

Board –CBSE

Class –9th

Topic – Tissues

1. Define the term “tissue”.

Ans. Tissue is a group of cells that are similar in structure and are organized together to perform a specific task.

2. How many types of elements together make up the xylem tissue? Name them.

Ans. There are four different types of cells that make up the xylem tissue. They are.

- (i) Tracheids
- (ii) Vessels
- (iii) Xylem parenchyma
- (iv) Xylem fibres

3. How are simple tissues different from complex tissues in plants?

Ans.

| Simple tissue | Complex tissue |
|--|--|
| These tissues consist of only one type of cells. | These tissues are made up of more than one type of cells. |
| The cells are more or less similar in structure and perform similar functions. | Different types of cells perform different functions. For example, in the xylem tissue, tracheids help in water transport, whereas parenchyma stores food. |
| Three types of simple tissues in plants are parenchyma, collenchyma, and sclerenchyma. | Two types of complex permanent tissues in plants are xylem and phloem. |

4. Differentiate between parenchyma, collenchyma, and sclerenchyma, based on their cell wall.

Ans.

| Parenchyma | Collenchyma | Sclerenchyma |
|------------|-------------|--------------|
|------------|-------------|--------------|

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| Cell walls are relatively thin, and the cells in parenchyma tissues are loosely packed. | The cell wall is irregularly thickened at the corners, and there is very little space between the cells. | The cell walls are uniformly thickened, and there are no intercellular spaces. |
| The cell wall in this tissue is made up of cellulose. | Pectin and hemicellulose are the major constituents of the cell wall. | An additional layer of the cell wall composed mainly of lignin is found. |

5. What are the functions of the stomata?

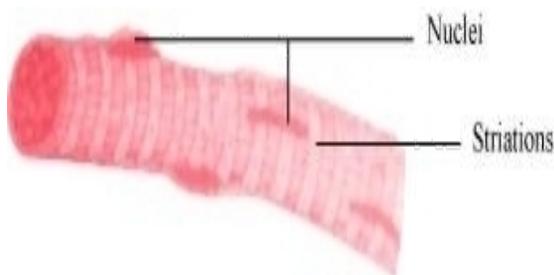
Ans. Functions of the stomata.

(i) They allow the exchange of gases (CO_2 and O_2) with the atmosphere.

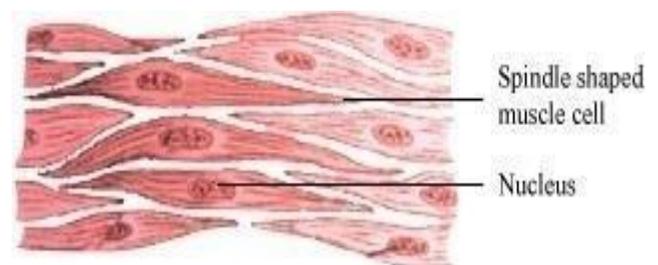
(ii) Evaporation of water from the leaf surface occurs through the stomata. Thus, the stomata help in the process of transpiration.

6. Diagrammatically show the difference between the three types of muscle fibres.

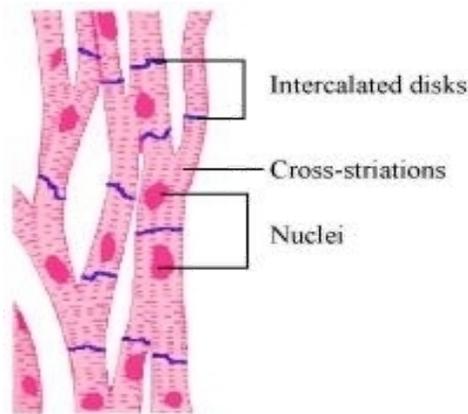
Ans. The three types of muscle fibres are. Striated muscles, smooth muscles (unstriated muscle fibre), and cardiac muscles.



Striated muscle fibres



Unstriated muscle fibres



Cardiac muscle fibres

7. What is the specific function of the cardiac muscle?

Ans. The specific function of the cardiac muscle is to control the contraction and relaxation of the heart.

8. Differentiate between striated, unstriated, and cardiac muscles on the basis of their structure and site/location in the body.

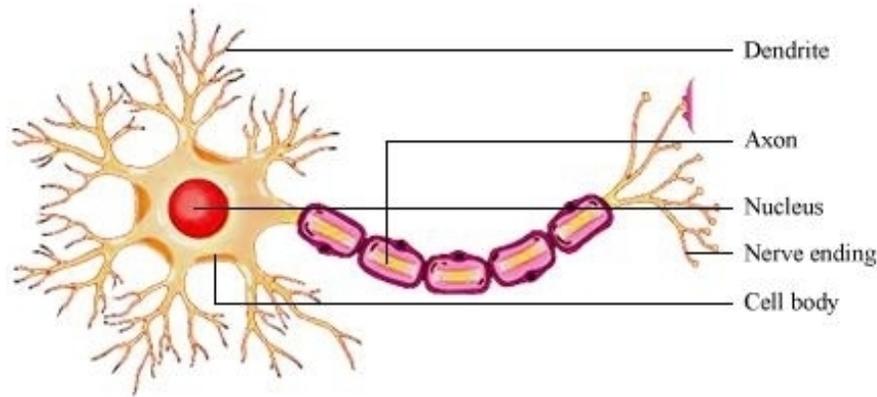
Ans.

| Striated muscle | Unstriated muscle | Cardiac muscle |
|---|---|---|
| On the basis of structure: | | |
| Cells are cylindrical | Cells are long | Cells are cylindrical |
| Cells are not branched | Cells are not branched | Cells are branched |
| Cells are multinucleate | Cells are uninucleate | Cells are uninucleate |
| Alternate light and dark bands are present | There are no bands present | Faint bands are present |
| Its ends are blunt | Its ends are tapering | Its ends are flat and wavy |
| On the basis of location: | | |
| These muscles are present in body parts such as hand legs, tongue, etc. | These muscles control the movement of food in the alimentary canal, the | These muscles control the contraction and relaxation of the heart |

| | | |
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| | contraction and relaxation of blood vessels, etc. | |
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9. Draw a labelled diagram of a neuron.

Ans.



Structure of a neuron

10. Name the following.

- (a) Tissue that forms the inner lining of our mouth.
- (b) Tissue that connects muscle to bone in humans.
- (c) Tissue that transports food in plants.
- (d) Tissue that stores fat in our body.
- (e) Connective tissue with a fluid matrix.
- (f) Tissue present in the brain.

Ans. Name the following.

- a) Epithelial tissue
- b) Tendons
- c) Phloem
- d) Adipose tissue
- e) Nervous tissue

11. Identify the type of tissue in the following. skin, the bark of a tree, bone, lining of kidney tubule, vascular bundle.

Ans. Skin. Stratified squamous epithelial tissue

The bark of a tree. Simple permanent tissue

Bone. Connective tissue

The lining of the kidney tubule. Cuboidal epithelial tissue

Vascular bundle. Complex permanent tissue

12. Name the regions in which parenchyma tissue is present.

Ans. Leaves, fruits, and flowers are the regions where the parenchyma tissue is present.

13. What is the role of the epidermis in plants?

Ans. The epidermis is present on the outer surface of the entire plant body. The cells of the epidermal tissue form a continuous layer without any intercellular space. It performs the following important functions.

(i) It is a protective tissue of the plant body

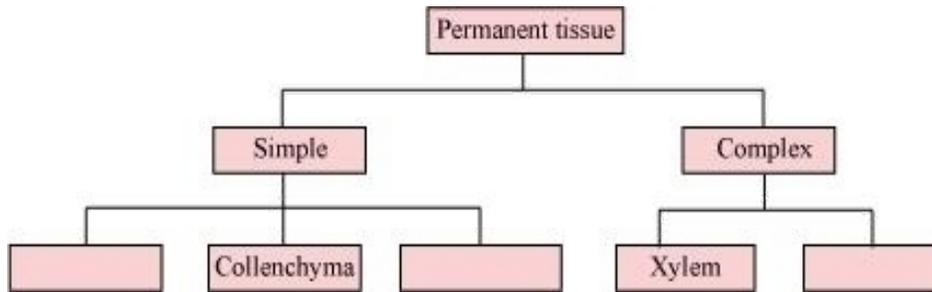
(ii) It protects the plant against mechanical injury

(iii) It allows the exchange of gases through the stomata

14. How does the cork act as a protective tissue?

Ans. The outer protective layer or bark of a tree is known as the cork. It is made up of dead cells. Therefore, it protects the plant against mechanical injury, temperature extremes, etc. It also prevents the loss of water by evaporation.

15. Complete the table.



Ans.

