

CHAPTER 6

TISSUES

VEDA
ACADEMY

CLASS 9TH

NCERT EXERCISE AND SOLUTIONS - SCIENCE



Q. 1. Define the term “tissue”.

ANSWER:-

A tissue is a group of structurally similar cells organized to perform a specific function.

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

ANSWER:-

The xylem tissue is made up of four main elements as mentioned:

- Vessels
- Tracheids
- Xylem fibres
- Xylem parenchyma

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

ANSWER:-

Simple Tissues	Complex Tissues
Simple tissues consist of only one type of cell	They are composed of various types of cells
The structures of all the cells are similar, and they perform similar duties	The roles and structures of different types of cells vary.
Plants have three types of simple tissues: parenchyma, collenchyma, and sclerenchyma.	Xylem and phloem are two types of complex permanent tissues found in plants.



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

ANSWER:-

Parenchyma	Collenchyma	Sclerenchyma
Thin cell walls, cells are loosely packed.	The cell wall is thickened irregularly at the corners, and there is very little space between the cells.	There are no intercellular spaces because the cell walls are evenly thickened.
Cell wall is made up of cellulose.	Pectin and hemicellulose are the two most important components of the cell wall.	There is an extra layer of the cell wall that is mostly made up of lignin.

Q. 5. What are the functions of the stomata?

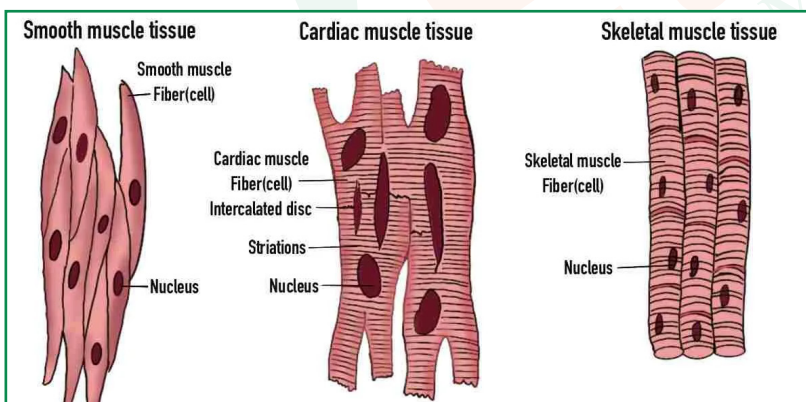
ANSWER:-

Stomata facilitate gaseous exchange with the atmosphere and play a key role in transpiration.

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

ANSWER:-

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



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

ANSWER:-

Cardiac muscle regulates the contraction and relaxation of the heart.



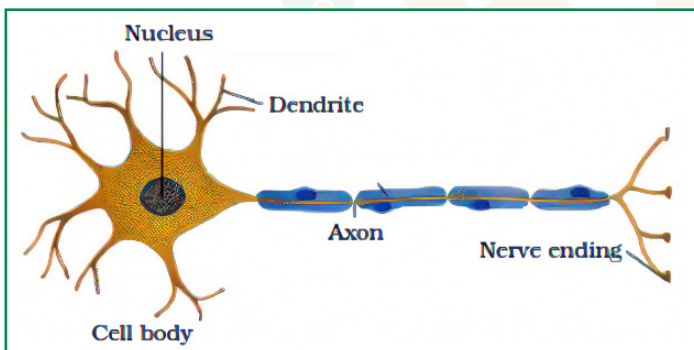
Q. 8. Differentiate between striated, unstriated and cardiac muscles on the basis of their structure and site/location in the body.

ANSWER:-

Striated Muscles	Unstriated Muscles	Cardiac Muscles
On The Basis of Structure:		
Cylindrical	Long	Cylindrical
Not branched	Not branched	Branched
Multinucleate	Uninucleate	Uninucleate
Its ends are blunt	Its ends are tapering	Its ends are flat and wavy
Coloured alternate light and dark bands	There are no bands present	Faint bands are present
On The Basis of Location:		
These muscles are present in different body parts such as hands, legs, tongue, etc.	The contraction and relaxation of blood vessels, as well as the movement of food in the alimentary canal, are all controlled by these muscles.	These muscles control the heart's contraction and relaxation.

Q. 9. Draw a labelled diagram of a neuron.

ANSWER:-



Q. 10. Name the following.

- Tissue that forms the inner lining of our mouth.
- Tissue that connects muscle to bone in humans.
- Tissue that transports food in plants.
- Tissue that stores fat in our body.
- Connective tissue with a fluid matrix.
- Tissue presents in the brain.

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ANSWER:-

- (a) Epithelial tissue
- (b) Dense regular connective tissue (tendons)
- (c) Phloem
- (d) Adipose tissue
- (e) Blood
- (f) Nervous tissue

Q. 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
- **The bark of a tree:** Simple permanent tissue
- **Bone:** Connective tissue
- **The lining of kidney tubule:** Cuboidal epithelial tissue
- **Vascular Bundle:** Complex permanent tissue

Q. 12. Name the regions in which parenchyma tissue are present.

ANSWER:-

Leaves, fruits, and flowers.

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

ANSWER:-

Role of the epidermis:

- Protects various parts of the plant.
- Epidermal cells in the roots aid in water absorption.
- Provides defence against water loss, physical damage, and parasitic fungi by forming a waxy, water-resistant layer called the cuticle, composed of cutin, on the plant's outer surface.

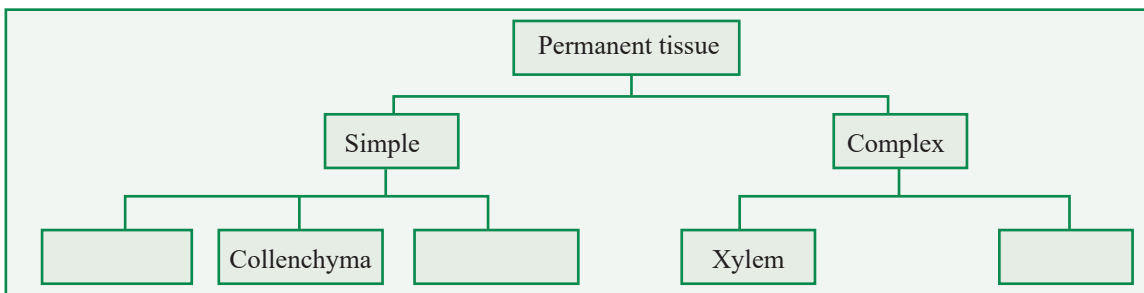
Q. 14. How does the cork act as a protective tissue?

ANSWER:-

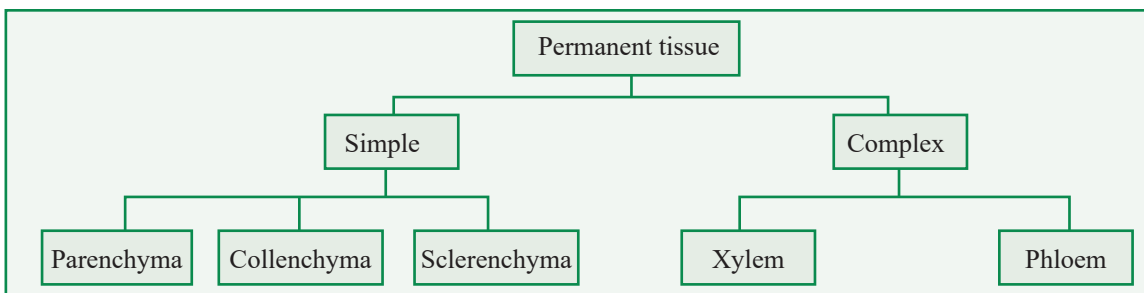
The cork, composed of dead cells, forms the bark of a tree. It safeguards the plant from physical damage and temperature fluctuations, while also preventing water loss through evaporation.



Q. 15. Complete the following chart:



ANSWER:-



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