

Tissues

Q 1. What is a tissue?

Ans: It is a group of cells similar in origin and structure and they are specialized to perform a particular function like muscle cells in our body form the muscle tissue that bring about body movements (specific function).

Q 2. What is the utility of tissues in multi-cellular organisms?

Ans: In unicellular organisms, a single cell performs all the basic functions such as respiration, movement, excretion, digestion, etc. But in multicellular organisms, cells are grouped to form tissues. These tissues are specialised to carry out a particular function at a definite place in the body. For example, the muscle cells form muscular tissues which helps in movement, nerve cells form the nervous tissue which helps in transmission of messages. This is known as division of labour in multicellular organisms. It is because of this division of labour that multicellular organisms are able to perform all functions efficiently.

Q 3. Name types of simple tissues.

Ans: The simple tissues (found in plants) are of following three types:

i) Parenchyma ii) Collenchyma iii) Sclerenchyma

Q 4. Where is apical meristem found?

Ans: The apical meristem is found at the apex (growing tips) of the stem and roots.

Q 5. Which tissue makes up the husk of coconut?

Ans: Sclerenchymatous tissue.

Q 6. What are the constituents of phloem?

Ans: The constituents of phloem are: sieve tubes, companion cells, phloem parenchyma, phloem fibres (bast).

Q 7. Name the tissue responsible for movement in our body.

Ans: Muscle/muscular tissue.

Q 8. Give three features of cardiac muscles.

Ans : Three features of cardiac muscles are:

- i. Its cells are cylindrical, branched, striated and uninucleate.
- ii. Cardiac muscles are involuntary i.e. they don't work under our will.
- iii. It shows rhythmic contraction and relaxation throughout the person's life.

Q 9. What are the functions of areolar tissue?

Ans : Areolar tissue is a kind of filler tissue found between skin and muscles, around our blood vessels and nerve cells and also in the bone marrow. Its functions are therefore

- i) To fill the space inside organs.
- ii) To help in repair and maintenance of nearby tissues/organs.
- iii) To support and prevent injuries to internal organs.

Q 10. How many types of elements together make up the xylem tissue? Name them.

Ans : Xylem tissue is made up of following 4 types of elements:

i) Tracheids ii) vessels iii) fibres iv) parenchyma

Q 11. 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.

Q 12. What are the functions of the stomata?

Ans :Functions of the stomata:

- (i) They allow the exchange of gases (CO₂ and O₂) with the atmosphere.
- (ii) Evaporation of water from the leaf surface occurs through the stomata. Thus, the stomata help in the process of transpiration.

Q 13. Differentiate between parenchyma, collenchyma and sclerenchyma, on the basis of their cell wall.

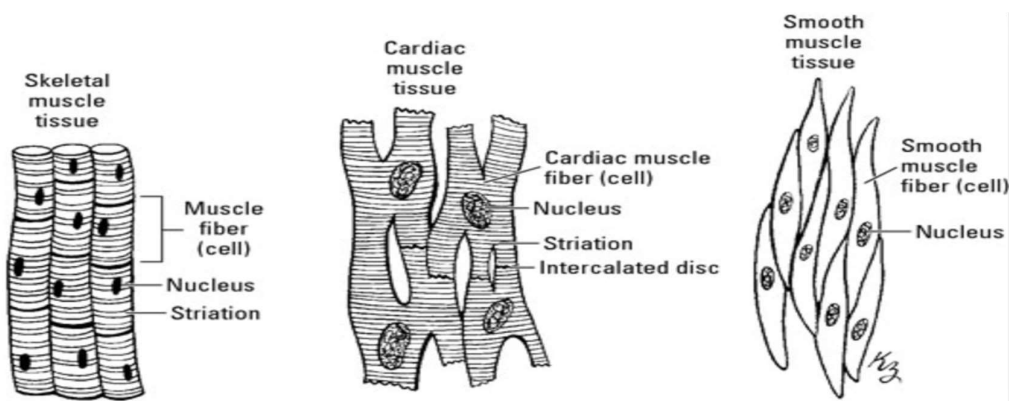
Parenchyma	Collenchyma	Sclerenchyma
Cell walls are relatively thin, and the cells in parenchyma tissues are loosely packed.	The cell wall is irregularly thickened at the corners, and there is very little space between the cells.	The cell walls are uniformly thickened, and there are no intercellular spaces.
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.

Q 14. What is the specific function of the cardiac muscle?

Ans : Cardiac muscles are the muscles of heart that pumps blood to all parts of body and the pumping needs rhythmic contraction and relaxation of cardiac muscles throughout the life without any fatigue.

Q 15. Diagrammatically show the difference between the three types of muscle fibres.

Ans :



Q 16. 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 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

Q 17. Identify the type of tissue in the following: skin, bark of tree, bone, lining of kidney tubule, vascular bundle.

Ans : 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

Q 18. Name the following.

(a) Tissue that forms the inner lining of our mouth.

Ans: Epithelial tissue

(b) Tissue that connects muscle to bone in humans.

Ans: Tendons

(c) Tissue that transports food in plants.

Ans: Phloem

(d) Tissue that stores fat in our body.

Ans: Adipose tissue

(e) Connective tissue with a fluid matrix.

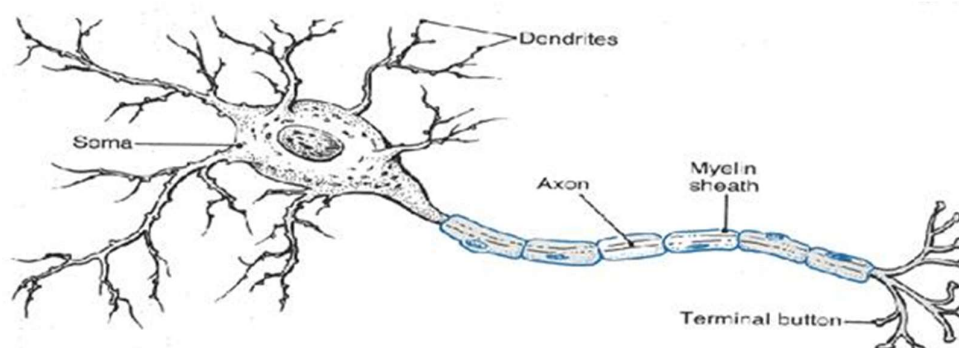
Ans: Blood

(f) Tissue present in the brain.

Ans: Nerve tissue

Q 19. Draw a labelled diagram of a neuron and describe it.

Ans: A neuron comprises of a cell body (cyton) along with one or more short branches (Dendron) and one hair like long branch (axon).



Q 20. Name the regions in which parenchyma tissue is present.

Ans: Parenchymatous tissue is present in the epidermis, cortex, pith of the stem, root, leaves, flowers and fruits of plants.

Q 21. What is the role of epidermis in plants?

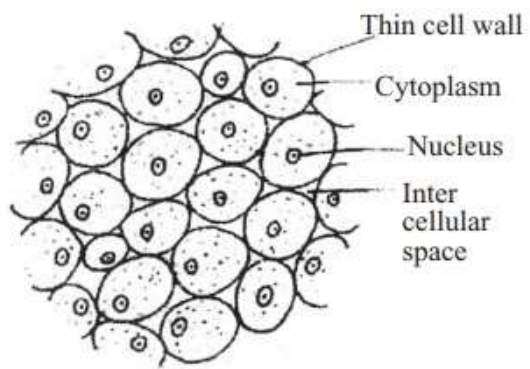
Ans: It is a protective layer to the plant parts. It can also absorb water from soil like in the roots and even allow exchange of gases through stomata.

Q 22. How does the cork act as a protective tissue?

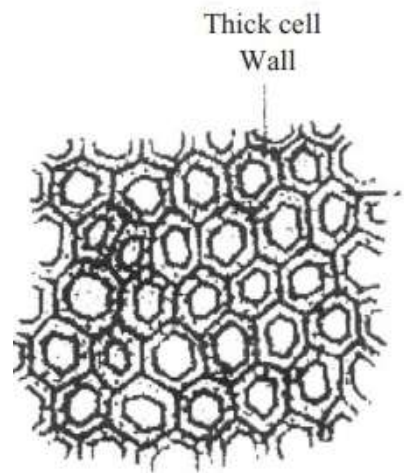
Ans: In plants the secondary meristem cuts off many external layers of cells that are dead and arranged in a compact manner. Such layers together make cork. They have deposition of suberin which is very hard and impermeable hence protects plants from unfavorable conditions and microbial attack etc.

Q23. Draw a neat labelled diagram of simple permanent tissue.

Parenchyma



Sclerenchyma



Collenchyma

