

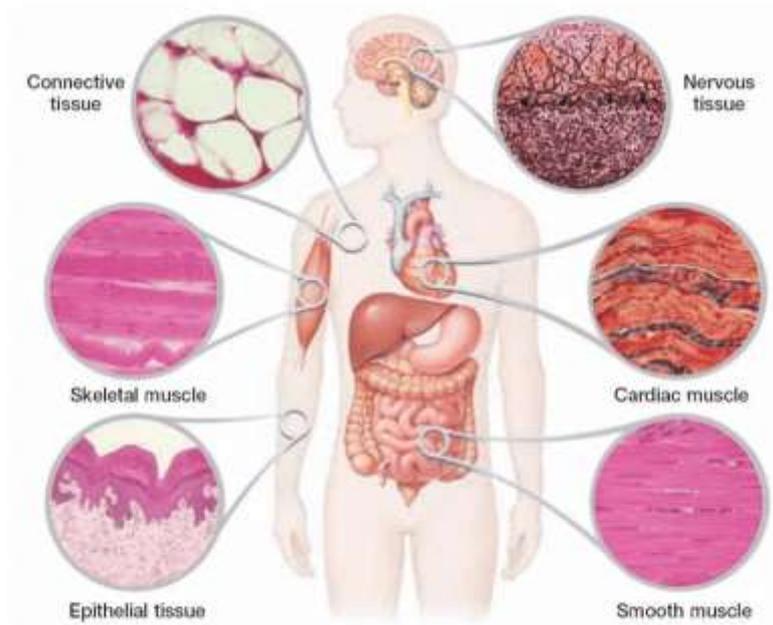
Class 9 Solutions Science Chapter 6 Tissues

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Q1. What is a tissue?

Ans: A group of cells that are similar in structure and/or work together to achieve a particular function forms a tissue.

Human Body Tissues



Q2. What is the utility of tissues in multi-cellular organisms?

Ans:

- Tissues are made up of a group of cells carrying a specialised function. Each specialised function is taken up by a different tissue. Since these cells of a tissue carry out only a particular function, they do it very efficiently.
- The use of tissues in multicellular organisms is to provide structural and mechanical strength.
- **Example:** In human beings, muscle cells contract or relax to cause movement, nerve cells carry messages, and blood flows to transport gases, food, hormones, waste materials and so on. Likewise, in plants, vascular tissues (xylem, phloem) conduct water and food from one part of the plant to other parts.
- So, multicellular organisms show a division of labour through tissues.

Q1. Name types of simple tissues.

Ans: Simple permanent tissues are of three types:

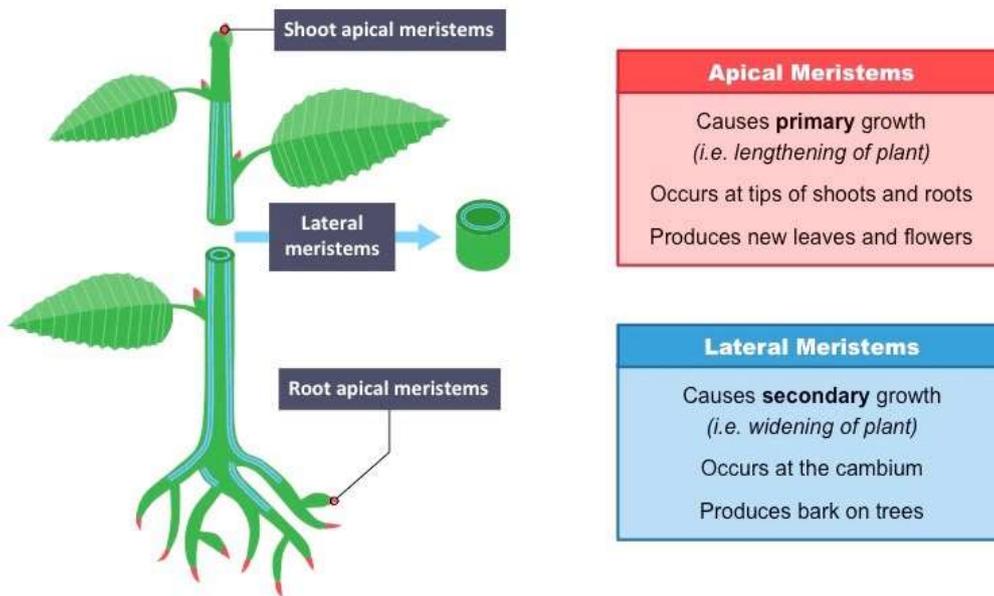
- (i) Parenchyma
- (ii) Collenchyma
- (iii) Sclerenchyma

Parenchyma tissue is of further two types:

- (i) Aerenchyma
- (ii) Chlorenchyma

Q2. Where is apical meristem found?

Ans: Apical meristem is present at the growing tips of stems and roots.



Q3. Which tissue makes up the husk of coconut?

Ans: Sclerenchyma tissue makes up the husk of coconut. These tissues cause the plant to become stiff and hard. The cells of this tissue are dead and their cell walls are thickened because of the presence of lignin.

Q4. What are the constituents of phloem?

Ans: The constituents of phloem are:

- Sieve tubes
- Companion cells
- Phloem parenchyma
- Phloem fibres

Q1. Name the tissue responsible for movement in our body.

Ans: Two tissues jointly are responsible for the movement of our body, namely:

- Muscular tissue
- Nervous tissue

Q2. What does a neuron look like?

Ans: A neuron consists of a cell body with a nucleus and cytoplasm, from which long thin hair-like parts called dendrites arise. Each neuron has a single long part called the axon.

Q3. Give three features of cardiac muscles.

Ans:

Three features of cardiac muscles are:

- (i) Cardiac muscles are involuntary.
- (ii) Cardiac muscle cells are cylindrical, branched and uninucleate.
- (iii) Cardiac muscles show rhythmic contraction and relaxation.

Q4. What are the functions of areolar tissue?

Ans: Areolar tissue acts as a supportive and packing tissue between organs lying in the body cavity, and also helps in the repair of tissues.

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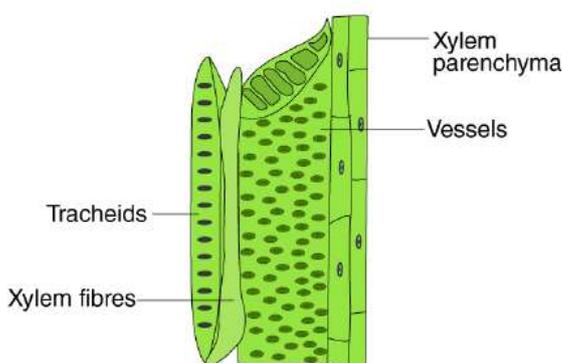
Q1. Define the term "tissue".

Ans: A group of cells that are similar in structure and work together to achieve a particular function is called tissue.

Q2. How many types of elements together make up the xylem tissue? Name them.

Ans: Xylem is composed of the following elements:

1. Tracheids
2. Vessels
3. Xylem parenchyma
4. Xylem fibres



Q3. How are simple tissues different from complex tissues in plants?

Ans:

Simple tissues	Complex tissues
They consist of only one type of cells.	They are made up of more than one type of cells.
All the cells are similar in origin and structure	The cells have different origin and structure.
Their main function is to provide mechanical support.	Their main function is to transport water, inorganic salts and various food materials to different parts of plant body.
They are of three types - Parenchyma, Collenchyma and Sclerenchyma.	They are of two types - Xylem and Phloem.

Q4. Differentiate between parenchyma, collenchyma and sclerenchyma, on the basis of their cell wall.

Ans: The differences between the cell walls of parenchyma, collenchyma and sclerenchyma are:

S. No.	Parenchyma	Collenchyma	Sclerenchyma
1.	Cell wall is primary.	Cell wall is primary.	Cell wall is secondary.
2.	Cell wall is thin and made up of very less cellulose.	Cell wall has irregular thickening of cellulose.	Cell wall is uniformly thick due to deposition of lignin.

Q5. What are the functions of the stomata?

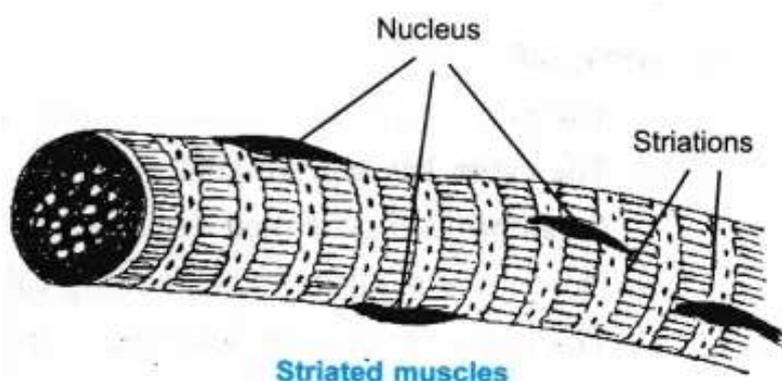
Ans: The functions of stomata are:

- (i) Stomata allow gaseous exchange between the plant and the atmosphere.
- (ii) These are sites of transpiration in plants.

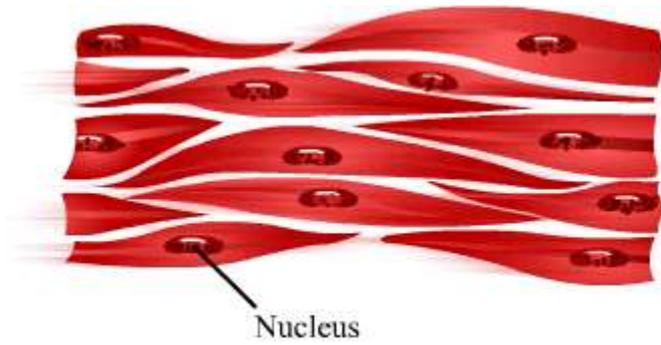
Q6. Diagrammatically show the difference between the three types of muscle fibres.

Ans: The three types of muscle fibres are:

- (i) Striated muscles

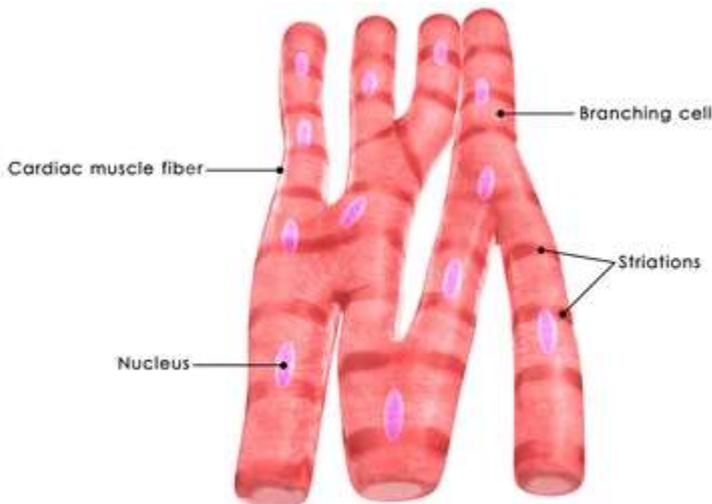


**(ii) Smooth muscles
(unstriated muscle fibre)**



Smooth muscles

(iii) Cardiac muscles



Q7. What is the specific function of the cardiac muscle?

Ans: The cardiac muscles are branched and cylindrical. They are uninucleated and are involuntary in nature. Throughout one's lifetime, the cardiac muscles bring about the rhythmic contraction and relaxation of the heart.

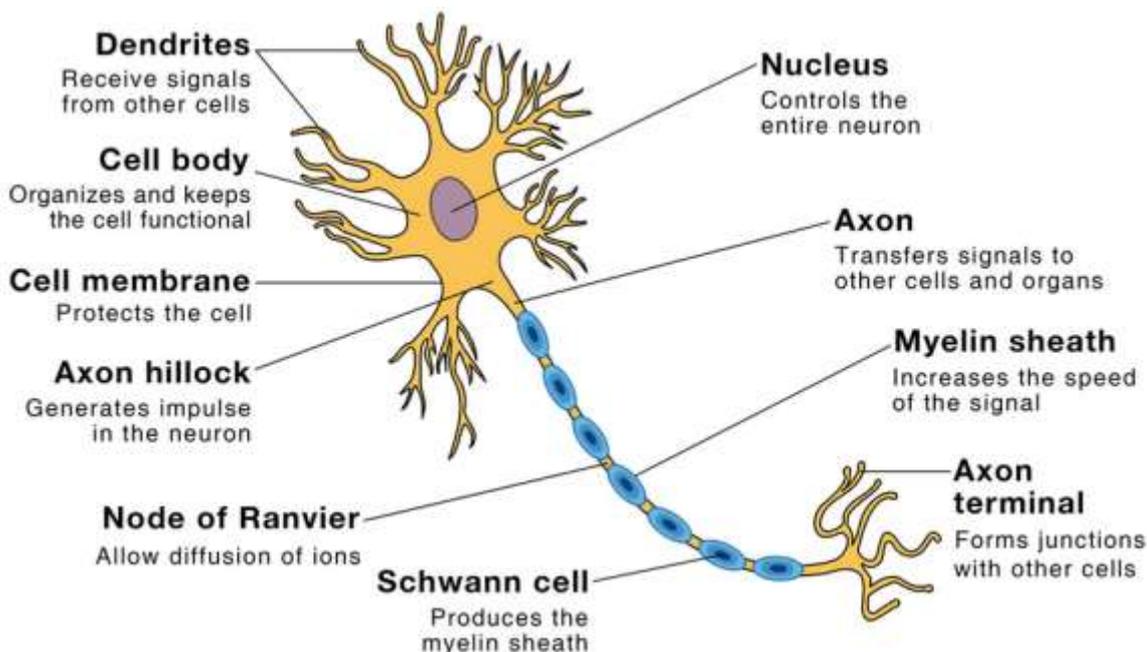
Q8. Differentiate between striated, unstriated and cardiac muscles on the basis of their structure and site/location in the body.

Ans:

Striated muscle	Unstriated muscle	Cardiac muscle
It is present in limbs, tongue, etc.	It is present in visceral organs iris of eye, etc.	It is present specifically in myocardium of heart.
Its ends are blunt.	Its ends are tapering.	Its ends are flat and zig-zag.
The cells of this tissue are multinucleate.	The cells of this tissue are uninucleate.	The cells of this tissue are uninucleate.
It contracts rapidly but soon undergoes fatigue.	It contracts slowly and does not get fatigued.	It contracts rapidly but does not get fatigued.
It is striated.	It is non-striated.	It is striated.
It is voluntary.	It is involuntary.	It is involuntary.
It is also called skeletal or voluntary or striped muscle.	It is also called unstriated or involuntary or smooth muscle.	It is also called involuntary or heart muscle.
Alternate light and dark bands or striations are present.	No striations are present.	Faint regular striations are present.

Q9. Draw a labelled diagram of a neuron.

Ans:



Q10. 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.

(e) Connective tissue with a fluid matrix.

(f) Tissue present in the brain.

Ans:

(a) Simple squamous epithelium

(b) Tendon

(c) Phloem

(d) Adipose tissue

(e) Blood

(f) Nervous tissue

Q11. Identify the type of tissue in the following:

Skin, Bark of Tree, Bone, Lining of Kidney Tubule, Vascular Bundle.

Ans:

Skin: Epithelial tissue (Squamous epithelium)

Bark of Tree: Cork (protective tissue)

Bone: Skeletal tissue (connective tissue)

Lining of Kidney Tubules: Cuboidal epithelial tissue

Vascular Bundle: Complex permanent tissue—xylem and phloem

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Q12. Name the regions in which parenchyma tissue is present.

Ans: Parenchyma tissues are found in:

- The pith of stems and roots.
- When parenchyma contains chlorophyll it is called as chlorenchyma, it is found in green leaves.
- Parenchyma found in aquatic plants have large air cavities that enable them to float and are hence called aerenchyma.

Q13. What is the role of the epidermis in plants?

Ans: Role of the epidermis in plants:

(i) It acts as a protective tissue, covering the plant body.

(ii) It protects the plant from excessive heat or cold and from the attack of parasitic fungi and bacteria.

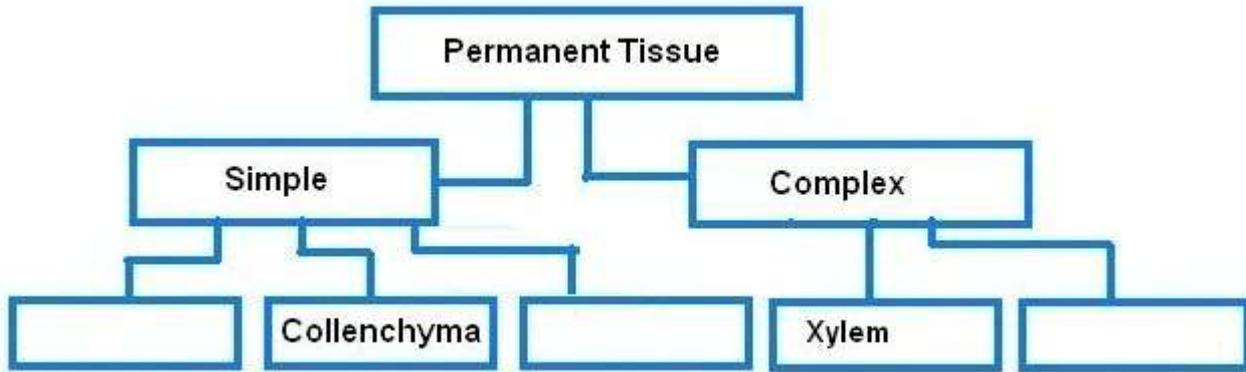
(iii) It allows the exchange of gases and transpiration through stomata.

(iv) The cuticle of the epidermis checks the excessive evaporation of water.

Q14. How does the cork act as a protective tissue?

Ans: The cork cells are dead and do not have any intercellular spaces. The cell walls of the cork cells are coated with suberin (a waxy substance). Suberin makes these cells impermeable to water and gases, or in simpler words, it makes them waterproof and blocks gases from passing through. Thus, it protects underlying tissues from desiccation (loss of water from the plant body), infection and physical damage.

Q15. Complete the table:



Ans:

