Important Questions for Class 9

Science

Chapter 6 - Tissues

Very Short Answer Questions **1 Mark**

1. Where is apical meristem found?
Ans: The apical meristem is found in the growing tips of stems and roots in plants.

2. Which tissue makes up the husk of coconut?
Ans: Sclerenchyma 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) Lateral 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) Epidermis
(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) Sclerenchyma
(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 meristematic 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 sideways 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
(c) ligament break
(d) Areolar tissue breaks
Ans: (b) ligament break

Short Answer Questions **2 Marks**

1. What is a tissue?
Ans: It is a group of cells similar in origin and arrangement, they are specialized to perform a particular function. Tissue the cluster of cells in a manner to give the highest of possible efficiency of the required function. Examples of tissues are blood, phloem and muscle .

2. What are the constituents of phloem?
Ans: The five constituents of phloem are sieve cells, sieve tubes, companion cells, phloem parenchyma and phloem fibres

3. Name types of simple tissues.
Ans: Three types simple tissues are:
i) Parenchyma
ii) Collenchyma
iii) Sclerenchyma

4. What does a neuron look like?
Ans: A neuron comprises a cell body from which long thin hair-like parts(arise). Then the neuron has a single long part(axon) and many short, branched parts(dendrites).

5. How many types of elements together make up the xylem tissue? Name them.
Ans: Xylem tissue consist of four types of elements:
i) Tracheids
ii) vessels
iii) Xylem fibres
iv) Xylem parenchyma

6. How are simple tissues different from complex tissues in plants?
Ans: Difference between simple tissues and complex tissues in plants is given below.

Simple tissues	Complex tissues
Consist of only one type of cells	Consist of more than one type of cells.
To perform a particular function all cells of simple tissue work as individual units.	To perform a particular function cell of complex tissue, work as a single unit.

7. Differentiate between parenchyma, collenchyma and sclerenchyma on the basis of their cell wall.
Ans: Difference between parenchyma, collenchyma and sclerenchyma on the basis of their cell wall is given below

Parenchyma	Collenchyma	Sclerenchyma
Thin cell walls and are made up of cellulose	Cell walls are thick at corners and made up of cellulose	Cell wall is very thick and made up of lignin

8. What are the functions of the stomata?
Ans: The functions of stomata are:
i) gaseous exchange with the atmosphere.
ii) Transpiration (formation of water vapours for the removal of excess water)

9. 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 it shows rhythmic contraction and relaxation throughout life without any fatigue. The cells of heart muscles are branched, cylindrical and uninucleate.

10. Name the following.
(a) Tissue that forms the inner lining of our mouth.
Ans: Epithelial tissue

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

(c) Tissue that transports food in plants.
Ans: Phloem

(d) Tissue that stores fat in our body.

Ans: Adipose tissue

(e) Connective tissue with a fluid matrix.
Ans: Blood

(f) Tissue presents in the brain.
Ans: Nerve tissue

11. Identify the type of tissue in the following: skin, bark of tree, bone, lining of kidney tubule, vascular bundle.
Ans: The type of tissues of the given is listed below.

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

12. Name the regions in which parenchyma tissue is present.
Ans: Parenchymatous tissue is present in the soft plant parts including leaf mesophyll, young stem, root, leaves, vascular bundles, flowers and fruits of plants.

13. What is the role of epidermis in plants?
Ans: Epidermis is a protective layer to all the plant parts. It will provide protection against water loss, Control the process of gas exchange, Epidermis secretes a waxy, water-resistant layer.

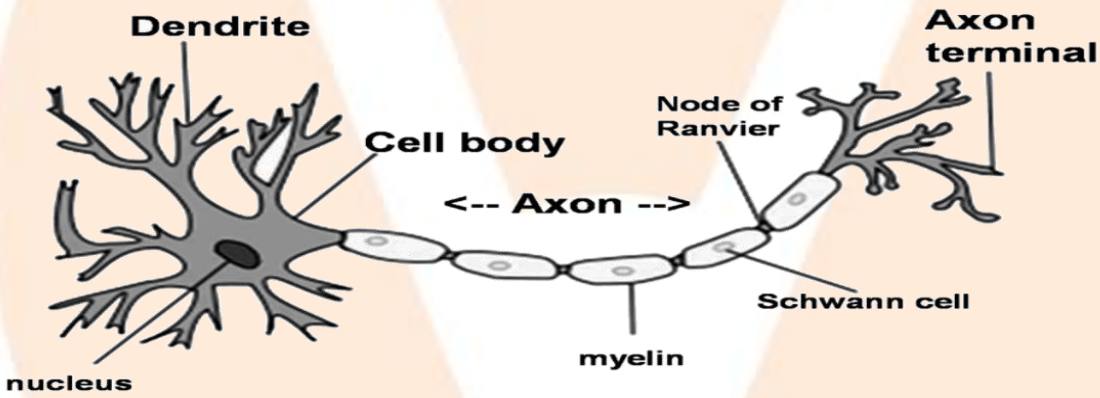
14. How does the cork act as a protective tissue?
Ans: In the plant a strip of secondary meristem located in the cortex forms layers of cells that are dead and arranged in a compact manner without intercellular spaces which is cork. They have deposition of suberin in their walls which is very hard and impermeable hence protects plants from unfavorable conditions and microbial attack etc.

15. What are meristematic and permanent tissue?
Ans: Meristematic tissue: dividing tissue is the reason for growth of plants occurs

only in specific regions this is also known as meristematic tissue. Apical, lateral and intercalary are the classification of the meristematic tissues.
Permanent tissue: The cells formed by meristematic tissue later lose the ability to divide as a result permanent tissue is formed. The process of taking up a permanent shape, size, and a function is called differentiation; this also leads to the development of permanent tissues.

16. What is the function of Tendon and ligament?
Ans: Ligaments: They connect one bone to another bone and another type of connective tissue. They are strong, elastic, consisting of yellow fibers.
Tendon: They connect muscle to bone and another type of connective tissue. They are tough, non – elastic, consisting of white fibres.

17. Draw a well labeled diagram of neuron
Ans:



18. Differentiate the following activities on the basis of voluntary or involuntary
(a) Jumping of frog
Ans: Voluntary

(b) Pumping of the heart
Ans: Involuntary

(c) writing with hand
Ans: Voluntary

(d) Moving of chocolate in stomach
Ans: Involuntary

19. Name the following:
(a) Tissue that stores fats in our body.

Ans: Adipose tissue

(b) Tissue presents in the brain
Ans: Nervous tissue

(c) Connective tissue with fluid matrix.
Ans: Blood

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

20. Write the difference between cartilage and bone.
Ans: Difference between cartilage and bone is listed below.

Cartilage	Bone
Soft and flexible	Hard and inflexible
Non – porous	Porous
No blood vessels	Blood vessels are present
Matrix is made up of protein	Matrix is made up of Salt of calcium and magnesium

21. Which components of xylem are living and which ones are dead?
Ans: Xylem is composed of four elements:
- Tracheid: Dead
- Vessels: Dead
- Xylem parenchyma: Living
- Xylem fibres: Dead

22. Define due process of differentiation.
Ans: Dividing tissue is the reason for growth of plants occurs only in specific regions this is also known as meristematic tissue. The cells formed by meristematic tissue later lose the ability to divide as a result permanent tissue is formed. The process of taking up a permanent shape, size, and a function is called differentiation.

23. Define tissue. What is the utility of tissue in multicellular organisms?
Ans: Group of similar cells performing similar functions are called tissue. Millions of cells will be there in multicellular organisms. Specific functions are carried out by different groups of cells.

24. Mention characteristics of permanent tissues.
Ans: Characteristics of permanent tissues are,

- Cells are large, comparatively thick walls and well developed .
- Cytoplasm is present as a layer along the cell wall.
- Bigger nucleus , vacuole is present in the cell
- There is lack of the power for the cell division in permanent tissue

25. Mention the functions of nervous tissue.

Ans: Function of nervous tissues are:

- They conduct nerve impulses from one part of the body to another part.
- The nervous tissues in the body are specialised for being stimulated and then pass on the stimulus very quickly from one place to another.

26. Animals of colder regions and fishes of cold water have thick layers of subcutaneous fat. Explain, why?

Ans: Thick layer of subcutaneous fat acts as an insulator. It retains heat in animals of colder regions and fishes of cold-water and thus maintains the body temperature. The heat loss will be less when the layer of subcutaneous fat is thicker.

27. Name the two main types of plant tissues.

Ans: Plant tissues are mainly divided into two types they are:

- Meristematic tissue
- Permanent tissue

28. Water hyacinth floats on the water surface. Explain.

Ans: Water hyacinth floats on the surface of water due to presence of aerenchyma. It is a special form of parenchyma, which contains air cavities. It provides buoyancy because of the air trapped inside which helps water hyacinth in floating because of the air trapped inside.

29. Name the two types of vascular tissues.

Ans: Types of vascular tissues are

- Xylem: It conduct water and minerals from roots to the parts of the plant
- Phloem: It conduct food from leaves to all parts of plant

30. How many types of elements are present in the phloem?

Ans: There are four types of elements are present in the phloem they are:

- Sieve tube: Helps in conduction of food material
- Companion cells: It helps sieve tube in conduction of food material
- Phloem parenchyma: storage
- Phloem fibres: It provides mechanical support.

Short Answer Questions **3 Marks**

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

Ans: Millions of cells will be there in multicellular organisms. Specific functions are carried out by different groups of cells. 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, the brain controls all other parts of the body, the heart pumps blood to all parts of the body, kidneys remove waste materials from the body, sense organs collect information from external sources and transfer to the brain 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. Cells of cardiac muscles are cylindrical, branched, striated and uninucleate.
iii. It shows rhythmic contraction and relaxation.

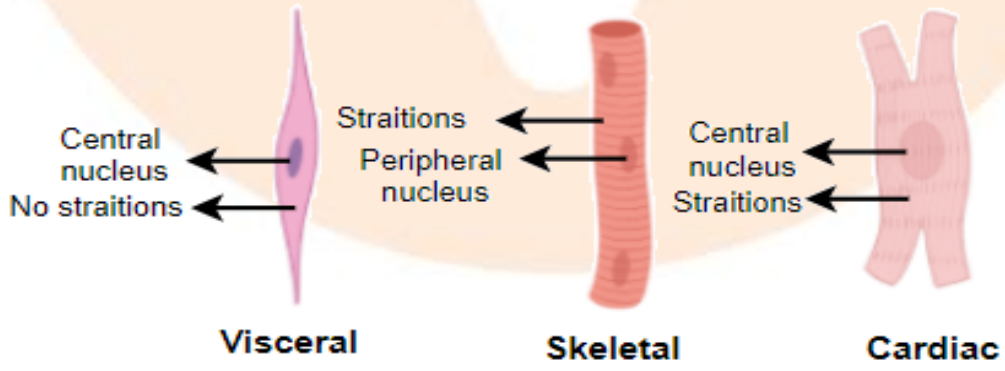
3. What are the functions of areolar tissue?

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

i) To fill the space inside organs.
ii) To support internal organs.
iii) To help in repair tissues

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

Ans:



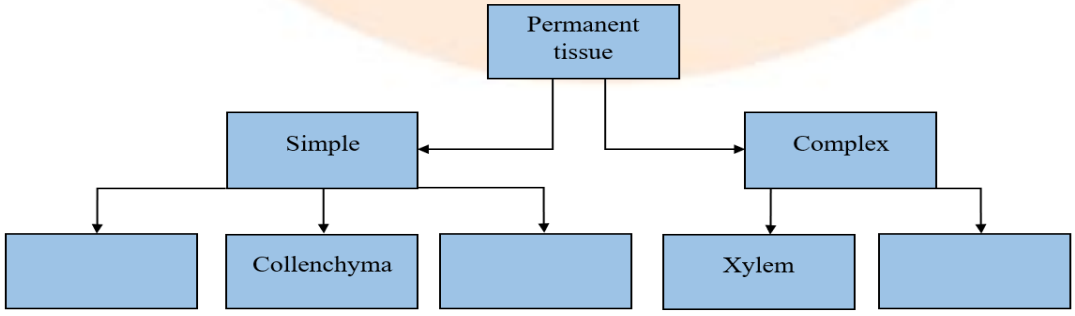
Muscle fibres	Visceral	Skeletal	Cardiac
Contracts	Slowly	Rapidly	Rapidly
Found	Viscera, Blood vessels	Trunk, Extremities, Head and neck	Heart
Control	Involuntary	Voluntary	Involuntary

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

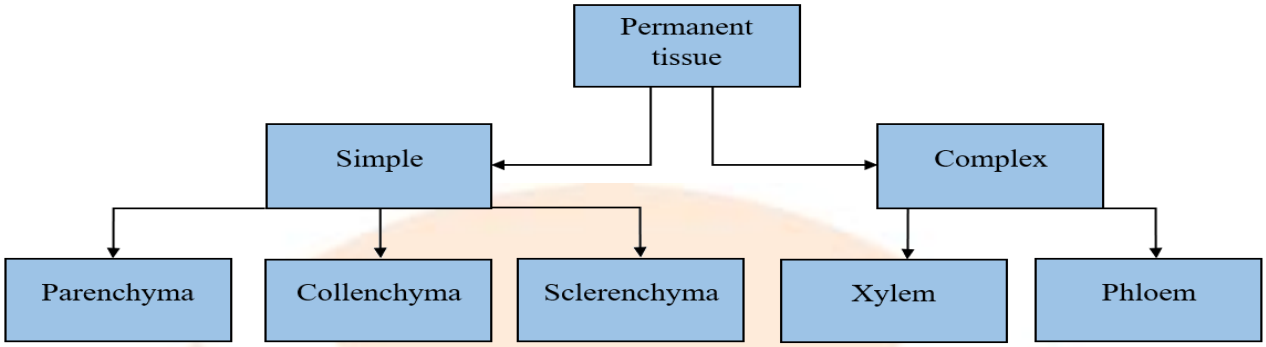
Ans: Difference between striated, untreated and cardiac muscles on the basis of their structure and site/location in the body is given below

Striated muscles	Untreated muscles	Cardiac muscles
Shows light and dark bands (striations) on staining	No striations on staining	Shows striations on staining
Cells of striated muscles are elongated, cylindrical and unbranched	Cells of untreated muscles are long but spindle shaped and unbranched	Cells of cardiac muscles are re cylindrical and branched
Cells are multinucleate	Cells are uninucleate	Cells are uninucleate
They are responsible for voluntary movements (tongue, limbs etc.)	They are involuntary in action(walls of tubular organs, blood vessels etc.)	They are involuntary in their function (contraction and relaxation of heart)

6. Complete the table:



Ans:



7. 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 the movement of the body by contraction and relaxation.

(d) Nervous tissue: Its receiver stimulates and transmit the messages

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

Ans: Difference between voluntary and involuntary muscles are given below.

Voluntary Muscles	Involuntary Muscles
Voluntary Muscles are attached to bones	Involuntary Muscles are attached to visceral organs
We can move these muscles by conscious will and it helps in body movement.	We cannot move these muscles by conscious will
The cells are long, cylindrical, unbranched and multinucleate	They are uninucleate also called smooth muscles.
Example: Muscles present in limbs	Example: Heart muscle

9. What are the major functions of blood?

Ans: Blood is a type of connective tissue, and its functions are:

- Blood flow can transport oxygen, food, hormones and waste material from one part of the body to the other part of the body
- Blood carries oxygen and food to all cells. It also collects wastes from all parts of the body and carries them to the liver and kidney for disposal purposes.

- Regulates temperature by distributing heat within the body
- WBC'S protect due body from disease and helps in wound healing
- Platelets help in blood clotting

10. Write about the functions of
(a) Epidermis
Ans: Epidermis: its main function is protection. It forms a waterproof coating, which reduces loss of water.

(b) Cork
Ans: Stomata: These are the small opening which helps in exchange of gases

(c) stomata.
Ans: Cork: It is protective in function. It prevents desiccation, by preventing loss of water from the plant body. It prevents infection and mechanical injury

11. Differentiate between parenchyma and collenchyma
Ans: Difference between parenchyma and collenchyma is given below

Parenchyma	Collenchyma
Thin-walled cells	Thick-walled cells mainly at corners
Intercellular spaces are sometimes present	Intercellular spaces are absent
Cells are isodiametric	Cells may be in oval, circular or polygonal

12. Mention the characteristics features of connective tissue
Ans: Characteristics of connective tissue.
- The cells are loosely spaced and are embedded in a non – living intercellular matrix
- The intercellular matrix may be like jelly, fluid, dense or rigid.
- Depending on the connective tissues functions the nature of the matrix varies.

13. How does cardiac muscle differ from both voluntary and involuntary muscles in both structure and function?
Ans: Cardiac muscles are the muscles of the heart that pumps blood to all parts of the body and it shows rhythmic contraction and relaxation throughout life without any fatigue. The cells of heart muscles are branched, cylindrical and uninucleate.
- Cardiac Muscles are involuntary
- More akin in structure and only found in heart.
- They function throughout the life

14. Write differences between blood and lymph.

Ans: Difference between blood and lymph is listed below.

Blood	Lymph
Colored fluid	Colorless fluid
Blood consists of RBC, WBC, Platelets and Plasma	Lymph mainly consists of plasma and WBC.
Present in heart, arteries and veins	Lymph is a fluid that surrounds the body cells

15. Give reasons for:

(a) intercellular spaces are absent in sclerenchyma tissues.

Ans: Sclerenchyma cells are closely packed Hence intercellular spaces are absent. Its tissues are dead simple permanent tissues.

(b) Meristematic cells have a prominent muscle and dense cytoplasm but they lack muscles

Ans: Meristematic cells have continuously dividing cells. Cells of meristem are not differentiated. It continuously divides and forms new cells which increase length and girth of the plant body.

(c) We get crunchy and granular feeling, when we chew pear fruit.

Ans: due to presence of stone cells or grit cells, known as sclereids

16. Why is epidermis important for the plants?

Ans: Epidermis is the Outer protective covering of plants.

- Epidermis is covered with a waterproof coating or layer called cuticle which can reduce water loss.
- It also helps in the exchange of gases by the small pores called stomata.

17. 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 growing 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 stem or root.

c) Intercalary meristems – located near to the node. Cells are very active, and have dense cytoplasm and thin cellulose. lack of vacuoles in intercalary meristems.

18. If you are provided with three slides, each containing one types muscles

fibres, how will you identify them?

Ans:

a) Skeletal muscles or voluntary muscles show alternate light and dark bands under microscope

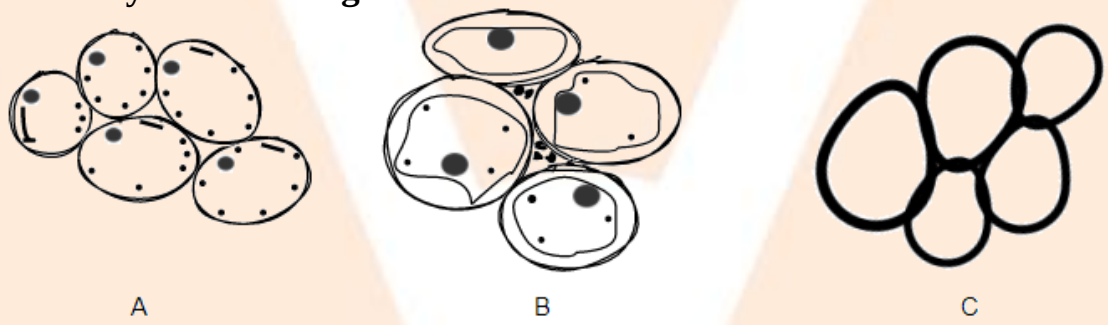
b) Unstriated muscles or involuntary muscles show no light or dark bands, multinucleate.

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

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

Ans: This is because of the process called transpiration. Plants always lose water from the surface of leaves. Water reaches leaves by xylem vessels, where evaporation takes place by stomata. Gaseous exchange and also removal of excess water are performed by the Stomata present in the leaves.

20. Identify the following tissue and mention their function.



Ans:

a) Parenchyma: stores food , it sometimes contains chlorophyll so performs photosynthesis, after that it is called chlorenchyma, in aquatic plants parenchyma to help them float because of large air cavities.

b) Collenchyma: It provides mechanical strength and allows bending of various parts of a plant without breaking.

c) Sclerenchyma: Provides strength to the plant parts, makes the plant hard and stiff

21. Differentiate between meristematic and permanent tissue.

Ans: Difference between meristematic and permanent tissue is given below.

Meristematic tissue	Permanent tissue
Cell are small and thin walled	Cells are large and mostly thick walled
Cells are rich in cytoplasm	Layer of cytoplasm is present along the cell wall
There won't be any intercellular space	Presence of intercellular space

Always living in nature	May be living or dead
Power of cell division is present	Power of cell division is absent