



ICSE - Class 9 – Biology – Concise Selina Solution

Chapter 3 - Tissues: Plant and Animal Tissues

Question A

1. In potato starch is stored in :

- (a) Sclerenchyma
- (b) Collenchyma
- (c) Parenchyma
- (d) Chlorenchyma

2. Tendons and ligaments are examples of

- (a) Fibrous connective tissue
- (b) Cartilage
- (c) Muscular tissue
- (d) Adipose tissue

3. Which one of the following pairs is correctly matched?

- (a) Meristem - Actively dividing cells
- (b) Xylem - Transport of food
- (c) Phloem - Transport of water
- (d) Sclerenchyma - Storage of starch

4. Parenchyma containing chloroplasts is known as :

- (a) Parenchyma
- (b) Aerenchyma
- (c) Collenchyma
- (d) Chlorenchyma

5. Annual rings are the number of :

- (a) Internodes in a stem
- (b) Rings of vascular bundles in a monocot stem.
- (c) Barks layers in a woody stem.



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

(d) Layers of Xylem in a stem.

6. Which of the following cells in plants are said to be nonliving?

- (a) Meristem
- (b) Parenchyma
- (c) Collenchyma
- (d) Sclerenchyma

7. Which of the following connects a muscle to a bone?

- (a) Cartilage
- (b) Ligament
- (c) Tendon
- (d) Interstitial fluid

8. Cardiac muscle is :

- (a) Involuntary
- (b) Smooth
- (c) Striated
- (d) Involuntary and Striated

Solution A

1. (c) Parenchyma
2. (a) Fibrous connective tissue
3. (a) Meristem - Actively dividing cells

Question B.1

Name the kind of tissue found

- (a) at the tip of plant roots.
- (b) at the lower surface of leaf.
- (c) in the inner lining of intestine.
- (d) at the joint between two long bones.
- (e) in the walls of the veins of the leaves.
- (f) as gritty masses in the pulp of pears.



Solution B.1

- (a) Apical or terminal meristematic tissue
- (b) Protective tissue
- (c) Columnar epithelium (Epithelial tissue)
- (d) Ligament (Connective tissue)
- (e) Conducting tissue
- (f) Sclerenchyma (Supporting tissue)

Question B.2

Where is the least specialized tissue located in plants?

Solution B.2

Sclerenchyma composed of long, narrow and thick cells, which have become dead, forms the least specialized tissue in plants. This tissue forms the walls and boundaries of plant cells and provides strength to tissue plant parts.

Question B.3

Write one word for each of the following:

- (a) A group of similar cells performing a specific function.
- (b) Cells least specialized in the plants.
- (c) Cells responsible for increase in diameter of the stem and root of dicot plants.

Solution B.3

- (a) Tissue
- (b) Permanent tissue cells
- (c) Cambium

Question B.4

Name one place each in living organisms where the following tissues are located:

- (a) Meristematic tissue
- (b) Cartilage



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

- (c) Squamous epithelium
- (d) Sclerenchyma
- (e) Ciliated epithelium
- (f) Ligament

Solution B.4

- (a) Tips of roots
- (b) Nose
- (c) Lining of mouth
- (d) Veins of leaves
- (e) Lining of trachea
- (f) Bones

Question B.5

Name the kind of cells found in the following places:

- (a) Surface of the human skin
- (b) Salivary gland
- (c) Brain
- (d) Inner lining of the wind pipe

Solution B.5

- (a) Squamous epithelium
- (b) Cuboidal epithelium
- (c) Neuron
- (d) Ciliated columnar epithelium

Question C.1

Name any one body part where ciliated epithelium is found in humans. What is its function?

Solution C.1

Best Teachers for Best Future



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

Ciliated columnar epithelium is found in the lining of trachea. This epithelium has thread-like projections called cilia at their free ends. The cilia constantly keep lashing and move the materials which enter this organ.

Question C.2

What is the difference between the nervous tissue and nervous system?

Solution C.2

Nervous tissue or neurons are specialized group of cells. This tissue is concerned with perception and responses of animals.

The nervous tissue constitutes the nervous system, which is an organ system. It controls and coordinates all the systems of the body.

Question C.3

List the tissues found in the human heart.

Solution C.3

- (1) Muscular tissue (Cardiac muscles)
- (2) Epithelial tissue (Lining of blood vessels of the heart)
- (3) Connective tissue (Fluid connective tissue in the form of red blood corpuscles)

Question C.4

Can you consider a cluster of eggs as a tissue? Why?

Solution C.4

A tissue is a group of similar cells from the same origin that together carry out a specific function. An egg is a zygote or a cell but a cluster of eggs cannot be considered as a tissue as it does not form an organ like a tissue. Instead it gives rise to a new individual organism if gets fertilised.

Question C.5

Best Teachers for Best Future



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

Name the three kinds of muscles found in the human body. In each case, name one region in the body where they are found.

Solution C.5

(1) **Striated muscles:** Provide the force for locomotion and all voluntary movements of the body. These muscles are found in the limbs.

(2) **Unstriated muscles:** Provide movements for the passage of food in the intestines. These muscles are found in iris of the eye, lining of blood vessels, urinary bladder, etc.

(3) **Cardiac muscles:** Provide rhythmic contraction and relaxation movements. These muscles are found only in the heart.

Question D.1

What is the difference between

- (a) cell and tissue?
- (b) organ and organism?
- (c) organ and organelle?
- (d) organ and organ system?

Solution D.1

- (a) Cell and tissue

Cell	Tissue
A cell is the structural and functional unit of all living beings. E.g. epithelial cell	A tissue is a group of similar cells which perform a specific function. E.g. nervous tissue

- (b) Organ and organism

Organ	Organism
Several tissues together contribute to specific functions inside the body and constitute an organ.	Several organ systems together constitute the organism. E.g. human being



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

E.g. stomach

(c) Organ and organelle

Organ	Organelle
Several tissues together contribute to specific functions inside the body and constitute an organ. E.g. stomach	Parts of the cell that have a definite function in the cell. E.g. mitochondria

(d) Organ and organ system

Organ	Organ system
Several tissues together contribute to specific functions inside the body and constitute an organ. E.g. stomach	Many organs act together to perform a specific life process and constitute an organ system. E.g. digestive system

Question D.2

Differentiate between cells of:

- (a) Parenchyma and Collenchyma
- (b) Meristematic tissue and Permanent tissue
- (c) Sclerenchyma and Parenchyma
- (d) Cells of involuntary and voluntary muscle
- (e) Fibres of voluntary muscle and cardiac muscle

Solution D.2

- (a) Parenchyma and Collenchyma

Parenchyma	Collenchyma
------------	-------------



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

(i) Consists of large thin-walled living cells with a single large vacuole	(i) Consists of elongated cells having thickening in their cell walls
(ii) Intercellular spaces may or may not be present	(ii) Intercellular spaces are totally absent

(b) Meristematic tissue and Permanent tissue

Meristematic tissue	Permanent tissue
(i) Have the capacity to divide (ii) Do not have intercellular spaces	(i) Have lost the capacity to divide (ii) Have large intercellular spaces

(c) Sclerenchyma and Parenchyma

Sclerenchyma	Parenchyma
(i) Consist of dead cells (ii) Have thick cell walls	(i) Consist of living cells (ii) Have thin cell walls

(d) Cells of involuntary muscle and voluntary muscle

Cells of involuntary muscle	Cells of voluntary muscle
(i) Small and spindle-shaped	(i) Long and cylindrical
(ii) Uninucleate	(ii) Multinucleate

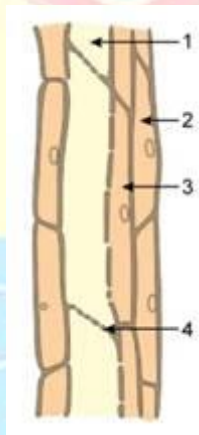
(iii) Lack stripes or striations	(iii) Show stripes or striations
(iv) Found in the walls of the intestine and lining of blood vessels	(iv) Found in the arms, legs, face and neck

(e) Fibres of voluntary muscle and cardiac muscle

Fibres of voluntary muscle	Fibres of cardiac muscle
(i) Long and cylindrical	(i) Short and branched
(ii) Multinucleate	(ii) Uninucleate
(iii) Under the control of one's own will or volition	(iii) Not under the control of one's own will or volition
(iv) Found in the arms, legs, face and neck	(iv) Found in the heart

Question E.1

Study the diagram given below and then answer the questions that follow:



- Identify the tissue and give a reason to support your answer.
- Name the parts labelled 1, 2, 3 and 4.
- Where is this tissue likely to be found in the plant?
- State the function of the parts labelled 1, 2, 3 and 4.

Solution E.1



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE

(a) The given diagram is of the phloem tissue because the cells show cellular contents unlike the xylem tissue which contains hollow cells without any cellular contents.

(b)

1 → Sieve cell

2 → Phloem parenchyma cell

3 → Companion cell

4 → Sieve plate

(c) The phloem is a food-conducting tissue and is likely to be found in the leaves and stem of plants to carry the food manufactured in the leaves to various parts of the plant.

(d)

1 → Sieve cells: Help in the transport of food from leaves to storage organs and other parts of the plant.

2 → Phloem parenchyma cells: Storage of starch, fat and other organic food material.

3 → Companion cells: Help in the functioning of the sieve tube cells.

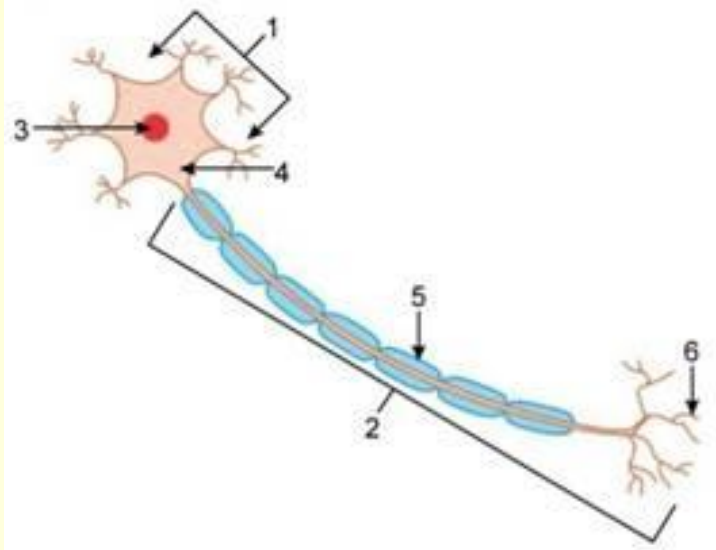
4 → Sieve plate: Perforations in the sieve plates allow water and dissolved organic solutes to flow along the sieve tube.

Question E.2

Study the diagram given below and then answer the questions that follow:



Best Teachers for Best Future



- (a) Identify the cell.
 (b) Name the parts labelled 1, 2, 3, 4, 5 and 6.
 (c) Where is this cell likely to be found in the human body and what is its function?

Solution E.2

(a) The given diagram shows a nerve cell or neuron.

(b)

1 → Dendrites/Dendrons

2 → Axon

3 → Nucleus

4 → Cyton/Perikaryon

5 → Neurolemma

6 → Axon endings

(c) The nerve cell is likely to be found in the nervous system of the human body. The function of the nerve cell is to transmit messages from one part of the body to another. It is associated with perception and responses of animals.



EXCELLENT GUIDES

NEET | JEE MAIN | WBJEE | ISC | ICSE | CBSE



EXCELLENT GUIDES

Best Teachers for Best Future