
Solution SAQ - 1:
The different types of elements present in the phloem are:
(i) Sieve tubes - Sieve tubes are slender, tube-like structures composed of elongated thin-walled cells, placed end to end. Their end walls are perforated by numerous pores and are called sieve plates.
(ii) Companion Cells - It is a small thin-walled cell containing dense and very active cytoplasm and large elongated nucleus.
(iii) Phloem parenchyma - These are thin-walled, living cells of parenchyma of phloem. They have two functions, storage and slow lateral conduction of food.
(iv) Phloem Fibre - These are thick-walled, elongated spindled shaped dead cells which posses narrow lumen. They provide mechanical strength to the tissue.
Solution SAQ - 2
Tracheary elements are the elements of xylem. Their function is to carry water and mineral salts in upward direction from the roots to different part of shoots.
Solution SAQ - 3
(i) Parenchyma Functions:
(a) The main function of parenchyma is to store and assimilate food.
(b) Transport of materials occurs through cells or cell walls of parenchyma cells.
(ii) Collenchyma Functions:
(a) It provides mechanical support and elasticity.
(b) It provides tensile strength to the plants.
(iii) Sclerenchyma Functions:
(a) It is mainly mechanical and protective in function.
(b) It gives strength, rigidity, flexibility and elasticity to the plant body.
Solution SAQ - 4
Parenchyma:
1. The tissue consists of thin-walled living cells.
2. It is distributed in almost all the parts of the plant body.
3. The living cells of parenchyma assimilate and store food. They also store waste products.
Collenchyma:
1. The tissue consists of cells having localised thickening in their cell walls.
2. It occurs mostly in the aerial parts of the plants and is restricted to the other layers.
3. Collenchyma is the chief mechanical tissue in parts of a young plant particularly in the young dicotyledonous stems.
Solution SAQ - 5:
Collenchyma:
1. It consists of living cells.
2. Its cells contain cytoplasm.
3. Its cell walls are cellulosic.
Sclerenchyma:
1. It consists of dead cells.
2. Its cells are empty.
3. Its cell walls are lignified.
Solution SAQ - 6
Xylem is composed of cells of four different types: 1. Tracheids; 2.

Vessels or tracheae; 3. Xylem parenchyma and 4. Xylem Sclerenchyma. Except xylem parenchyma, all other xylem elements are dead and bounded by thick lignified walls. Vessels are shorter and wider than tracheids. Vessels are very long tube-like structures formed by a row of cells placed end to end. Tracheids are elongated cells with tapering ends. They also conduct water.

Solution SAQ - 7

Functions of Xylem:

(i) The main function of xylem is to carry water and mineral salts upward from the root to different parts of shoots.

(ii) Since walls of tracheids, vessels and sclerenchyma of xylem are lignified, they give mechanical strength to the plant body.

Solution SAQ - 8

Functions of Phloem:

Phloem transports photosynthetically prepared food materials from the leaves to the storage organs and later from storage organs to the growing regions of the plant body.

Solution SAQ - 9

The different types of plant tissues are:

1. Meristematic tissues - It is of three types: Apical, Lateral and Intercalary.

2. Permanent Tissue - It of two types: Simple and Complex tissues. Simple tissues are of three types - Parenchyma, Collenchyma and Sclerenchyma.

Complex tissues are of two types - Xylem and Phloem.

Solution SAQ - 10

Sieve tube elements do not have nuclei but have cytoplasm. They are dependent on adjacent companion cells which contains dense and very active cytoplasm and a large elongated nucleus.

Solution SAQ - 11

Functions of Epithelial tissues are:

(i) The cells of the body surface form the outer layer of skin. These cells protect the underlying cells from drying, injury, and chemical effects.

(ii) Inside the body, epithelial cells form lining of mouth and alimentary canal and protect these organs.

(iii) Epithelial tissues help in absorption of water and nutrients in small intestine.

(iv) Some epithelial tissues perform secretory function such as sweat, saliva in skin and mouth cavity.

Solution SAQ - 12

(i) Striated Muscles - It occur in the muscles of limbs, body wall, face, neck, etc. Striated muscles present in tongue, pharynx, diaphragm and upper part of oesophagus are called visceral straited muscles.

(ii) Smooth Muscles - Smooth muscles are found in the walls of the hollow (tubular) visceral organs except that of the heart. They occur in the wall of alimentary canal and internal organs, ducts of glands, urogenital ducts and blood vessels.

(iii) Cardiac Muscles - The cardiac muscles occur in the heart.

Solution SAQ - 13:

(a) Neuron - Nervous Tissue

(b) Dendrite - Nervous Tissue

(c) Cilia - Ciliated Epithelium

(d) Collagen fibres - Connective Tissue

(e) Elastin fibre - Connective Tissue

Solution SAQ - 14

(a) Osteoblast - It provides shape to the body.

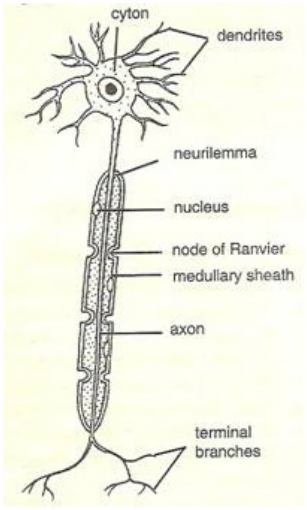
(b) Chondroblast - It provided support and flexibility to the body parts.

(c) Goblet Cells - It is a mucus secreting epithelial cell which secrets mucus.

(d) Neuron - The dendrites receive impulses and the axon takes impulses away from the cell body.

(e) Muscle Cell - They undergo rapid contraction for locomotion.

Solution SAQ - 15
Two characteristics of nerve cells are:
(i) They are highly specialised unit cells.
(ii) Neurons have the ability to receive stimuli from within or outside the body and to conduct (send) impulses (signals) to different parts of the body.
Solution SAQ - 16
Bone - It provides skeletal support to the body.
Cartilage - It provides support and flexibility to the body parts.
Ligament - It connects bones to bones.
Solution SAQ - 17:
(a) Adipose tissues.
(b) Ciliated epithelium.
Solution SAQ - 18
Functions:
(i) It transports nutrients, hormones and vitamins to the tissues and transports excretory products from the tissues to the liver and kidney.
(ii) The RBCs carry oxygen to the tissues for the oxidation of food stuff.
(iii) WBCs fight disease by engulfing and destroying foreign bodies.
Solution SAQ - 19
The different tissues in animals are:
(i) Epithelial Tissues - These are the protective tissues of the animal body. Depending upon the shape and function of the cells, the epithelial tissues are classified as follows:
a. Squamous epithelium.
b. Cuboidal epithelium.
c. Columnar epithelium.
d. Glandular epithelium.
e. Ciliated epithelium.
(ii) Muscular Tissues - The muscular tissues form the contractile tissues and are made up of muscle cells. On the basis of their location, structure and function, there are three types of muscular tissues:
a. Striated muscles.
b. Smooth muscles.
c. Cardiac muscles.
(iii) Connective Tissues - The connective tissues are specialised to connect and anchor various body organs. They are of five types:
a. Aerolar connective tissue.
b. Dense regular connective tissue.
c. Adipose tissues.
d. Skeletal tissues.
e. Fluid connective tissues.
(iv) Nervous Tissues - These tissues are specialised to transmit messages within our body. Brain, spinal cord and nerves are all composed of nervous tissues.
Solution SAQ - 20:



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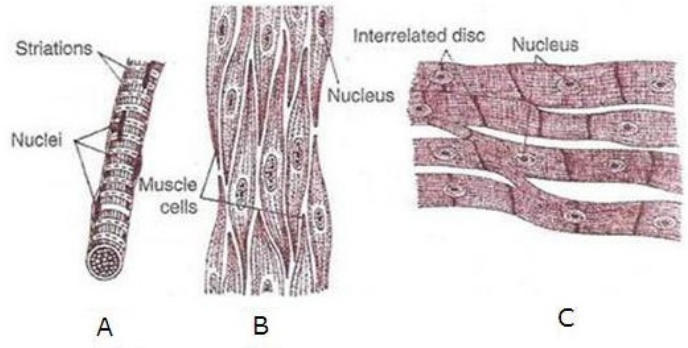


A – Striated muscle

B – Smooth muscle

C – Cardiac muscle

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