Tissues

Check Point 01

Q. 1. What forms the basis of classification of tissues present in plants and animals?

Answer: There are certain levels which form the basis of classification of tissues present in plants and animals:

● **On the basis of movement -** Plants are stationary and they do not move while animals move from one place to another for various reasons. Therefore, the tissues required by plants are those which provide mechanical strength and mostly they are dead in nature whereas in animals the tissues are living as they need to move.

● **On the basis of the pattern of growth -** The growth pattern of plants and animals also differs. Plants have certain regions which continue to divide throughout the life while the same thing does not happen in case of some other regions. There is more uniform cell growth in animals as compared to plants.

So, tissues are classified considering the pattern of growth.

● **On the basis of the structural organization -** The structural organization of animals is far more complex as compared to plants. Therefore, there are differences in tissues which are responsible for the structural organization and form a basis of classification.

Q. 2. Why the growth of plants occurs only in certain specific regions?

Answer: The growth of plants occur in specific regions due to the presence of meristematic tissue in those specific regions because the meristematic tissue is the one which is responsible for the division in plants. The areas where this meristematic tissue is present like the tip of roots, stem, at the bases of leaves, internodes etc growth occur there only. In other regions the meristematic tissue is absent. So, Growth occurs only in certain specific regions.

Q. 3. Read the statement given below

(i) Cells are active with dense cytoplasm and prominent nuclei.

(ii) They lack vacuoles and intercellular spaces.

The above statements refer to which type of tissue in plants.

Answer: (i) Meristematic tissue have very active cells with dense cytoplasm and a prominent nuclei.

(ii) Schlerenchyma tissue lack vacuoles and intercellular spaces.

Q. 4. Aquatic plants have the ability to float rather than being submerged in water. How?

Answer: The ability to float rather than being submerged in water in aquatic plants comes due to the presence of a special tissue called aerenchyma which is a subtype of parenchymatous tissue. In this tissue large air cavities are present between parenchyma to give buoyancy to the plants which help them to float rather than being submerged.

Q. 5. Name the tissue which helps in easy bending of plants.

Answer: Collenchyma tissue helps in easy bending of plants.

Collenchyma cells contain thick deposits of cellulose in their cell walls, which provide strength to the tissue.

Check Point 02

Q. 1. How are complex permanent tissue different from simple permanent tissue?

Answer:

Simple permanent tissue	Complex permanent tissue
They are made up of a single type of cells.	They are made up of more than one kind of cells.
As they are made up of a single type of cells they perform their tasks with those cells only.	As they are made up of different cells, these cells interact and coordinate to perform any task.
They are found everywhere in the plants.	These are vascular tissues and occur in those regions only.
Parenchyma, collenchymas, sclerenchyma, and epidermis are different types of simple permanent tissue.	Xylem and phloem are different types of complex permanent tissue.

Q. 2. Name the distinctive features of complex plants, that helped in their survival on the Earth.

Answer: There are certain plants which are living in extreme conditions and it is possible due to the presence of certain distinctive features:

● Plants living in extreme dry habitats have a thick epidermal layer which prevents the loss of water.

● In desert plants, they have a thick waxy cuticle over the outer surface which prevents the loss of water.

Q. 3. Which component of xylem is responsible for the transport of minerals?

Answer: Tracheids and vessels are responsible for the transport of minerals.

Tracheids are elongated cells in the xylem of vascular plants that serve in the transport of water and mineral salts.

Q. 4. Which is the only constituent of xylem that is living?

Answer: Xylem parenchyma is the only constituent that is living out of all xylem components.

Q. 5. Identify the phloem component which provides mechanical strength to this tissue.

Answer: Phloem fibers provide mechanical strength to this tissue.

Q. 6. What is the function of companion cells?

Answer: Companion cells are the cells which remain associated with the sieve tube elements of the phloem. Since sieve tubes have perforated cell walls and companion cells remain associated with them companion cells help in maintaining the pressure gradient of the sieve tube element and thus help in the transportation of food.

Check Point 03

Q. 1. How are epithelial tissue classified on the basis of cell shape and arrangement?

Answer: Epithelial tissue: The tissue present as a covering and protection layer over the complete animal body is termed as epithelial tissue.

It is classified on the basis of cell shape and arrangement as follows:

i. Simple squamous epithelium- It consists of those epithelial cells which are extremely thin, flat and forms delicate lining.

For example- Oesophagus, the lining of mouth are covered with simple squamous epithelium.

ii. Stratified squamous epithelium- When thin and flat epithelial cells are present in many layers as they are present in the skin which prevents wearing and tearing, it is termed as Stratified squamous epithelium.

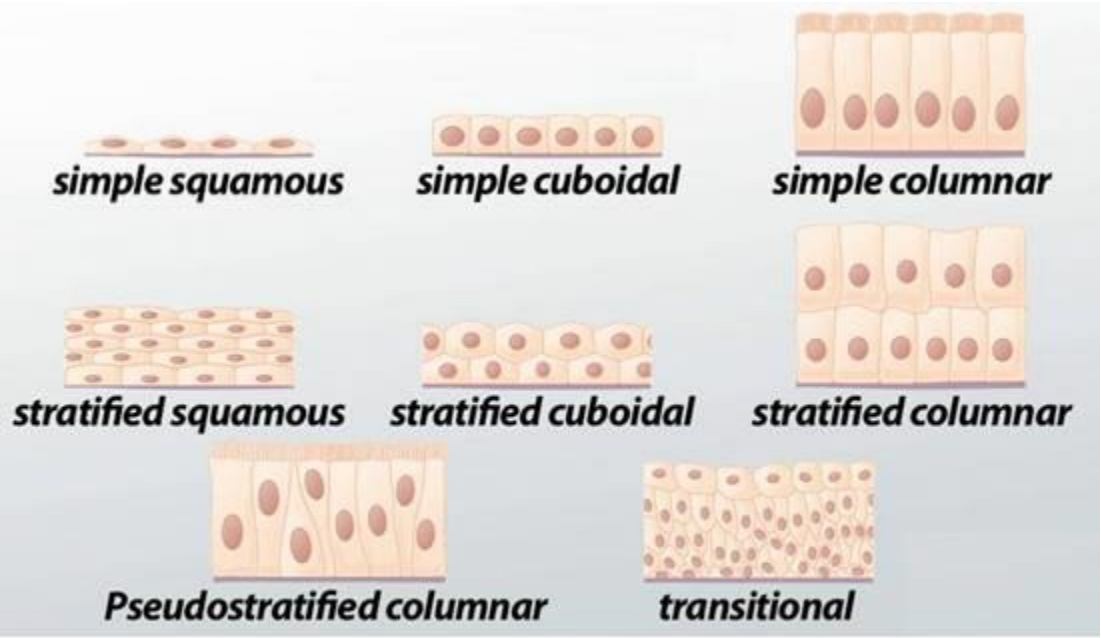
iii. Columnar epithelial cells- Columnar here refers to pillar-like. In this tall epithelial cells are present which helps in the movement across an epithelial barrier. They are present in parts where absorption and secretion occurs.

For example- It is present in the inner lining of the intestine.

iv. Cuboidal epithelial cells- In this cube-like epithelial cells are arranged which provide mechanical support. It forms linings of the kidneys, ducts of salivary glands etc.

v. Glandular epithelial cells- In this epithelial cell acquire specialization and starts the secretion process. Sometimes they fold inward and forms multicellular gland. This type of epithelial tissues is termed as glandular epithelial tissue.

Following picture depicts different types of epithelial tissue:



Epithelial Tissues

Q. 2. Name the type of tissue present, where transportation of substances occurs through the selectively permeable membrane.

Answer: Simple squamous epithelial tissue is present where transportation occurs through selectively permeable membrane.

Simple squamous epithelia are found in capillaries, alveoli, glomeruli, outer layer of skin and other tissues where rapid diffusion is required.

Q. 3. The cells of stratified squamous epithelium are arranged in many layers. Why?

Answer: The cells of stratified squamous epithelium are arranged in many layers to prevent any kind of wearing and tearing for providing protection.

Q. 4. The sites where cuboidal epithelium is present, will be specialized in which type of functions?

Answer: It is specialized in providing mechanical support.

They often get specialized in secretions through the epithelium and therefore are known as gland cells. Sometimes by folding inwards they form multicellular gland and is termed as glandular cells.

Q. 5. In which type of epithelium, cilia are present? What is their role in this epithelium?

Answer: In Columnar epithelial tissue cilia are present.

Role- They helps in the movement of certain substances. For example- Cilia present in the respiratory tract helps in the movement of mucus through it.

Q. 6. How is glandular epithelium formed?

Answer: When cuboidal epithelial cells start secretion, they are termed as glandular cells. Also, the invasion of the epithelial cells towards the inner side forms sometimes a multicellular gland and in this way, glandular epithelium is formed.

Q. 7. Give any two functions performed by epithelial tissue.

Answer: Following are the two functions performed by the epithelial tissue:

● Epithelial tissue covers most tissues and organs of the body and thus helps in their protection.

● Epithelial tissue also acts as barrier which keep separates different body tissues.

Check Point 04

Q. 1. Why are connective tissue named so?

Answer: Connective tissue is named so because they transport different nutrients, waste materials, gases like O2, CO2, hormones etc and in this way establishes a network for all the cells of the body and connects to them. Since connective tissue is in some or the other way is connected to all the cells they are known as connective tissue.

Q. 2. Why is blood called a connective tissue?

Answer: Blood is called a connective tissue because it transports different nutrients, waste materials, gases like O_2, CO_2, hormones etc to all the cells of the body and in this way establishes a connection between all the cells. Since it connects all the cells blood is called the connective tissue.

Q. 3. What are the main constituents of blood?

Answer: Following are the main constituents of blood:

● **Plasma-** The liquid matrix of the blood.

● **Red blood cells -** Red blood cells play an important role in your health by carrying fresh oxygen throughout the body.

● **White blood cells -** White blood cells (WBCs)also called leukocytes or leucocytes, are the cells of the immune system. They are responsible for protecting the body against diseases.

● **Platelets -** Platelets are tiny blood cells that help your body form clots to stop bleeding.

If any blood vessel is damaged, it sends out signals that are picked up by platelets.

Q. 4. How are two bones attached to each other?

Answer: Two bones are attached to each other with a special kind of tissue called ligament. Ligaments are very much elastic in nature and are of good strength. They contain very little matrix.

They help in connecting two bones from each other.

Q. 5. What type of tissue is present in bone marrow?

Answer: Areolar connective tissue is present in bone marrow.

Q. 6. Name the tissue found between the organs. What is its function?

Answer: Adipose tissue is found between organs.

Function- Adipose tissue is filled with fat globules and stores fat and is present between organs. Due to fat storage, it acts as insulator also.

Q. 7. Adipose tissue acts as an insulator in the body. Why?

Answer: Adipose tissue acts as an insulator in the body due to its fat storage. Fat molecules are bad conductors and therefore do not allow the conduction of heat and in this way, they act as an insulator due to storage of fat molecules.

Check Point 05

Q. 1. Why are striated muscles called skeletal muscles?

Answer: Striated muscles are called skeletal muscles because they are attached to the bones and help in various body movements according to our choice.

Since, they help in our body movements they are termed as skeletal muscles.

Q. 2. Name the type of muscles present in

(i) iris of eye

(ii) alimentary canal

(iii) bronchi of lungs

Answer: (i) Iris of eye- Smooth muscles

(ii) Alimentary canal- Smooth muscles

(iii) Bronchi of lungs- Smooth muscles

Q. 3. Smooth muscles are also called unstriated muscles. Why?

Answer: Smooth muscles are also called as unstriated muscles because smooth muscles do not exhibit any kind of alternate bands, striations on them. Therefore, they are called unstriated muscles.

Q. 4. Where are the cardiac muscles present?

Answer: Cardiac muscles are present in the heart.

Cardiac muscle tissue is a type of muscle tissue that is found only in the heart. It makes up the bulk of the heart's mass. The heart beats powerfully and continuously throughout an entire lifetime without any rest, so cardiac muscle has evolved to have the incredibly high contractile strength and endurance.

Q. 5. Name the type of cells, which form nervous tissue?

Answer: Nerve cells often known as neurons form the nervous tissue.

Other components of nervous tissue are brain and spinal cord.

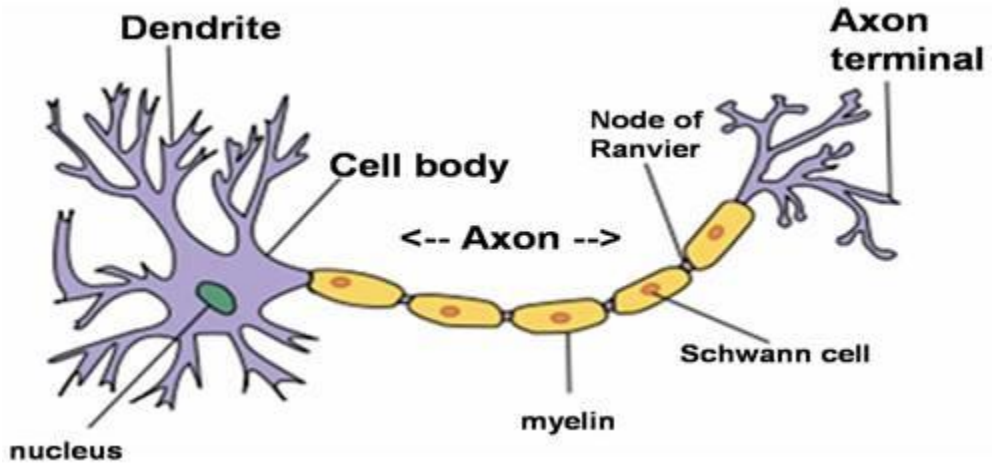
Q. 6. What are the three main parts of a neuron?

Answer: Following are the three main parts of the neuron:

● **Cell body-** It contains the nucleus and cytoplasm and small branching arises from it.

● **Axon-** This is a long branch which arises from the cell body and helps in impulse transmission.

● **Dendrites-** These are small branches arising from the cell body and axon.



Q. 7. A person is carrying a heavy weight. He got tired and removed the weight to relax his muscles. Which tissues are involved in this case?

Answer: Skeletal muscles are involved in this case. Since skeletal muscles are involved in voluntary body movements. These are the muscles which will help in carrying weights and will get tired.

Chapter Exercise

Q. 1. Name the various types of tissues found in plants.

Answer: Following are the various types of tissues found in plants:

● **Meristematic tissue:** These tissues are further subdivided into apical meristem, intercalary meristem, and lateral meristem.

● **Permanent tissue:** This is further subdivided into simple permanent tissue and complex permanent tissue.

● **Simple permanent tissue:** Parenchyma, collenchyma, sclerenchyma, epithelial tissue are various types of simple permanent tissue.

● **Complex permanent tissue:** Xylem and phloem are various types of complex permanent tissue.

Q. 2. Name the type of tissue, which is most abundant in animals.

Answer: Connective tissue is most abundant in animals.

Connective tissue is found in between other tissues everywhere in the body, including the nervous system.

This tissue connects, supports, binds, or separates other tissues or organs.

Q. 3. Give one similarity between permanent and meristematic tissue.

Answer: Permanent and meristematic tissues both are types of plant tissues.

Both permanent and meristematic tissue aims to perform a single function by using their cells.

Q. 4. Name a component of phloem formed by the end to end fusion of cells with the perforated transverse wall.

Answer: Sieve tubes of phloem are formed by end to end fusion of cells with perforated transverse wall.

Q. 5. Give one word for

(i) zig-zag thickenings in cardiac muscles.

(ii) Thickening present in sclerenchyme cell.

Answer: (i) **Intercalated discs-** They form the zig zag thickening in cardiac muscles.

(ii) Lignin, since the thickening in sckerenchyma is due to lignin.

Q. 6. What is the function of thin, hair-like projections present on the cuboidal epithelium?

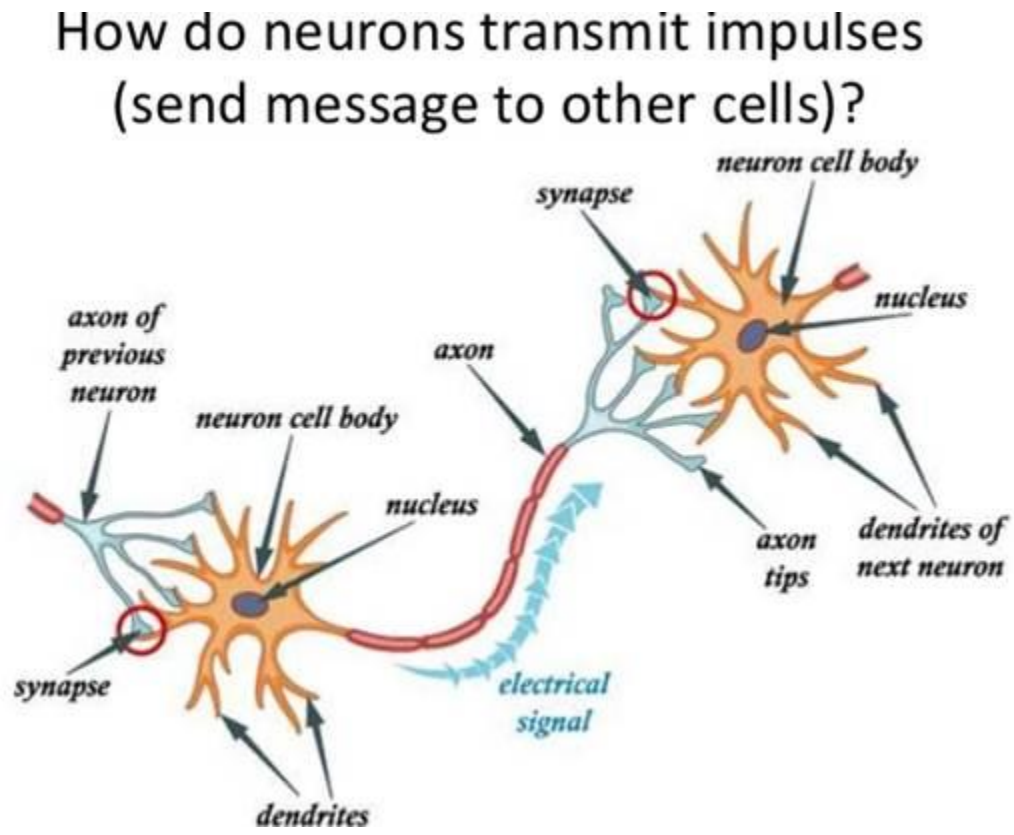
Answer: These projections help in the movement of the certain substances.

For example- movement of mucus in respiratory tract.

Q. 7. Which part of neuron receives and transmits impulses?

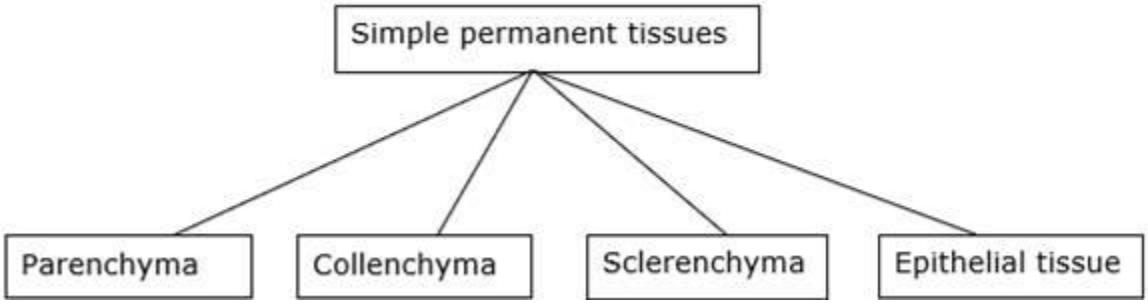
Answer: Cell body receives impulse and is transmitted through axon and axon terminals.

Following picture also depicts the same phenomenon:



Q. 8. Draw a table for types of simple tissues present in plant.

Answer:



Q. 9. Draw a diagram of stem tip to show the position of meristematic tissue.

Answer:

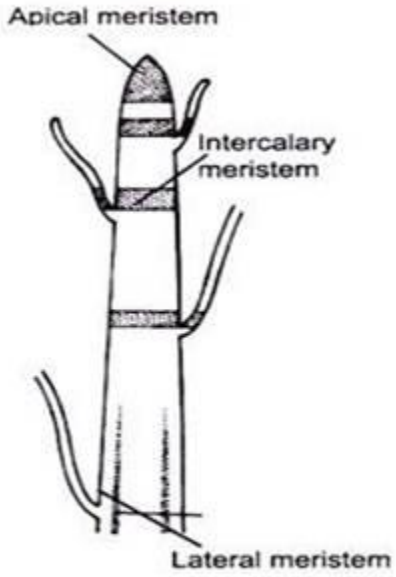
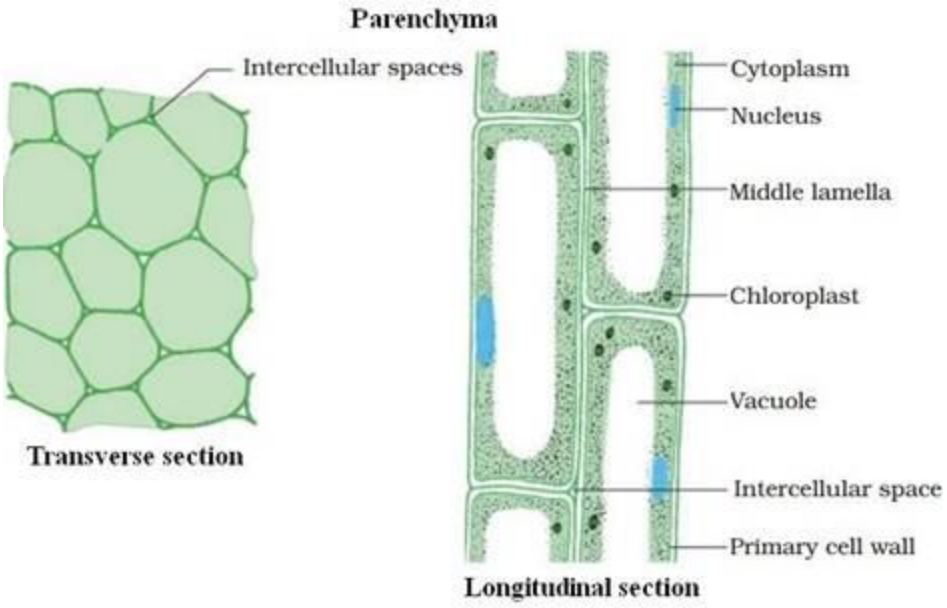


Fig. 3.1 Schematic representation of position of different meristems

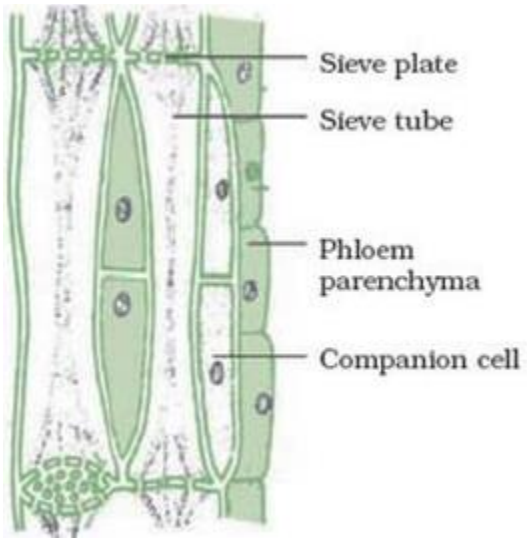
Q. 10. Draw a neat, labeled sketch of parenchyma.

Answer: Following is the sketch of parenchyma:



Q. 11. Draw a diagram of a phloem tissue and label the sieve tube and sieve plate in it.

Answer: Following is the diagram of phloem tissue showing sieve tube and sieve plate:



Q. 12. Write the functions of bones and cartilage.

Answer: Functions of bone:

● The complete framework of the body is formed of bone which provides support to the complete body.

● It provides anchorage to the muscles and support to the organs.

● Bones also help in the movement.

Functions of cartilage:

● It smoothens the bone surfaces at joints like in tip of nose, ears.

● It is not very much rigid as bones and not very much elastic like muscles. It is flexible to some extent and is present where littlie flexibility is required.

For example – Cartilages are present in between vertebral column.

Q. 13. How do ligaments and tendons differ functionally?

Answer: Difference in function of ligaments and tendon:

Function of ligament	Function of tendon
It is a connective tissue which joins bone to bone.	It is a connective tissue which joins bone to muscle.
It is more elastic and flexible.	It is less elastic and less flexible as compared to ligaments.

Q. 14. The functional combination of nerve and muscle tissue is fundamental to most animals. Comment.

Answer: Yes, the given statement is true that combination of nerve and muscle fibers is fundamental to most animals because this combination helps in the voluntary movements.

Whenever we want to do any movement by our choice command is given to the skeletal muscles which are responsible for the voluntary movements by the nervous system. If nerve cells and muscles will lack coordination in between them then we have nothing like voluntary movements.

So, all animals which show voluntary movements have a functional combination of nerve and muscle tissue and is fundamental to most animals.

Q. 15. Bark of a tree is impervious to gases and water. Give reasons.

Answer: Bark of tree is impervious to gases and water because cork cells through which bark is made up of are dead in nature and they also do not have any intercellular space in between through which water and gases can move.

Secondly, there is deposition of a compound called suberin in their walls which also makes the cork cells impervious to the gases and water.

So, due to above mentioned reasons bark of a tree is impervious to water and gases.

Q. 16. Where are companion cells located in plants? Mention their functions.

Answer: Companion cells are components of the phloem tissue. They remain associated with the sieve tube elements of the phloem tissue. Phloem is a vascular tissue and is present for conduction in vascular plants

Functions of companion cell are as follows:

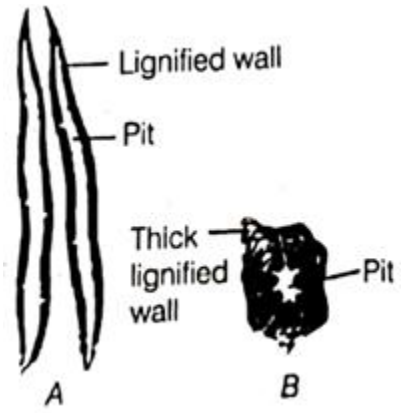
● Companion cells help in maintaining the pressure gradient of the sieve tube elements and thus help in conduction of food through sieve tubes.

● It plays role in conduction of food.

Q. 17. (i) Identify the tissues shown in the figure.

(ii) Give the characteristic features of their cells.

(iii) Specify any two parts of the plant, where these tissues are present.



Answer: (i) A- Sclerenchyma fibers B- Sclereids

(ii) Features of sclerenchyma fibers:

● These are dead elements.

● They have thick wall of lignin, are elongated and pointed at ends.

● They have pits also.

● They mostly occur in groups.

Features of sclereids-

● These are dead elements.

● These are oval, spherical and are thickened due to lognin deposition.

● They have very narrow cavities at the centre.

(iii) These are present in the hard coverings of the seed, in the stems, in the veins of the leaves etc.

Q. 18. Name the tissue, which helps in transportation of oxygen that we inhale to various parts of the body. Write the composition of this tissue.

Answer: Blood is the connective tissue which transports the oxygen that we inhale to various parts of the body.

Composition of blood- Blood consist of the fluid matrix which is known as plasma. Cells like red blood cells, white blood cells also remain suspended into it. It also contains platelets.

Q. 19. Mention the location of the following tissues.

(i) Tendon

(ii) Aoreolar tissues

(iii) Cuboidal epithelium

Answer: (i) Tendon is located between bones and muscles.

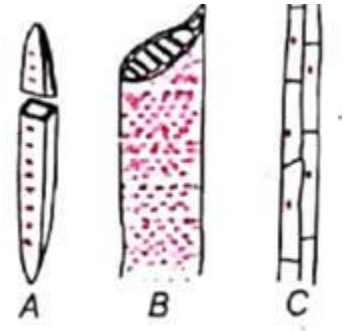
(ii) Areolar tissue is present in bone marrow, between skin and muscles and around blood vessels and nerve fibers.

(iii) Cuboidal epithelium is present in the ducts of salivary glands, in the linings of the kidney tubules etc.

Q. 20. (i) Identify the structures marked below as A, B and C.

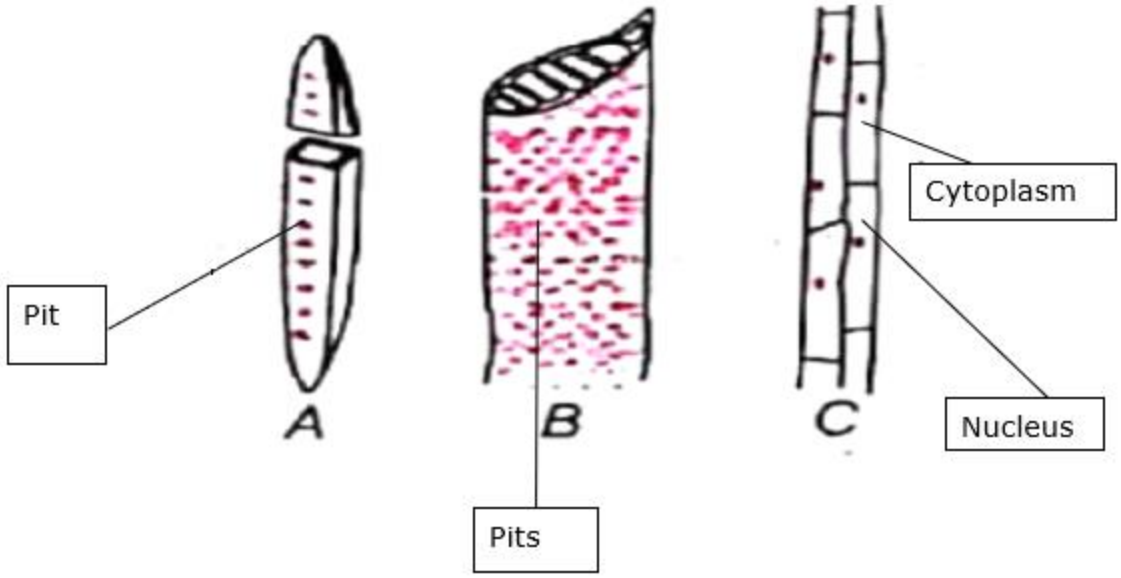
(ii) Complete the labeling of each structure.

(iii) Write the function of each structure.



Answer: (i) A- Tracheid B- Vessel C- Xylem parenchyma

(ii)



(iii) Tracheids- It helps in transmission of water.

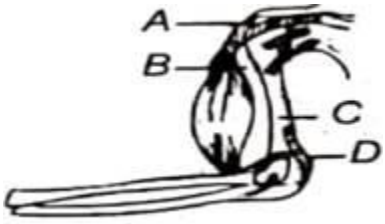
Vessels- It helps in transmission of minerals.

Xylem parenchyma- It stores food and helps in conduction of water.

Q. 21. (i) Identify A, B, C and D.

(ii) Write the functions of A, B, C and D.

(iii) Write the difference between A and D.



Answer: (i) A- Tendon B- Bone C- Muscle D- Ligament

(ii) Function of Tendon- It helps in connecting muscles with the bones.

Function of bones- It is connective tissue which forms the framework of the body and provides anchorage to the muscle tissues.

Functions of muscles- These tissues are responsible for movement in our body.

Function of Ligaments- It helps in connecting bone to bone.

(iii) Difference between ligament and tendon

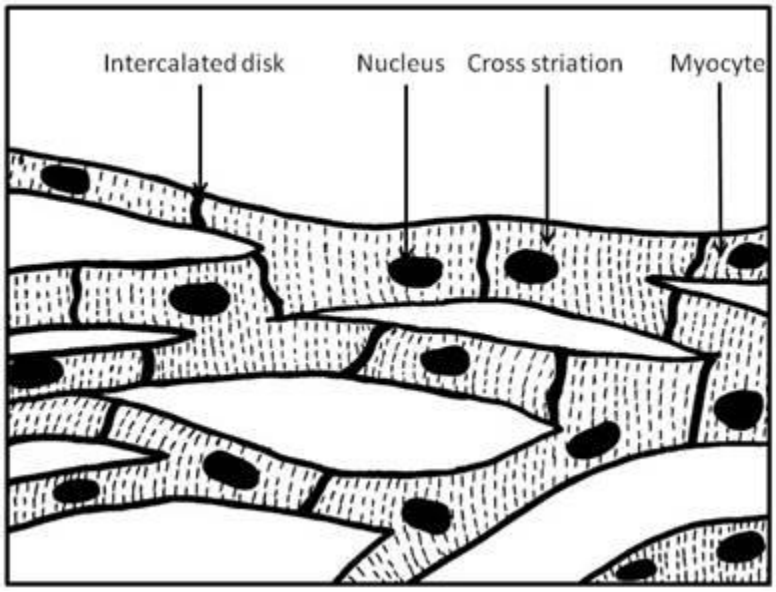
Ligament	Tendon
It is a connective tissue which joins bone to bone.	It is a connective tissue which joins muscle to bone.
It is more flexible and elastic.	It is less flexible and less elastic as compared to ligament.

Q. 22. Write important functional differences between striated and smooth muscle tissues. Draw a labeled diagram of the muscle tissue that shows rhythmic contraction and relaxation throughout the life.

Answer: Following are the functional difference between the striated and smooth muscle tissues:

Striated muscles	Smooth muscles
It helps in the voluntary movements of the body.	It does not help in any of the voluntary actions. It helps in the involuntary movements of the body.
These muscles remain attached to the bones and help in movement.	These muscles do not remain attached to the bones.
For example- It is present in our limbs.	For example- It is present in our oesophagus.

Cardiac muscles shows rhythmic contraction and relaxation throughout the life and diagram is as follows:



Q. 23. Name the tissue and write characteristic feature of following.

(i) Connects bone to bone in humans.

(ii) Forms inner lining of alveoli.

(iii) Has prominent middle lamella.

(iv) Transports water and minerals, in plants.

Answer: (i) Ligaments connects bone to bone in humans. Following are the characteristic features of the ligament:

● Ligament is very elastic and flexible in nature.

● It is of considerable strength.

● It contains very little amount of matrix.

(ii) Simple squamous epithelium forms the inner lining of the alveoli. Following are the characteristic feature of the simple squamous epithelium:

● The cells are extremely thin and delicate.

● It forms a delicate, flat and thin lining.

(iii) Cell wall has the prominent middle lamella.

Features of the middle lamella:

● Middle lamella cements the two cell walls.

● It is found between the cell wall of fruits also.

● It is composed of cellulose, hemicelluloses and pectin.

(iv) Xylem components tracheids and vessels transport the water and minerals in the plants. Following are the characteristic feature of the xylem tracheids and vessels:

● Tracheids and vessels are dead elements of xylem.

● They have thick walls and are tubular structures.

● Tracheids and vessels provide unidirectional flow of water and minerals.

Q. 24. Identify the animal tissues from the given descriptions and also mention their location in the human body.

(i) Tissue A cells are filled with fat globules and the tissue acts as an insulator.

(ii) Tissue B has cylindrical branched cells and the tissue shows rhythmic contraction and relaxation throughout the life.

Answer: (i) Adipose tissue is the tissue that is filled with the fat globules and acts as an insulator.

Location of adipose tissue- It is present below the skin and in between the internal organs.

(ii) Cardiac muscles have cylindrical branched cells and shows rhythmic contraction and relaxation throughout the life.

Location- Cardiac muscle cells are present in heart.

Q. 25. (i) You can very easily bend the stem of a plant without breaking it. Name the tissue in the plant, which makes it possible. Where is it located? State any two characteristics of the cells of this tissue.

(ii) Draw a labeled diagram of the transverse section of this tissue.

Answer: (i) Collenchyma is the tissue which makes the bending of stem possible without breaking it.

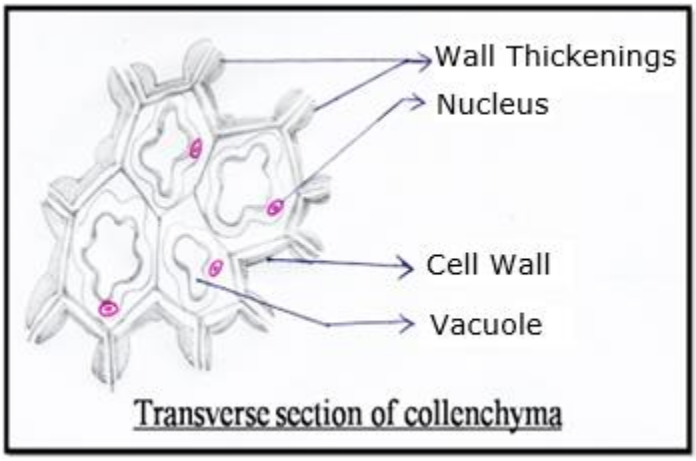
Location of the collenchymas- It is present in the leaf stalks below the epidermis.

Following are the two characteristics of the collenchyma tissue:

● Cells of collenchyma tissue are living in nature, elongated and they have irregular thickening at the corners.

● Cells of collenchymas tissue have very less intercellular spaces in between them.

(ii) Following is the diagram of transverse section of collenchymas tissue:



Q. 26. Richa tried to bend the stem of a plant without breaking it and she was able to do it.

(i) Name the tissue in the plant, which made it possible.

(ii) State two characteristics of this tissue.

(iii) What values are shown by Richa?

Answer: (i) Collenchyma tissue in the plant makes possible the bending of plant without breaking it.

(ii) Following are the two characteristic of this tissue:

● The cells of collenchyma tissue are living and they have irregular thickening at the corners.

● Less intercellular space is there in between the cells of cholenchyma tissue.

(iii) Values which Richa had shown are of a responsive person and citizen who try to protect the nature and understand its worth. She had only bent the stem and had not break it which shows that Richa understands that it is responsibility of every human being to save the trees and plants as they are very important to us.

She is a responsive citizen.

Q. 27. John started walking fast, when he noticed that some unknown faces are following him. Name two types of tissues, which facilitated the movement of his bones in response to stimulus?

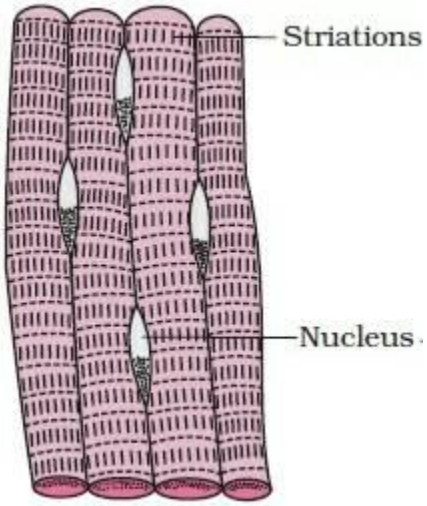
(i) Draw the diagram of any one of the above mentioned two tissues and label any two parts.

(ii) What values are shown by John?

Answer: Since, John had started walking voluntarily; The tissues which facilitated the movement of his bones are Skeletal muscles and nervous system.

Skeletal muscles are anchored to the bones and helps in voluntarily movements and since command for this voluntary action is given by nervous system neurons were also involved in the movement of bones.

(i) Diagram of the skeletal muscle is as follows:



(ii) Values shown by John are intelligence, ability to take decision and giving quick response. As some unknown faces started following him, he started walking fast to overcome the coming problem or difficult situation. Here, he had shown his intelligence in taking decision to move away from those unknown faces as soon as possible. He had also did this immediately without wasting his time so, that he can overcome the coming problem.

Challengers

Q. 1. Contractile proteins are found in

A. bones

B. blood

C. cartilage

D. muscles

Answer: Muscles help in movement and therefore contains contractile proteins. The contraction and relaxation of the contractile proteins helps in the movement.

Q. 2. Which among the following is not a leucocyte?

A. 

B. 

C. 

D. 

Answer:

The above picture is not a leucocyte because it does not contain nucleus. Nucleus is a characteristic feature of leucocytes.

Q. 3. Find out incorrect sentence

A. Parenchymatous tissues have intercellular spaces.

B. Collenchymatous tissues are irregularly thickened at corners.

C. Apical and intercalary meristems are permanent tissues

D. Meristematic tissues in its early stage lack vacuoles.

Answer: Apical and intercalary meristems are not themselves permanent tissue instead they differentiate to form different types of permanent tissues.

Q. 4. Presence of which tissue made it possible for survival of plants in terrestrial environment?

A. Protective tissue

B. Parenchymatous tissue

C. Permanent tissue

D. Conducting tissue

Answer: Plants take water and various minerals from the soil, if no conducting tissue was there it was impossible for terrestrial plants to get water and those essential minerals.

Therefore, it is said that presence of conducting tissue made it possible for survival of plants in terrestrial environment.

Q. 5. Which among the following statement is true?

A. All xylem cells are living except tracheids.

B. All phloem cells are living except sieve tubes

C. All xylem cells are dead cells except xylem parenchyma.

D. All phloem cells are dead cells except phloem fibres.

Answer: Xylem parenchyma is the only living component of the xylem tissue whereas phloem sclerenchyma is the only dead component of phloem. Therefore, option (c) is true.

Q. 6. A person met with an accident in which two long bones of hand were dislocated. Which among the following may be the possible reason?

A. Tendon break

B. Break of skeletal muscle

C. Ligament break

D. Areolar tissue break

Answer: It is possible due to ligament break because it is the connective tissue which joins the two bones. Since, two long bones are dislocated it is due to ligament break only.

Other tissue break will not lead to dislocation of bones.

Q. 7. Walls of collenchymas are irregularly thickened due to the deposition of

A. pectin

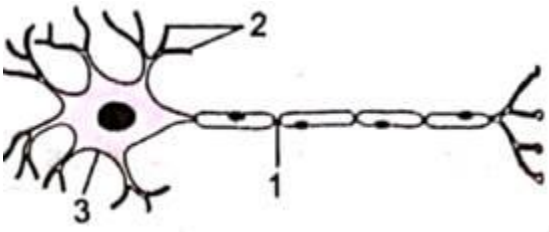
B. lignin

C. suberin

D. All of the above

Answer: Walls of collenchymas are irregularly thickened due to the deposition of pectin. Lignin is present in the walls of sclerenchymatous tissue. Suberin is present in the cork cells. Lignin and suberin are present in dead components while pectin forms the component of collenchymas which is a living part.

Q. 8. In the given figure, which of the following parts transmits impulse away from the cell body?



A. 1

B. 2

C. 1 and 2

D. 3

Answer: 1 represents axon here through which impulse travels away from the cell body and toward the axon terminals.

2 and 3 represent dendrite and cell body respectively which do not play role in impulse transmission.

So, correct option is (a).

Q. 9. Complete the analogy given below and choose the correct option

Cutin : Epidermis; Suberin : …….

A. Cambium

B. Apical meristem

C. Sieve tube

D. Cork cells

Answer: As epidermis is formed of cutin, suberin gives rise to cork cells which makes them impervious to gas and water. No other given option is formed from suberin.

Therefore, correct option is (d) Cork cells.

Q. 10. A fat person is less affected by the cold wheather because of the presence of more.

A. areolar tissue

B. striated muscles

C. adipose tissue

D. platelets

Answer: Adipose tissue stores fat and since fat is a bad conductor it acts as an insulator and prevents loss of heat from the body. Therefore, a fatty person is less affected by cold.

All other options given are in no way related to cold insulation.

Therefore, option (c) is the correct answer.

Q. 11. Choose the incorrectly matched pair from the options given below

A. Salivary gland — Glandular epithelium

B. companion cells — Perforated walls

C. Collenchyma — Flexibility

D. Axon — Nerve cell

Answer: It is an incorrect match because sieve tubes have the perforated walls instead of the companion cells. Companion cells remain associated with the sieve tubes.

Therefore, correct option is (b) companion cells.

Q. 12. Nuclei is located at the periphery in

A. cardiac muscles

B. smooth muscles

C. striated muscles

D. both (a) and (c)

Answer: Nuclei is located at the periphery in striated muscles. All other muscles are uninucleate and do not have nucleus at the periphery.

Therefore, the correct option is (c) striated muscles.