CBSE Class 9 Science

Important Questions

Chapter 6

Tissues

1 Marks Questions

1. Where is apical meristem found?

Ans. The apical meristem is found at the apex (growing tips) of the stem and roots.

2. Which tissue makes up the husk of coconut?

Ans. Sclerenchymatous tissue.

3. What are the constituents of phloem?

Ans. The constituents of phloem are: sieve tubes, companion cells, phloem parenchyma, phloem fibres(bast).

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

Ans. Muscle/muscular tissue.

5. Vertical growth in plants takes place by –

(a) Latral meristem

(b) apical meristem

(c) Intercalary meristem

(d) none of the above

Ans. (b) apical meristem

6. Which of these components of blood fight infection?

(a) RBC

(b) WBC

(c) Platelets

(d) serum

Ans. (b) WBC

7. In desert plants, rate of water loss gets reduced due to presence of :

(a) cuticle

(b) stomata

(c) lignin

(d) suberin

Ans. (a) cuticle

8. Cartilage is not found in –

(a) nose

(b) ear

(c) kidney

(d) larynx

Ans. (c) kidney

9. Which of these types of cells is most likely to divide?

(a) Epidernins

(b) Parenchyma

(c) Meristem

(d) Xylem

Ans. (c) Meristem

10. Companion cells are associated with –

(a) Sieve tubes

(b) Sclerenchyma

(c) Vessels

(d) Parenchyma

Ans. (a) Sieve tubes

11. Which tissue has chloroplast in cells?

(a) Parenchyma

(b) Chlorenchyma

(c) Sclernehyma

(d) Aerenchyma

Ans. (b) Chlorenchyma

12. Intestine absorbs due digested food materials. What type of epithelial are responsible for that?

(a) Stratified squamous epithelium

(b) columnar epithelium

(c) pseudostratified epithelium

(d) Cuboidal epithelium

Ans. (b) columnar epithelium

13. The meristmatic tissue is found

(a) In flowers

(b) At the tip of the leaves

(c) Below the epidermis of stem

(d) At root tip

Ans. (d) At root tip

14. Movement of passage of food in the intestine is caused by the contraction of

(a) cardiac muscles

(b) unstriated muscles

(c) striated muscles

(d) Nerve tissue

Ans. (b) unstriated muscles

15. A long tubular outgrowth of a nerve cell which conducts impulses away from the cell body is termed as :-

(a) cyton

(b) axon

(c) Neuron

(d) dendrite

Ans. (d) dendrite

16. You have been provided with narrow thick – walled living cells, elongated in shape and possessing thickening of cellulose and pectin these cells belong to:

(a) Parenchyma

(b) collenchyma

(c) sclerenchyma

(d) none of the above

Ans. (b) collenchyma

17. Which one of the following is the correct definition of the tissues?

(a) Group of dissimilar cells which perform similar function

(b) Group of similar cells which perform similar functions.

(c) group of similar cells which perform specific functions

(d) Group of dissimilar cells which perform different functions.

Ans. (a) Group of dissimilar cells which perform similar function

18. A long tree has several branches. The tissue that helps in the side ways conduction of water in the branches is:

(a) collenchyma

(b) xylem parenchyma

(c) parenchyma

(d) xylem vessels

Ans. (d) xylem vessels

19. White blood corpuscles:

(a) help in blood clotting

(b) help in transport of oxygen

(c) are enucleated

(d) protect the body from diseases

Ans. (d) protect the body from diseases

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

(a) tendon break

(b) break of skeletal muscles

(b) ligament break

(d) Areolar tissue break

Ans. (b) ligament break

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2 Marks Questions

1. What is a tissue?

Ans. It is a group of cells similar in origin and structure and they are specialized to perform a particular function like muscle cells in our body form the muscle tissue that bring about body movements(specific function).

2. What are the constituents of phloem?

Ans. The constituents of phloem are: sieve tubes, companion cells, phloem parenchyma, phloem fibres (bast).

3. Name types of simple tissues.

Ans. The simple tissues (found in plants) are of following three types:

i) parenchyma

ii) collenchymas

iii) Sclerenchyma

4.What does a neuron look like?

Ans. A neuron comprises of a cell body (cyton) along with one or more short branches(Dendron) and one hair like long branch (axon).

5. Define the term "tissue".

Ans. It is a group of cells similar in origin and structure and they are specialized to perform a

particular function like muscle cells in our body form the muscle tissue that bring about body movements (specific function).

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

Ans. Xylem tissue is made up of following 4 types of elements:

i) Tracheids

ii) vessels

iii) fibres

iv) parenchyma

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

Ans.

Simple tissue	Complex tissue
i) It is made up of only one type of cells. ii) All cells of this tissue work as individual units to perform a particular function. Eg. parenchyma, collenchyma and scelerenchyma tissues.	i) It is made up of more than one type of cells. ii) Cells of this tissue work together as one single unit to bring about a particular function. Eg. xylem and phloem tissues.

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

Ans.

Parenchyma	Collenchyma	Sclerenchyma
Cell wall is thin and made up of cellulose.	Cell wall is irregularly thickened at corners due to deposition of pectin.	Cell wall is very thick due to deposition of impermeable substance lignin.

9. What are the functions of the stomata?

Ans. The functions of stomata are:

i) gaseous exchange like exchange of $CO_2 and\ O_2$.

ii) Process of transpiration i.e. loss of excess water in the form of water vapour occurs through stomata.

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

Ans. Cardiac muscles are the muscles of heart that pumps blood to all parts of body and the pumping needs rhythmic contraction and relaxation of cardiac muscles throughout the life without any fatigue.

11. Name the following.

(a) Tissue that forms the inner lining of our mouth.

(b) Tissue that connects muscle to bone in humans.

(c) Tissue that transports food in plants.

(d) Tissue that stores fat in our body.

(e) Connective tissue with a fluid matrix.

(f) Tissue present in the brain.

Ans. (a) epithelial tissue

(b) tendons

(c) phloem

(d) adipose tissue

(e) blood

(f) nerve tissue

12. Identify the type of tissue in the following: skin, bark of tree, bone, lining of kidney tubule, vascular bundle.

Ans.

Skin	Epithelial tissue
Bark of tree	Sclerenchymatous tissue
Bone	Connective tissue
Lining of kidney tubule	Cuboidal epithelial tissue
Vascular bundle	Complex permanent tissue

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

Ans. Parenchymatous tissue is present in the epidermis, cortex, pith of the stem, root, leaves, flowers and fruits of plants.

14. What is the role of epidermis in plants?

Ans. It is a protective layer to the plant parts. It can also absorb water from soil like in the roots and even allow exchange of gases through stomata.

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

Ans. In plants the secondary meristem cuts off many external layers of cells that are dead

and arranged in a compact manner. Such layers together make cork. They have deposition of suberin which is very hard and impermeable hence protects plants from unfavorable conditions and microbial attack etc.

16. What are meristmatic and permanent tissue?

Ans. Meristmatic tissue – It consist of small, thin walked, continuously dividing cells. The cells contain a prominent nucleus and dense cytoplasm.

Permanent tissue – It consist of cells, may be thin or thick walled, undergone differentiation and assumed definite shape, size and function. Cells have very less cytoplasm, nucleus is present on the periphery with a big central vacuole.

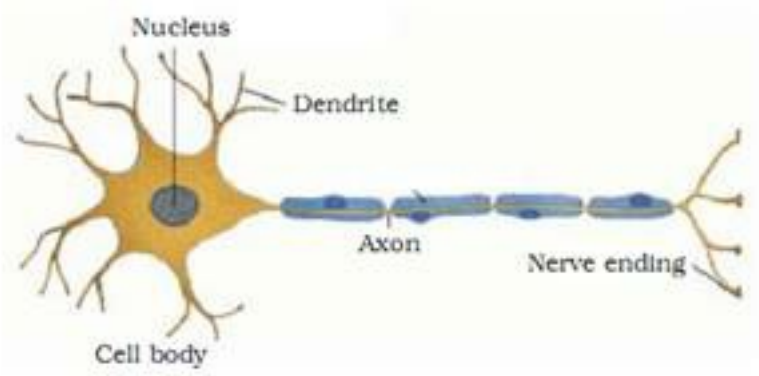
17. What are the function of Tendon and ligament?

Ans. Ligaments – They connect one bone to another bone. They are strong, elastic, consisting of yellow fibers.

Tendon – They connect muscle to bone. They are tough, non – elastic, consisting of white fibres.

18. Draw a well labeled diagram of neuron

Ans. Structure of Neuron



19. Differentiate the following activities on the basis of voluntary or involuntary

(a) Jumping of frog

(b) Pumping of the heart

(c) writing with hand

(d) Moving of chocolate in stomach

Ans. (a) Voluntary

(b) Involuntary

(c) Voluntary

(d) Involuntary

20. Name the following –

(a) Tissue that stores fats in our body.

(b) Tissue present in the brain

(c) Connective tissue with fluid matrix.

(d) Tissue that connects muscles to bones in humans.

Ans. a) Adipose tissue

b) Nervous tissue

c) Blood

d) Tendons

21. Write difference between cartilage and bone.

Ans.

Cartilage	Bone
1. It is soft and flexible	It is hard and inflexible
2. It is non – porous	It is porous
3. Blood vessels are absent	Blood vessels are present
4. Matrix is made up of protein	Matrix is made up of salts of calcium and magnesium

22. Which components of xylem are living and which ones are dead?

Ans. Xylem is composed of four elements –

(a) Tracheids – Non – living

(b) Vessels – Non – living

(c) Xylem parenchyma – living

(d) Xylem fibres – Non – living

23. Define due process of differentiation.

Ans. In a multicellular organism, cells become specialized to perform different function. These function are taken up by different group of cells According to function of these cells become morphologically different. This phenomenon is known as differentiation.

24. Define tissue. What is the utility of tissue in multicellular organisms.

Ans. Tissue – Group of similar cells performing similar function are called tissue. In living organisms cells are grouped together to perform specific functions.

25. Mention characteristics of permanent tissues.

Ans. Characteristics of permanent tissue –

1. Cells are large, thin or thick walled.

2. Cytoplasm is present as a layer along the cells wall.

3. Nucleus is relatively small in size, large central vacuole is present.

4. lack the power of cell division

26. Mention the functions of nervous tissue.

Ans. Function of nervous tissue –

a) They conduct nerve impulse from one part of the body to other.

b) They also receive stimuli from the outside environment and send the message to the brain and spinal cord

27. Animals of colder regions and fisher of cold water have thick layer of subcutaneous fat. Explain, why?

Ans. Thick layer of subcutaneous fat act as insulator. It prevents body heat t release in surrounding. Hence, keep their body warms.

28. Name the two main types of plant tissues.

Ans. Plant tissues are mainly divided into two types

a) Meristmatic tissue – It consist of undifferentiated actively dividing cells

b) Permanent tissue – It consist of differentiated cells which have lost the ability to divide

29. Water hyacinth floats on water surface. Explain.

Ans. Water hyacinth floats on the surface of water due to presence of aerenchyma. It is modified form of parenchyma, which contain air cavities. It provides buoyancy which helps water hyacinth in floating.

30. Name the two types of vascular tissues.

Ans. Types of vascular tissues are –

a) Xylem – It conduct water and minerals from roots to the parts of the plant

b) Phloem – It conduct food from leaves to all parts of plant

31. How many types of element are present in the phloem?

Ans. Phloem composed of four elements –

a) Sieve tube – Helps in conduction of food material

b) Companion cells – It helps sieve tube in conduction of food material

c) Phloem parenchyma – storage

d) Phloem fibres – It provide mechanical support.

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3 Marks Questions

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

Ans. There is a clear cut division of labour in multicellular organisms i.e. different parts of the body of a multicellular organism perform specific functions. For example, brain controls all other parts of body, heart pumps blood to all parts of body, kidneys remove waste materials from body, sense organs collect information from external sources for sensory perception etc. All these functions would never be possible without formation of tissues in multicellular organisms.

2. Give three features of cardiac muscles.

Ans. i. Cardiac muscles are involuntary i.e. they don't work under our will.
ii. Its cells are cylindrical, branched, striated and uninucleate.
iii. It shows rhythmic contraction and relaxation throughout the person's life.

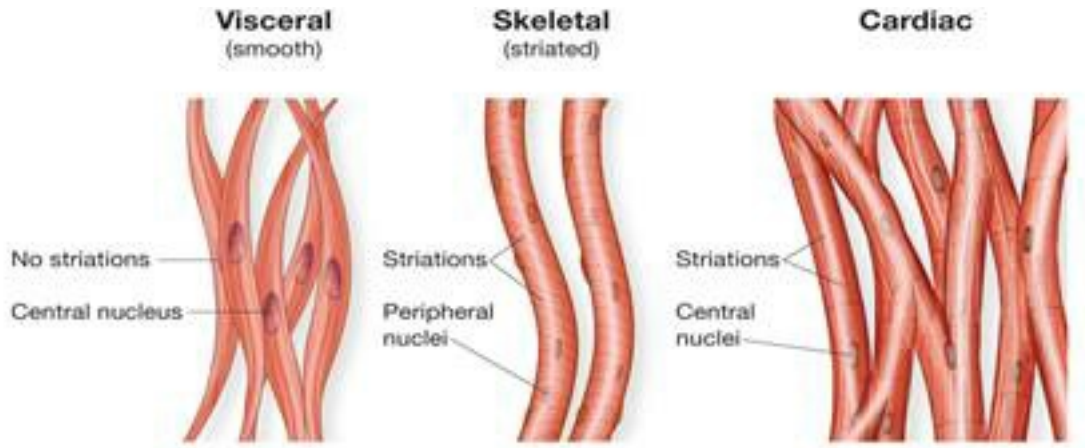
3. What are the functions of areolar tissue?

Ans. Areolar tissue is a kind of filler tissue found between skin and muscles, around our blood vessels and nerve cells and also in the bone marrow. Its functions are therefore

i) To fill the space inside organs.
ii) To help in repair and maintenance of nearby tissues/organs.
iii) To support and prevent injuries to internal organs.

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

Ans.



Contracts	Slowly	Rapidly	Rapidly
Found	Viscera, blood vessels	Trunk, extremities, head and neck	Heart
Control	Involuntary	Voluntary	Involuntary

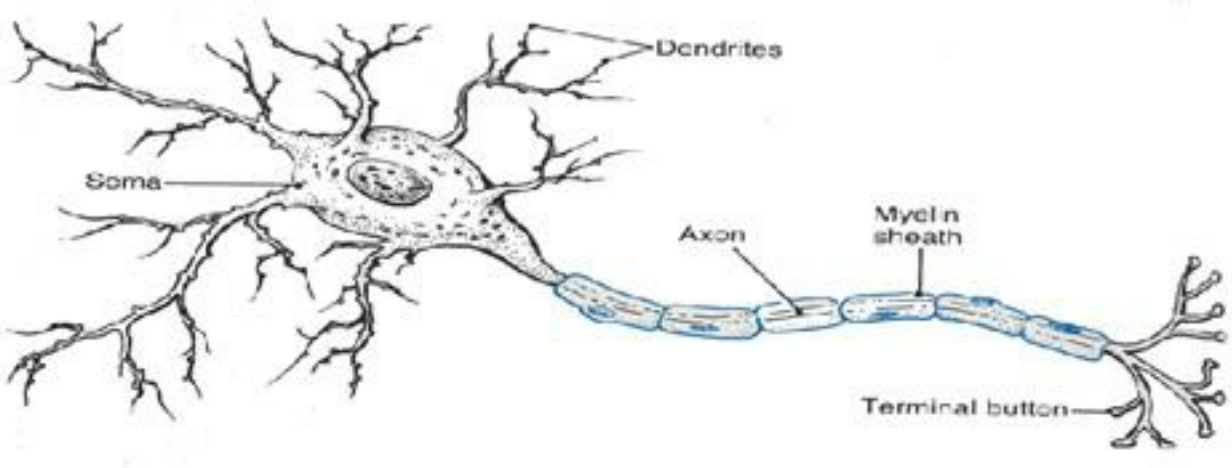
5. Differentiate between striated, untreated and cardiac muscles on the basis of their structure and site/location in the body.

Ans.

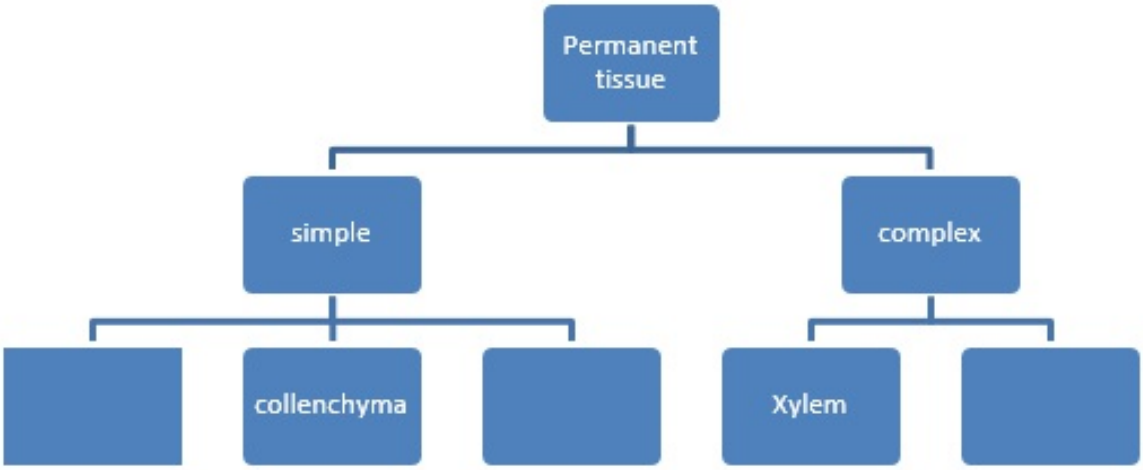
Striated muscle	Untreated muscle	Cardiac muscle
They show light and dark bands (striations) when we stain them. Their cells are elongated and cylindrical also unbranched. Cells are multinucleate.	They don't show any striations on staining. Their cells are long but spindle shaped and unbranched. Cells are uninucleate.	They show striations on staining. Their cells re cylindrical and branched. Cells are uninucleate.
They are responsible to bring about voluntary movements (like tongue, limbs etc)	They are involuntary in action (walls of tubular organs, blood vessels etc)	They are again involuntary in their function (contraction and relaxation of heart)

6. Draw a labelled diagram of a neuron?

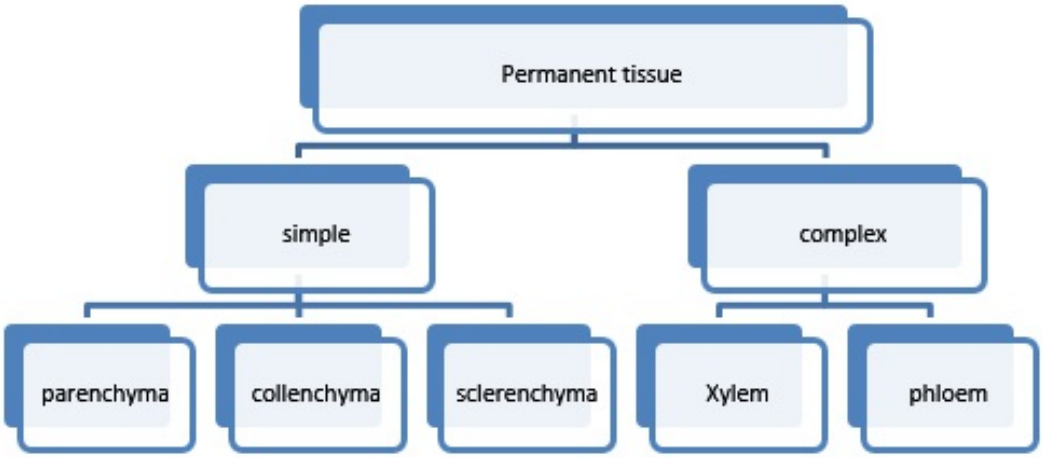
Ans.



7. Complete the table:



Ans.



8. How many types of tissues are found in animals? Name the different types.

Ans. In animal four types of tissues are found –

(a) Epithelium or Epithelial tissue (covering tissue) – It forms outer protective covering all over the body.
(b) Connective tissue – (supporting tissue) – It binds cells of other tissues in the body and give them rigidity and support.
(c) Muscular tissue (contractile tissue) –It helps is movement of the body by contraction and relaxation.
(d) Nervous tissue – It receiver stimulates and transmit messages

9. Differentiate between voluntary and involuntary muscles. Give one example of each

Ans.

Voluntary Muscles	Involuntary Muscles
These muscles are attached to bones	These muscles are attached to visceral organs
They work on our will	They do not work on our will
They are multinucleate and show striation. Hence called striated muscles	They are uninucleate. Also called smooth muscles

10. What are the major functions of blood?

Ans. Functions of blood are –

(a) Transport food materials
(b) Transports oxygen and carbon – dioxide
(c) Transports excretory products to the kidneys, from where they are eliminated
(d) Regulates temperature by distributing heat within the body
(e) WBC'S protect due body from disease and helps in wound healing
(f) Platelets help in blood clotting

11. Write about the functions of –

(a) Epidermis
(b) cork
(c) stomata.

Ans. Epidermis – its main function is protection. It forms waterproof coating, which reduces loss of water.

Stomata – These are the small opening which helps in exchange of gases $(CO_2 \& \ O_2)$

Cork – It is protective in function. It prevents desiccation, by preventing loss of water from the plant body. It prevents infection and mechanical injury

12. Differentiate between parenchyma and collenchyma.

Ans.

Parenchyma	Collenchyma
1. Cells are thin walled	Cells are thick walled thickening at corners
2. Intercellular spaces may or may not be present.	Intercellular spaces absent
3. Cells are isodiametric	Cells may me oval, circular or polygonal

13. Mention the characteristics features of connective tissue

Ans. Characteristics of connective tissue.

a) The cells are living and are embedded in a non – living intercellular matrix

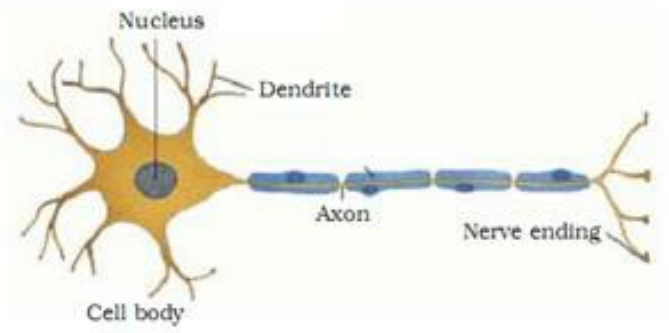
b) It is composed of cells and numerous, thick structures called fibres.

c) It binds the cells of other tissue in due body.

d) It gives rigidity and support.

14. Diagrammatically show the difference between the three types of muscels fibres

Ans.



15. How does cardiac muscle differ from both voluntary and involuntary muscles in both structure and function?

Ans. 1) Cardiac Muscles are involuntary
2) They are composed of branching network of fibres.
3) The fibres have centrally located one or two nuclei
4) Intercalated discs are present at intervals in the fibres.
5) They function throughout the life

16. Write differences between blood and lymph.

Ans.

Blood	Lymph.
It is coloured fluid	It is colourless
It consists of RBC, WBC, Platelets and Plasma.	It mainly consists of plasma & WBC. RBC and Platelets are absent
It is present in heart, arteries and veins	It is a fluid that surrounds the body cells.

17. Give reasons for –

(a) intercellular spaces are absent in scleranchymatons tissues.
(b) Meristematic cells have a prominent muscles and dense cytoplaom but they lack muscles
(c) We get crunchy and granular feeling, when we chew pear fruit.

Ans. a) Sclerenchyma has thick lignified walls. Hence, intercellular spaces are absent.
b) Meristematic cells have continuously dividing cells. Cells of meristem are not differentiated. It continuously divides and form new cells which increase length and girth of the plant body.
c) due to presence of stone cells or grit cells, known as sclereids

18. Why is epidermis important for the plants?

Ans. Outer protective covering of plants is called epidermis.

a) It is covered with a waterproof coating or layer called cuticle which reduces loss of water.

b) It also consist of small pores called stomata which helps in the exchange of gases

19. Describe different types of meristems.

Ans. Based on their location in the plant body, meristems are of three types.

a) Apical meristems – Occurs at the tips of roots and shoots and brings about an increase in length of the plant

b) Lateral meristems – It occurs on the sides almost parallel to the long axis of the root, stem and its branches. Brings about an increase in the width or girth of the organs.

c) Intercalary meristems – It occurs at the base of the internodes in monocots. It brings about increase in the length of the internode.

20. If you are provided with three slides, each containing one types muscles fibres, how will you identify them.

Ans. a) Striated muscles or voluntary muscles show light and dark bands under microscope

b) unstriated muscles or involuntary muscles show no light or dark bands, multinucleate.

c) Cardiac muscles fibres show light light and dark bands, fibres are interconnected with one or two nuclei

21. If a potted plant is covered with a glass jar, water vapours appear on the wall of glass jar. Explain why?

Ans. Plant always loose water from the surface of leaves. This process is known as transpiration. Water reaches leaves by xylem vessels, where evaporation takes place by stomata.

22. Identify the following tissue and mention their function.

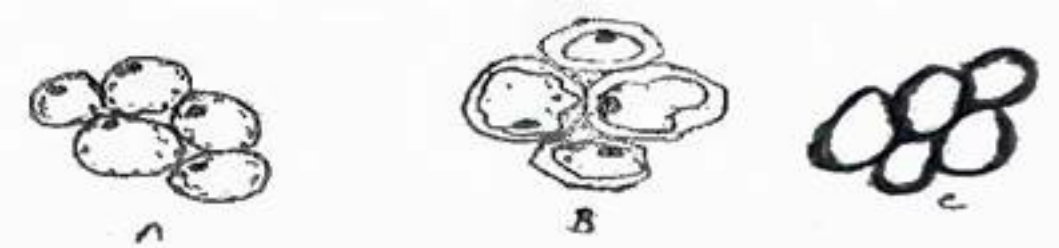
Ans. a) Parenchyma – Food storage, they have ability to divide hence, play a role in wound

healing, regeneration and grafting

b) Collenchyma – It provides mechanical strength and elasticity

c) Sclerenchyma – It is mechanical & protective tissue.

23. Differentiate between meristmatic and permanent tissue.



Ans.

Meristematic tissue	Permanent tissue
1. cells are small	Cells are large
2. cells are thin walled	Cells are thin or thick walled
3. cells are rich in cytoplasm	Cytoplasm is present as a layer along the cell wall
4. Intercellular spaces are absent	Intercellular spaces often present
5. Power of cell division is present	Lack the power of cell division
6. Always living	May be living or dead