue

(ii) Xylem and phloem are examples of:

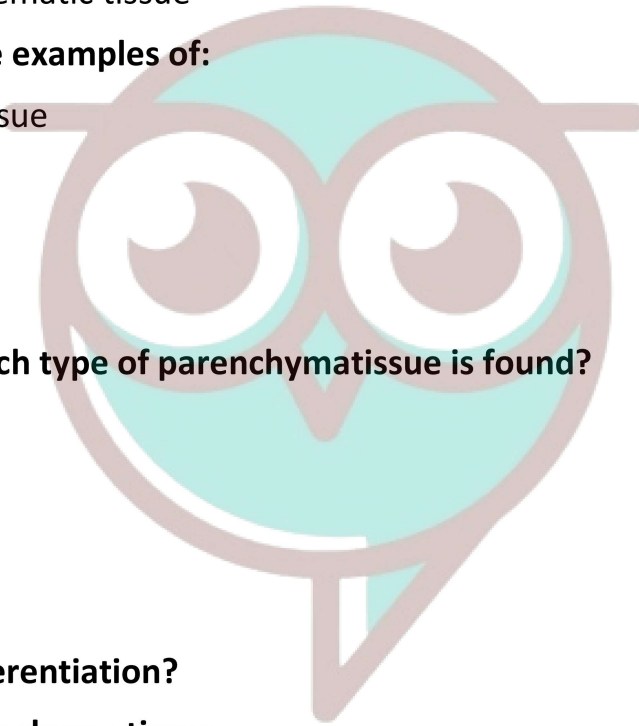
- (a) Meristematic tissue
- (b) Simple tissue
- (c) Protective tissue
- (d) Complex tissue

(iii) In aquatic plants, which type of parenchyma tissue is found?

- (a) Aerenchyma
- (b) Chlorenchyma
- (c) Sclerenchyma
- (d) Parenchyma

(iv) What is meant by Differentiation?

(v) Enlist the type of parenchyma tissue.



✓ Answer Key-

➤ **Multiple Choice Answers:**

1. (b) Meristematic
2. (a) connective tissue
3. (c) nervous tissue
4. (a) muscular tissue
5. (d) epithelial tissue
6. (c) xylem
7. (a) in the epidermis of leaf
8. (b) (ii) and (iii)
9. (c) Conduction of water

10. (c) kidney

➤ **Very Short Answers:**

1. Answer: Muscle tissue and nervous tissue
2. Answer: A neuron is the unit cell of nervous tissue. It is a thread-like structure with cell body and axon.
3. Answer: (a) Parenchyma (b) Collenchyma (c) Sclerenchyma
4. Answer: Xylem and phloem.
5. Answer: It is present at the growing tips of stem and root, it increases the length of the stem and roots.
6. Answer: Sclerenchyma.
7. Answer: Phloem constitutes the sieve tubes, companion cell, phloem parenchyma and phloem fibres.
8. Answer: When the cells have air-filled large cavities of parenchyma, it is called aerenchyma. Aerenchyma helps aquatic plants in floating.
9. Answer: It helps in growth, organisation of different organs and performing functions.
10. Answer: Plant tissues and animal tissues.

➤ **Short Answer:**

1. Answer:

Bone	Cartilage
<ol style="list-style-type: none"> 1. Hard and non-flexible 2. Porous 3. Blood vessels present 4. Matrix made up of protein and mineral salts. 	<ol style="list-style-type: none"> 1. Flexible not very hard 2. Non-porous 3. Blood vessels absent 4. Matrix made up of proteins.

2. Answer: The functions of bone are:
 - (i) It provides shape to the body.
 - (ii) It provides skeletal support to the body.
 - (iii) It anchors the muscles.
 - (iv) It protects the vital body organs like brain, lungs, etc.
3. Answer:
 - (i) It provides support and flexibility to the body parts.
 - (ii) It smoothens surface at joints.
4. Answer: Functions are:

- (i) It helps in repair of tissues after an injury.
- (ii) It also helps in combating foreign toxins.
- (iii) It fixes skin to underlying muscles.

5. Answer:

Xylem	Phloem
1. It consists of mainly dead elements. 2. It conducts water and minerals. 3. It provides mechanical strength to the plant.	1. It consists of mainly living elements. 2. It conducts food. 3. It does not provide mechanical strength to the plant.

6. Answer: Fibres consist of very long, narrow and thick cells. Example, jute fibre.

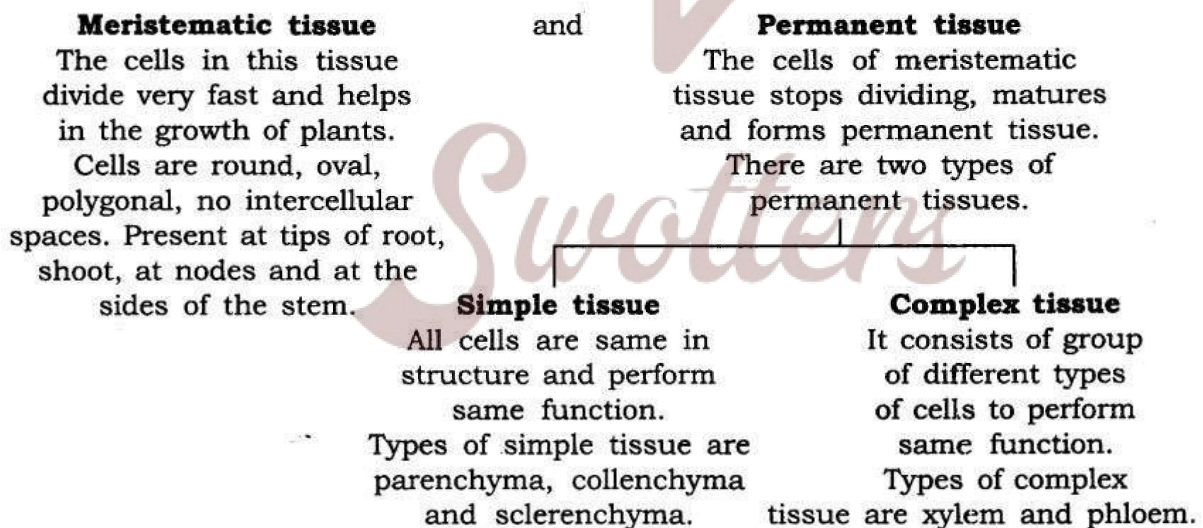
7. Answer:

- (a) Adipose tissue
- (b) Meristematic tissue.
- (c) Ligament
- (d) Epithelial tissue.

8. Answer: Stomata are small pores present on the surface of a leaf which helps in the exchange of gases and in transpiration.

➤ **Long Answer:**

1. Answer: Plant tissues consist of two main types of tissue.



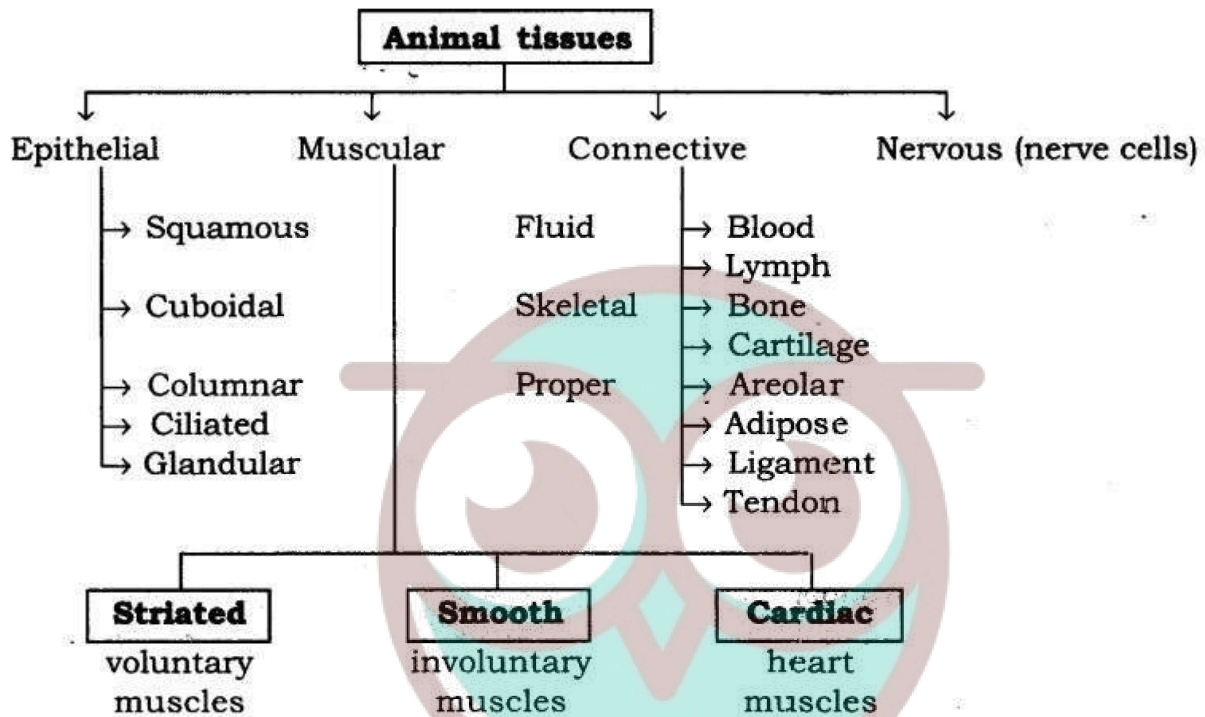
Parenchyma: Present in soft parts of the plant.

Collenchyma: Provides mechanical support to plant present in stalks. Sclerenchyma: They provide strength and flexibility to the plants.

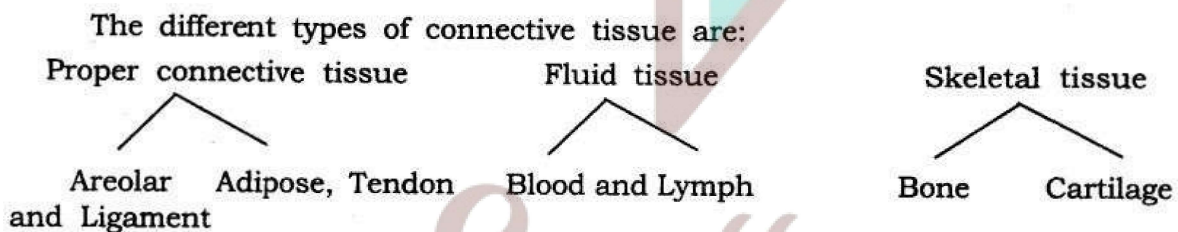
Xylem: Conduct water in plants from root to shoot. Consists of tracheids, vessels, xylem parenchyma and xylem fibres.

Phloem: Conduct food to all parts of plant. Consist of sieve tubes, companion cell, phloem parenchyma and phloem fibres.

2. Answer:



3. Answer: The connective tissue consists of different types of cells, all of them perform same function.



Areolar connective tissue: It is found the skin and muscles, around blood vessels and nerves and in the bone marrow.

Areolar tissue fills the space inside the organs. It supports internal organs and helps in repair of tissues.

Adipose tissue: Adipose tissue stores fat, found below the skin and between internal organs. The cells of this tissue are filled with fat globules. It acts as insulator due to fat storage.

Blood: It has a fluid called plasma, in plasma are present red blood cells, white blood cells and platelets. Blood flows all over the body and helps in the transport of gases, digested food, hormones and waste material to different parts of the body.

Lymph: Lymph carries digested fat and lot of white blood cells in the plasma. Bone: It forms the framework that supports the body. It supports the different parts of our body. It is strong and non-flexible tissue.

Cartilage: It is present in nose, ear, trachea and larynx. It smoothens bone surfaces at joints.

Tendon: It connects bone and muscles. These tissues are fibrous, flexible and with lot of strength.

Ligament: It connects bone to 'bone. It is elastic, has lot of strength.

➤ Assertion Reason Answer:

1. (c) Assertion is true but Reason is false.
2. (b) Both Assertion and Reason are correct, and reason is not the correct explanation for assertion.

➤ Case Study Answers:

1.

(i) (d) Lateral meristem

(ii) (c) Increasing the girth of stem and root

(iii) (b) Intercalary Meristem

(iv) Characteristic of Meristematic tissue

- Meristematic tissue are very active type of tissue.
- They have dense cytoplasm.
- The wall of Meristematic cells are thin cellulosic walls and prominent nuclei.
- They lack vacuoles.

(v) There are three types of meristematic tissue

- Apical Meristem
- Intercalary Meristem
- Lateral meristem

2.

(i) A

(ii) D

(iii) A

(iv) Meristematic tissue lose the ability to divide. As a result, they form a permanent tissue. This process of taking up a permanent shape, size, and a function is termed as differentiation.

(v) There are three type of parenchyma tissue

- Aerenchyma
- Chlorenchyma
- Sclerenchyma