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Chapter 6

Tissues

Intext Questions

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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.

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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 areas 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)

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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 extensions named 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 a 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

