Chapter 6
Tissues
Intext Questions

On Page 69

Question 1:What is a tissue?

Solution:Group of cells that are similar in structure and are organized together to achieve a particular function is called tissue.

Question 2:What is the utility of tissues in multicellular organisms?

Solution:In multicellular organisms, the body system is based on the division of labour(like muscle cells form muscular tissue to which helps in movement). It means the cells performing a specific function are grouped together to form a particular tissue. The different tissues are organized in a way to provide highest efficiency in functioning of the body.

On Page 74

Question 1:Name the types of simple tissues.

Solution:The three main types of simple tissues are:
1. Parenchyma
2. Collenchyma
3. Sclerenchyma

Question 2:Where is apical meristem found?

Solution:Growing tips of stems and roots of plants are the main are where apical meristem is present . It helps in increasing the length of the

stem and the root.

Question 3:Which tissue makes up the husk of coconut?

Solution:The husk of coconut is made up of sclerenchymatous tissue.

Question 4:What are the constituents of phloem?

Solution:The constituents of phloem tissue are:
1. Sieve tubes (tubular living cells with perforated end walls)
2. Companion cell (living cells)
3. Phloem parenchyma (living cells)
4. Phloem fibres (non-living and sclerenchyma cells)

On Page 78

Question 1:Name the tissue responsible for movement in our body.

Solution:Muscular tissue.

Question 2:What does a neuron look like?

Solution:A neuron consists of a cell body with a nucleus and cytoplasm. It has two important extension name as axon and dendrites. Each neuron has a single long part, called the axon and many short, branched parts called dendrites. Many nerve fibres bound together by connective tissue to make up a nerve.

Question 3:Give three features of cardiac muscles:

Solution:Below are features of cardiac muscles:

1. These are involuntary, show rhythmic contraction and relaxation throughout life.
2. The cells are cylindrical, branched, and uninucleate having faint cross striations.
3. These muscles do not get fatigued under normal conditions.

Question 4:What are the functions of areolar tissue?

Solution:Functions of areolar tissue:

1. It fills the space inside the organs, thus acts as a packing tissue between the organs.
2. It supports many delicate organs in the body.
3. It plays role in repair of tissues.

Exercises

Question 1:Define the term 'tissue’

Solution:Group of cells that are similar in structure and are organized together to achieve a particular function is called tissue.

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

Solution:The following four types of elements make up xylem tissue:
1. Xylem tracheids.
2. Xylem vessels.

3. Xylem parenchyma.
4. Xylem fibres.

Question 3:How are simple tissues different from complex tissues in plants?

Solution:

Simple Tissue

Made up of only one type of cells.

Mainly responsible for mechanical support and storage.

Examples : Parenchyma, collenchyma and sclerenchyma

Complex Tissue

Made up of more than one type of cells.

Mainly responsible for the transport of water, minerals, sugars and other metabolites.

Examples Xylem and phloem.

Question 4:Differentiate between parenchyma, collenchyma and sclerenchyma on the basis of their cell wall.

Solution:Differences between parenchyma, collenchyma and sclerenchyma

Parenchyma

These are living cells with thin walls.

Cells are uniformly thin.

The cells are loosely packed with large intercellular spaces.

Collenchyma

These are living cells with slightly thick walls.

Cells are elongated.

The cells are irregularly thickened at the corners with very little intercellular spaces.

Sclerenchyma

These are dead cells with thick cell walls.

Cells are long and narrow.

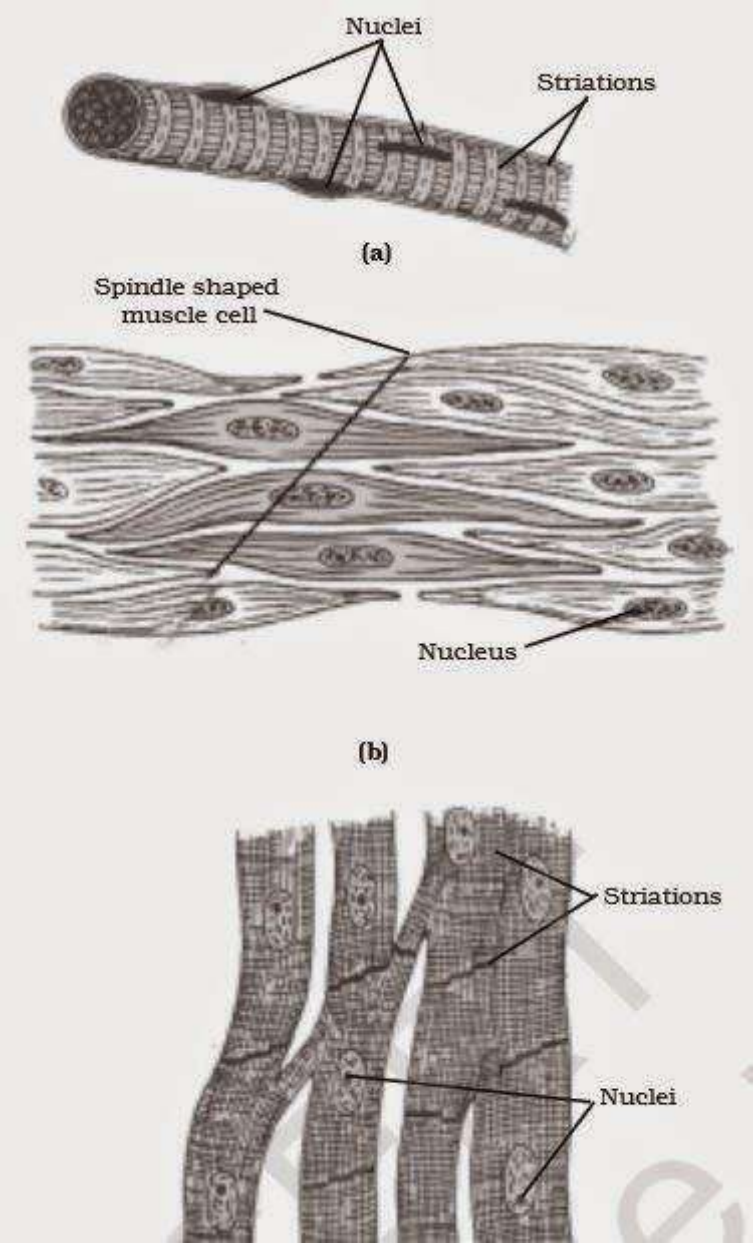
The cells are thickened due to lignin. These are so thick that there is no internal space inside the cell.

Question 5:What are the functions of the stomata?

Solution:Stomata are essential for gas exchange with the atmosphere and help in transpiration in the form of water vapour through leaves.

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

Solution:The three type of muscles fiber are:
1. Streated muscle
2. Smooth muscle
3. Cardiac muscle


Nuclei
Striations
(a)
Spindle shaped
muscle cell
Nucleus
(b)
Striations
Nuclei

Question 7:

What is the specific function of the cardiac muscle?

Answer:

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

Question 8:

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

Answer:

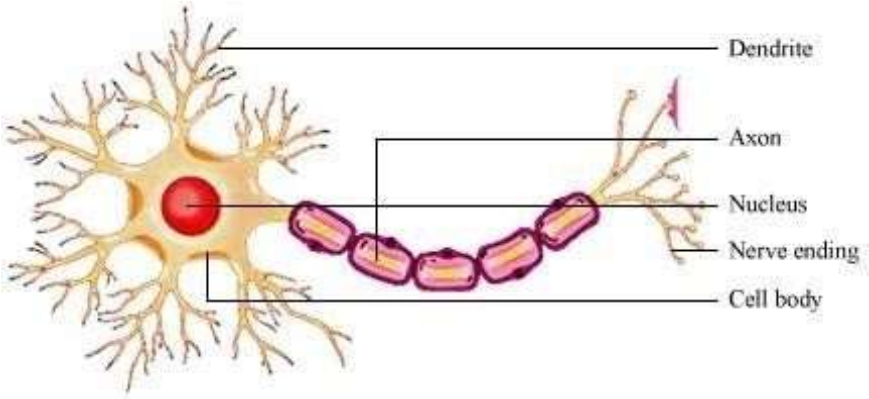
Striated muscle	Unstriated muscle	Cardiac muscle
On the basis of structure:		
Cells are cylindrical	Cells are long	Cells are cylindrical
Cells are not branched	Cells are not branched	Cells are branched
Cells are multinucleate	Cells are uninucleate	Cells are uninucleate

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 hands, legs, tongue, etc.	These muscles control the movement of food in the alimentary canal, the contraction and relaxation of blood vessels, etc.	These muscles control the contraction and relaxation of the heart

Question 9:

Draw a labelled diagram of a neuron.

Answer:



Structure of a neuron

Question 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.

Answer:

(a) Tissue that forms the inner lining of our mouth → Epithelial tissue

(b) Tissue that connects muscle to bone in humans → Dense regular connective tissue (tendons)

(c) Tissue that transports food in plants → Phloem

(d) Tissue that stores fat in our body → Adipose tissue

(e) Connective tissue with a fluid matrix → Blood

(f) Tissue present in the brain → Nervous tissue

Question 11:

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

Answer:

Skin: Stratified squamous epithelial tissue

Bark of tree: Simple permanent tissue

Bone: Connective tissue

Lining of kidney tubule: Cuboidal epithelial tissue

Vascular bundle: Complex permanent tissue

Question 12:

Name the regions in which parenchyma tissue is present.

Answer:

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

Question 13:

What is the role of epidermis in plants?

Answer:

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 exchange of gases through the stomata

Question 14:

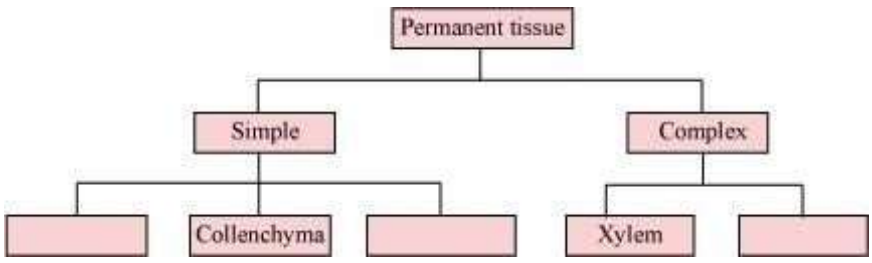
How does the cork act as a protective tissue?

Answer:

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.

Question 15:

Complete the table:



Answer: