

## Tissue class 9 solved questions

### Short Answer Type Questions-I

[2 marks each]

Q. 1. (a) What is a tissue ? Justify that blood is a tissue.

(b) Identify the meristematic tissues which are located at :

(i) growing tips of roots and stems.

(ii) the base of the leaves or internodes on twigs.

(Board Term I 2013, OAHJD6N)

Ans. (a) A group of cells that are similar in structure and work together to achieve a particular function is called a tissue. Blood is a cluster of similar cells and they perform same function in the body, hence blood is a tissue. (½ + ½)

(b) Apical meristem, Intercalary meristem. (½ + ½)

Q. 2. What is apical meristem ? What is its function ?

(Board Term I 2013, AGRO 94)

Ans. Apical meristems are the meristematic tissues which are found at the growing tips of stems and roots.

It increases the length of the stems and the roots and is responsible for the growth of plant.

(1+1)

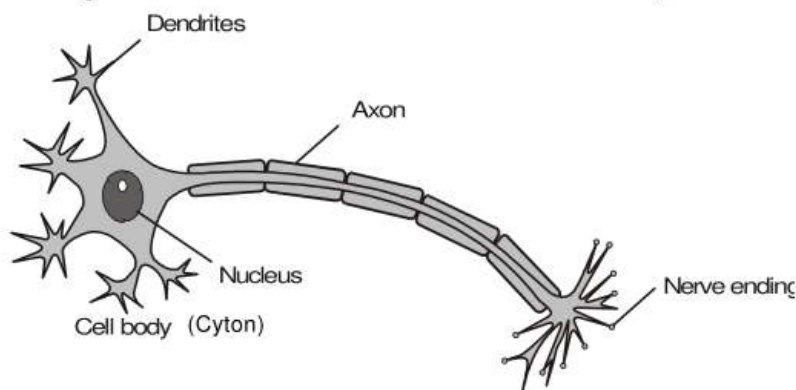
Q. 3. Why is epidermis present as a thick waxy coating of cutin in desert plants ?

Ans. The main adaptations of desert plants is to minimise water loss. Hence, layer of cutin is present on epidermis, which is a thick waxy coating. This waxy coating helps in minimising water loss by transpiration. 2

Q. 4. Draw a labelled diagram of a neuron.

(Board Term I, 2012 Set-015)

Ans.



(1+1)

Q. 5. State the role of ligament and tendons in our skeletal system.

(Board Term I, 2012 Set-016; 028)

Ans. (a) **Tendons** : Connect bones to muscles.

(b) **Ligaments** : Connect two bones.

(1+1)

Q. 6. A horse and a mango tree both are complex living organisms with specialised yet different tissue systems to perform the basic life processes. Give two reasons for possessing different tissues to perform similar functions. (Board Term I, 2012 Set-019)

Ans. Horse is an animal where as mango tree is a plant.

Plants and Animals have different types of tissues because :

— Plants do not show locomotion while most of the animals move from one place to another.

— They have different pattern of growth : plant's growth is limited to certain regions while animal's growth is more or less uniform. (1+1)

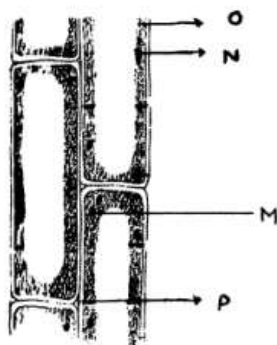
- Q. 7. (a) Voluntary muscles are also known as skeletal muscles. Justify.  
 (b) Give two structural characteristics of these voluntary muscles.

(Board Term I, 2012 Set-020)

- Ans. (a) Attached to limb bones and helps in their movement.  
 (b) (i) Presence of light and dark bands.  
 (ii) Multinucleated.  
 (iii) Cylindrical and un branched.

(any two) (1+1)

- Q. 8. Given diagram is showing longitudinal section of collenchyma tissue. Label the parts 'M', 'N', 'O' and 'P' in the given diagram.



Ans. M – Chloroplast, N – Nucleus, O – Cytoplasm, P – Intercellular space. (½ × 4)

- Q. 9. The epidermis in desert plants is covered by waxy coating. Name the substance which constitutes the coating. State three advantages of this coating.

(Board Term I, 2012 Set-031)

Ans. Cutin,

**Advantages :** waterproof quality. Protection against – Loss of water, mechanical injury, invasion by parasitic fungi. (any three) (½ × 4)

- Q. 10. Write the location and function of collenchyma tissue. (Board Term I, 2012 Set-033)

Ans. Collenchyma is located in leaf stalks below the epidermis.

It provides flexibility in plants and easy bending and mechanical support. (1+1)

- Q. 11. Write any two characteristic features of parenchyma tissue. (Board Term I, 2012 Set-034; 41)

Ans. It consists of relatively unspecialized cells with thin cell walls. They are usually loosely packed so that large spaces are present between the cells. (any two) (1+1)

- Q. 12. List two characteristics of cork. Name the chemical present in them and mention its role.

Ans. Cells of cork are dead and compactly arranged without intercellular spaces. They also have a chemical called suberin in their walls which make them impervious to gases and water. (1+1)

- Q. 14. List any two characteristic features of parenchyma tissue. (Board Term I, 2012 Set-041)

Ans. Characteristic features of Parenchyma tissue :

- (1) Have isodiametric cells.
- (2) The cells are arranged in such a way that they possess intercellular space.
- (3) They have thin cell walls. (any 2 features) (1+1)

- Q. 15. List any two functions of epithelial tissue in human body. (Board Term I, 2012 Set-042)

Ans. Functions of epithelial tissue in human body :

- (i) Covering of the organs.
- (ii) Regulates exchange of materials between the body and the external environment.
- (iii) Glands present in them help in various secretions. e.g. sweat, oil etc. (Any two) (1+1)



- Q. 16. Name the living component common to both the complex permanent tissues found in plants. What is its function ?** (Board Term I, 2012 Set-046)
- Ans.** Living component common to xylem and phloem tissues is parenchyma.  
Its function is to store food and help in sideways conduction of water in xylem and food in phloem. (1+1)
- Q. 17. Name the tissue that : (a) connects muscle to bone in humans, (b) forms inner lining of alveoli (c) stores fat in our body (d) transports water and minerals in plants.** (Board Term I, 2012 Set-069)
- Ans.** (a) Tendon, (b) Squamous epithelium, (c) Adipose tissue, (d) Xylem. ( $\frac{1}{2} \times 4$ )
- Q. 18. List four functions of blood.** (Board Term I, 2012 Set-048)
- Ans.** (i) It carries  $O_2$  and  $CO_2$  to various parts of the body and lungs.  
(ii) It transports food to various body parts.  
(iii) It transports hormones as well as metabolic wastes.  
(iv) It has a major role to play in the regulation of body temperature. ( $\frac{1}{2} \times 4$ )
- Q. 19. Write two locations of the following animal tissues : (1) Simple Squamous Epithelial cells. (2) Cuboidal Epithelium.** (Board Term I, 2012 Set-051)
- Ans.** (i) Oesophagus , lining of mouth.  
(ii) Lining of kidney tubules, ducts of salivary glands. (1+1)
- Q. 20. Name the tissue that makes husk of coconut. Write three characteristics of this tissue.** (Board Term I, 2012 Set-052)
- Ans.** Sclerenchymatous tissue.  
The cells are dead, long and narrow walls thickened due to lignin. (1+1)
- Q. 21. (a) Name the connective tissue which connects two bones. (b) Name the connective tissue present in external ear.** (Board Term I, 2012 Set-054)
- Ans.** (a) Ligament (b) Cartilage. (1+1)
- Q. 22. Mention one region in the human body where adipose tissue is present and state one function of the tissue.** (Board Term I, 2012 Set-056)
- Ans.** It is found below the skin. It acts as insulator. (1+1)
- Q. 23. List two points of differences between Parenchyma and Sclerenchyma.** (Board Term I, 2012 Set-058)
- Ans.** **Parenchyma tissue :** In this cells are living with thin cell walls and are usually loosely packed so that large intercellular spaces are found.  
**Sclerenchyma :** Cells are dead and cell wall is thickened due to lignin. It provides strength to plants. (1+1)
- Q. 24. Name the simple permanent tissue which :**  
(i) forms the basic packing tissue.  
(ii) provides flexibility in plants. (Board Term I, 2012 Set-060)
- Ans.** (i) Parenchyma, (ii) Collenchyma. (1+1)
- Q. 25. Mention four characteristic features of the cells of meristematic tissue.** (Board Term I, 2012 Set-061)
- Ans.** Cells of this tissue are : (i) very active. (ii) have dense cytoplasm.  
(iii) have thin cellulose walls and prominent nuclei. (iv) lack vacuoles. ( $\frac{1}{2} \times 4$ )
- Q. 26. What is apical meristem ? Where is it located ? State its functions.** (Board Term I, 2012 Set-067)
- Ans.** Apical meristem is a kind of meristematic tissue which is present at the growing tips of stems and roots. It increases the length of the stem and the root. These cells are responsible for linear growth of an organ. **Example** Root apical meristem and Shoot apical meristem. (1+ $\frac{1}{2}$ + $\frac{1}{2}$ )

Q. 27. Write two points of difference between collenchyma and sclerenchyma tissues.

(Board Term I, 2012 Set-071)

| Ans. | Collenchyma                                     | Sclerenchyma                     |
|------|---|----------------------------------|
| 1.   | Consists of living cells.                       | Consists of dead cells.          |
| 2.   | Contains cytoplasm.                             | Cytoplasm is absent.             |
| 3.   | The thickening of the cell wall is not uniform. | Cell wall thickening is uniform. |
|      |   | (any two) (1+1)                  |

Q. 28. How does the bone matrix differ from the matrix of cartilage ? (Board Term I, 2012 Set-072)

Ans. Bone matrix : Calcium and phosphorus.

Cartilage matrix : Sugar and proteins. (1+1)

Q. 29. Name the tissue which helps in transportation of oxygen that we inhale to various parts of our body. Write the composition of this tissue. (Board Term I, 2012 Set-078)

Ans. Blood.

Composition : (i) RBC red blood corpuscles,

(ii) WBC white blood corpuscles and

(iii) Platelets. (½+1½)

Q. 30. "Water hyacinth plant floats on water surface". Name the tissue and its type due to which it is possible and also explain the special feature of this tissue that helps in this.

(Board Term I, 2012 Set-073)

Ans. Aerenchyma, simple permanent tissue in aquatic plants, large air cavities are present to give buoyancy to the plants to help them float. (½ + ½ + 1)

Q. 31. Name the following tissues :

(a) The connective tissue found between the skin and muscles.

(b) The tissue which connects two bones.

(c) The epithelial tissue which forms the lining of the kidney tubules.

(d) The tissue which is present in the veins of leaves. (Board Term I, 2012 Set-075)

Ans. (a) Aerolar, (b) Ligament, (c) Cuboidal epithelium, (d) Sclerenchyma. (½ × 4)

Q. 32. Growth in plant is restricted to certain regions. Give reason for this fact. Mention two growth regions in plants. (Board Term I, 2012 Set-074)

Ans. The growth of plants occurs only in certain specific regions. This is because the dividing tissues also known as meristematic tissues are located only at these points.

Root tip, Shoot tip, Cambium, base of the leaves (either side of node) (any two) (0.5 × 4)

## Short Answer Type Questions-II

[3 marks each]

Q. 1. Identify the type of tissues in the following :

(a) Vascular bundle

(d) Iris of the eye

(b) Inner lining of the intestine

(e) Muscles of the heart

(c) Lining of kidney tubule

(f) Bronchi of lungs.

(Board Term I 2013, 7ZTHA8G)

Ans (a) Xylem and phloem tissues

(d) Unstriated muscular tissues

(b) Columnar epithelium

(e) Cardiac muscles

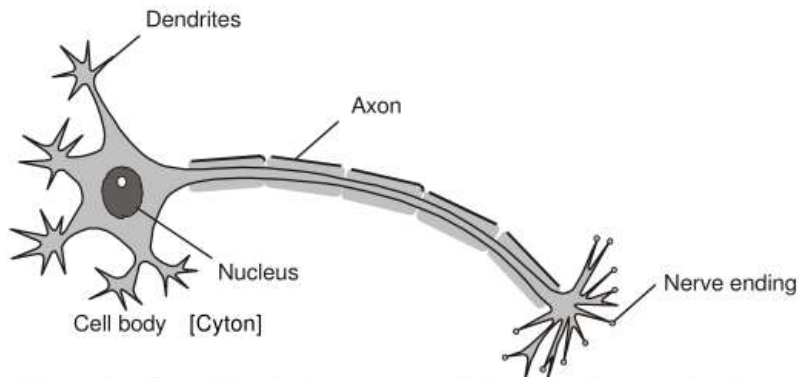
(c) Cuboidal epithelium

(f) Unstriated muscular tissues



- Q. 2. (a) Draw a labelled diagram of the basic unit of nervous tissue.  
 (b) State the role of epidermis in plants. (Board Term I 2013, 7ZTHA8G)

Ans. (a)



- (b) Epidermal cells of the plants are useful in protection against loss of water, mechanical injury or invasion by parasitic fungi. (2+1)

- Q. 3. (a) State the difference between tendon and ligament. (Board Term I 2013, OAHJD6N)  
 (b) Give the function of adipose tissues.

Ans. (a) Difference between tendon and ligament :

|    | Tendon                         | Ligament                 |           |
|----|--------------------------------|--------------------------|-----------|
| 1. | These join bone to muscles.    | These join bone to bone. |           |
| 2. | They have limited flexibility. | They have elasticity     |           |
| 3. | They have more strength.       | They have less strength. | (any two) |

- (b) Adipose tissue stores fat and provides insulation. (2+1)

Q. 4. (i) Name the following :

- (a) Tissues that connect muscles to bone.  
 (b) Tissues that stores fat in our body.  
 (c) Tissues that transports food in plants.  
 (d) Tissues that provides flexibility in plants.

(ii) List the role of cork in plants.

(Board Term I 2013, AGRO 94)

Ans. (i) (a) Tendon

(b) Adipose tissues

(c) Phloem

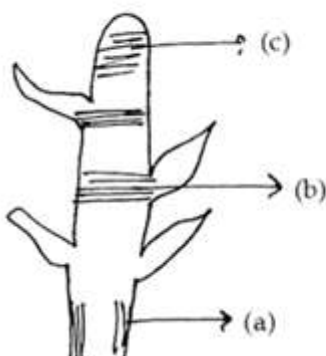
(d) Collenchyma

(ii) (a) It prevents loss of water by evaporation.

(b) It protects plant from the invasion of parasite and harmful micro-organisms. (2+1)

Q. 5. Label the following and give one function of each part labelled (a), (b) and (c).

(Board Term I, 2012 Set-015)



Ans. (a) **Lateral meristem** : for increase of growth of plant parts.

(b) **Intercalary meristem** : for formation of leaves, branches etc.

(c) **Apical meristem** : increase length of the stem and the root.

Q. 6. Identify the animal tissues from the given descriptions and also mention their location in the human body.

Tissue 'A' - cells are filled with fat globules and the tissue acts as an insulator.

Tissue 'B' - has cylindrical branched cells and the tissue shows rhythmic contraction and relaxation thought life. (Board Term I, 2012 Set-021)

Ans. Tissue 'A' : Adipose tissue, Present just below epithelium.

Tissue 'B' : Cardiac muscle, Present in heart. (1 + 1 + ½ + ½)

Q. 7. Write three distinguishing features between cells of meristematic and permanent plant tissues. (Board Term I, 2012 Set-021)

| Ans.  | Meristematic tissue                     | Permanent tissue                   |         |
|-------|---|------------------------------------|---------|
| (i)   | Cells possess dividing ability.         | Cells generally do not divide.     | (1 × 3) |
| (ii)  | Cells are living.                       | Cells can be living or dead.       |         |
| (iii) | Main function is to bring about growth. | Perform various type of functions. |         |

Q. 8. Mention three characteristic features and three functions of xylem.

Ans. Consist of tracheids, vessels, parenchyma and xylem fibres.

- (i) Transport of water and minerals vertically.
- (ii) Parenchyma stores food.      (iii) Fibres provide support.

Q. 9. Explain in brief any three roles of epidermis in plants.

- Ans. (i) The epidermis protects all the parts of the plants.
- (ii) Epidermal cells on the aerial part of the plant often secrete a waxy, water resistant layer which helps in protection against water loss and mechanical injury.
- (iii) Protect against invasion of parasitic fungi. (1× 3)

Q. 10. Name any three connective tissues. Give any one function of each.

(Board Term I, 2012 Set-042)

- Ans. (i) **Blood** : Transport of materials such as gases, waste, digested food etc.
- (ii) **Bone** : Supporting framework of the body.
- (iii) **Ligament** : Connects two bones together.
- (iv) **Tendon** : Connect bones to muscle. (any three) (1 × 3)

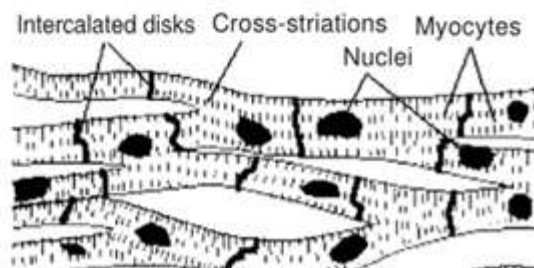
Q. 11. Explain how the bark of a tree is formed. How does it act as protective tissue?

Ans. As plants grow older, the outer protective tissue undergoes certain changes. A strip of secondary meristem replaces the epidermis of stem. Cells on the outside are cut off from this layer. This forms the several layer thick cork or bark.

They also have a chemical called suberin in their wall which makes them impervious to gases and water. (2+1)

Q. 12. Draw a diagram of cardiac muscle and label any two parts. Write one main function of cardiac muscle. (Board Term I, 2012 Set-070)

Ans.



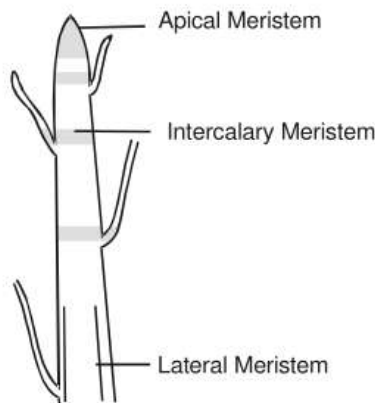
Function : Beating of heart.



Q. 13. Show on a diagram the meristematic tissues in plants on the basis of their location. Identify the one which is responsible for increase in the growth of the stem.

(Board Term I, 2012 Set-052)

Ans.



Lateral meristem is responsible for increase in the growth of the stem.

(2+1)

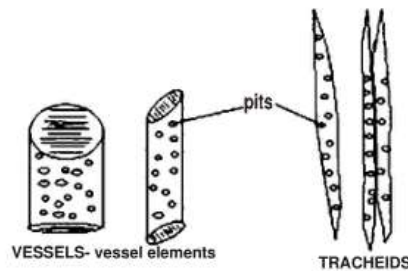
Q. 14. (a) State one point of difference between xylem and phloem.

(b) Draw a neat diagram of xylem vessel and a tracheid. (Board Term I, 2012 Set-016)

Ans. (a) Xylem conducts water in the plant body.

Phloem transports food in the plant body.

### COMPONENTS OF XYLEM



(1+1+1)

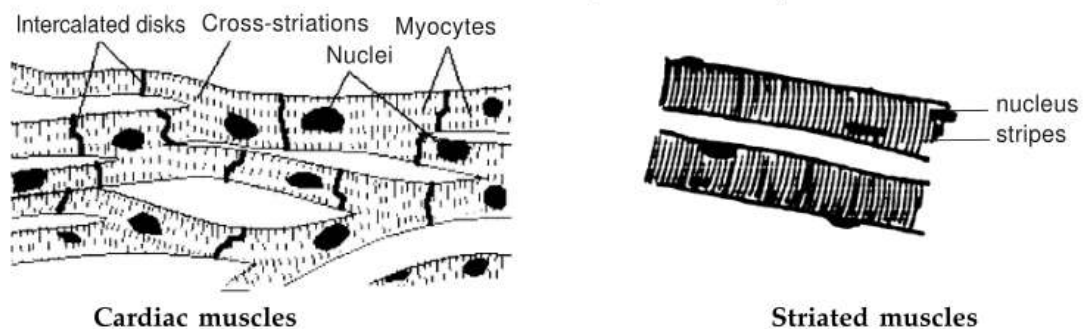
Q. 15. Write the difference between striated muscles, smooth muscles and cardiac muscles on the basis of their shape and number of nuclei. (Board Term I, 2012 Set-050)

| Basis of Difference | Striated muscle | Smooth muscle | Cardiac muscle |
|---------------------|-----------------|---------------|----------------|
| Shape               | Unbranched      | Spindle       | Branched       |
| No. of nuclei       | Multinucleate   | Uninucleate   | Uninucleate    |

(1½ + 1½)

Q. 16. Make a labeled diagram to highlight two differences between striated and cardiac muscles. Write one function of striated muscles in our body. (Board Term I, 2012 Set-040)

Ans.



Cardiac muscles

Striated muscles

**Function :** Striated muscles help in body movement. (1+1+1)

**Q. 17.** What are the small pores observed in the epidermis of the leaf called ? Write its two main functions. (Board Term I, 2012 Set-058)

**Ans.** Small pores are — Stomata.

**Function :** Exchange of gases and transpiration. (1+1+1)

**Q. 18.** Give reasons for the following :

- (a) Bark of a tree is impervious to gases and water.
- (b) In desert plants, epidermis has a thick waxy coating.
- (c) Epidermal cells of the roots generally have hair like parts. (Board Term I, 2012 Set-062)

**Ans.** (a) Cells of bark are dead and compactly arranged without intercellular spaces. They have a chemical called suberin in their walls that makes them impervious to gases and water.

(b) The thick waxy coating on epidermis is of cutin on its outer surface which is a chemical substance with water-proof quality. This helps in protection against loss of water and parasitic fungi.

(c) Function of epidermal cells in roots is water absorption. Hair like parts greatly increase the total absorptive surface area. (1+1+1)

**Q. 19.** Identify the simple permanent plant tissue with the following descriptions and also mention their location in the plant body :

- (a) Cells have irregular wall thickenings.
- (b) Tissues with large intercellular spaces and cells having large air cavity.
- (c) Cells are long narrow and dead in nature. (Board Term I, 2012 Set-020)

**Ans.** (a) Collenchyma, (b) Aerenchyma, (c) Sclerenchyma.

**Location :** **Collenchyma :** leaf stalks below the epidermis.

**Aerenchyma :** stem and leaves of aquatic plants.

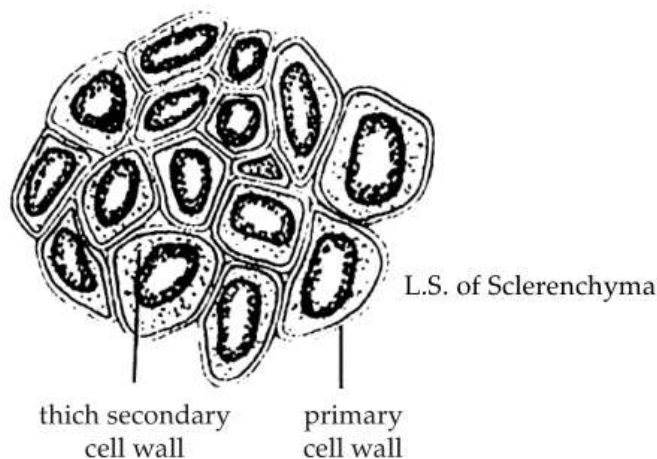
**Sclerenchyma :** hard part of the plant (seed coat, mid rib etc.). (1.5+1.5)

**Q. 20.** (i) Draw a labelled diagram of Longitudinal section of sclerenchyma.

(ii) Name any two regions in the plant, where this tissue is present.

(Board Term I, 2012 Set-046)

**Ans.** (i)



(ii) **Two regions :** Stems/ Around vascular bundles/ Veins of leaves/ Hard covering of seeds and nuts. (any two) (1+2)

**Q. 21.** Give reasons for the following :

- (a) Cells of sclerenchyma tissue have a narrow lumen.



(b) Branches of a tree move and bend freely in high wind velocity.

(c) It is difficult to pull out the husk of coconut. (Board Term I, 2012 Set-073)

Ans. (a) Sclerenchyma tissues have cell wall thickened due to lignin and hence narrow lumen.

(b) Branches of a tree have collenchymas which provide them flexibility.

(c) Husk of coconut is composed of sclerenchyma and these fibres are closely packed. (1 × 3)

Q. 22. (a) Uma started walking fast when she noticed that some unknown faces are following her. Name the two types of tissues which facilitated the movement of her leg bones in response to the stimulus.

(b) Draw the diagram of any one of the above mentioned two tissues and label any two parts. (Board Term I, 2012 Set-019)

Ans. (a) Nervous tissue, Muscular tissue (Striated muscle).

(b) Diagram of nervous tissue : See Q.4(SAQ 2 marks). (1 + 2)

Q. 23. Identify the type of muscular tissues having following characteristics :

(i) cylindrical, branched and uninucleated.

(ii) long with pointed ends and uninucleated.

(iii) long cylindrical, unbranched and multinucleated. (Board Term I, 2012 Set-064)

Ans. (i) Cardiac muscles

(ii) Smooth muscles or unstriated muscles

(iii) Striated muscles. (1 × 3)

Q. 24. Name the type of epithelial tissue that lines the following :

(i) Oesophagus,

(ii) Respiratory tract,

(iii) Kidney tubules,

(iv) Inner lining of intestine,

(v) Blood vessels,

(vi) Ducts of salivary glands.

(Board Term I, 2012 Set-045)

Ans. (i) Squamous epithelium,

(ii) Ciliated epithelium,

(iii) Cuboidal epithelium,

(iv) Columnar epithelium,

(v) Squamous epithelium,

(vi) Cuboidal epithelium. (½ × 6)

Q. 25. (a) Explain the process of differentiation.

(b) Identify the given tissue in the diagram given below. State any three characteristic features of the same. (Board Term I, 2012 Set-075)



Ans. (a) Meristematic tissues lose their ability to divide after performing their role. The process of taking up a permanent shape, size and a function is called differentiation.

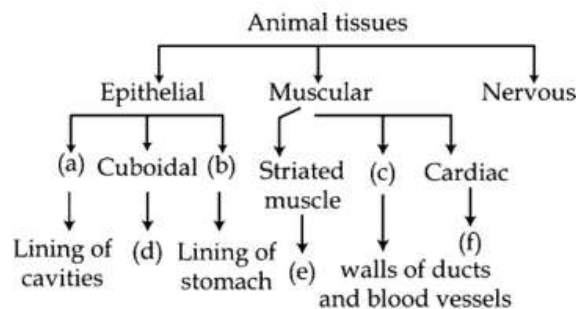
(b) L.S. of Parenchyma consists of relatively unspecialized cells, with thin walls, they are live cells, they are loosely packed, they have large intercellular spaces. **(any three)(1+½+½×3)**

**Q. 26. Name the type of tissue of blood and also the liquid matrix of the blood. Name the components present in it ? List any two functions of blood. (Board Term I, 2012 Set-033)**

**Ans. Connective tissue.**

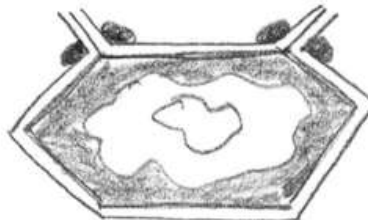
Blood has a liquid matrix called plasma. It contains proteins, salts, hormones. **(any two)**  
 Blood flows and transports gases, digested food, hormones, waste materials to different parts of body. **(1+1+1)**

**Q. 27. Complete the following flow chart : (Board Term I, 2012 Set-041)**



**Ans.** (a) Squamous, (b) Columnar,  
 (c) Unstriated, (d) Lining of kidney tubules,  
 (e) Limbs, (f) Heart. **(0.5 × 6)**

**Q. 28. (a) Observe and identify the following plant cell. (b) Explain two characteristic features of this cell. (c) Suggest one part of the plant where such cells are present. (Board Term I, 2012 Set-056)**



**Ans.** (a) Collenchyma,  
 (b) Flexibility and mechanical support,  
 (c) leaf stalks, below epidermis. **(1+1+1)**