Tissues

Tissue

Q.1 Name the branch of biology which deals with the study of tissues. (1 Mark)

Histology

Q.2 What is tissue? (1 Mark)

A group of cell performing similar function combines to form a tissue. On a broad basis tissues are divided into two: Animal Tissue and Plant tissue.

Q.3 What type of function is performed by a single cell of amoeba? (1 Mark)

Amoeba being a unicellular organism performs all the vital functions like respiration, metabolism, and other functions like ingestion of food, excretion.

Q.4 What are the main differences between cheek cells and onion peel cells? (1 Mark)

Character	Cheek Cells	Onion Peel Cells
Type of Cell	Animal Cell	Plant Cell
Cell Wall	Absent	Present

Q.5 Define division of labour. (1 Mark)

Division of labour is a type of adaptation for cells where different cells are specialised to perform different type of work. Thus decreasing the work load on a single cell and work done becomes more efficient.

Q. 6 Plants requires less energy than animals. Give reason.(2 Marks)

Most of the component in plant tissues is dead and do not have to move in search of food so needs less energy than animals which have most of the cells living which need energy for their maintenance. Also animals are depended on other plants and animals for food so have to travel to fulfil its needs.

Q.7 What is role of tissues present in multi-cellular organisms? (3 Marks)

The formation of tissues is important in multi-cellular organisms as :

(a) Grouping of cells and performing a single function by the group shows division of labour.

(b) Tissues combine to form organ, organ to organ system and organ systems to organisms.

(c) Due to improved organisation and higher efficacy organisms have high survival rate.

Q.8 Differentiate between Animal and plant tissue. (3 Marks)

S. No.	Plant Tissue	Animal Tissue
1.	Tissue organisation is targeted towards Stationery habit of plants.	Tissue organisation is targeted towards mobility of animals.
2.	Organisation is simple.	Organisation is complex.
3.	Many of the tissues are dead. For example, Cork	Most of the tissues are living.
4.	Growth is confined to certain areas.	Growth is not limited to areas
5.	less maintenance energy required	More maintenance energy required
6.	Plants grow continuously throughout life.	After reaching maturity stage animals do not show further growth.

Plant tissue

Q.9 What are the two broad classifications in which plant tissue is divided? (1 Mark)

The plant tissues are divided into:

(a) Meristematic tissues

(b) Permanent tissues

Q.10 What are growth tissues? (1 Mark)

The tissues which are responsible for growth in the plants are called growth tissues or Meristematic tissues.

Q.11 Differentiate between meristematic tissue and permanent tissues. (3 Marks)

S. No.	Characteristics	Meristematic tissue	Permanent tissue
1.	Structure	Cells are undifferentiated with no intercellular spaces	Cells are differentiated with intercellular spaces present.
2	Vacuole	Absent	present
3	Living/dead	Always living	May be living or dead
4	Cell wall	Thin	thick
5	Function	Cells divide repeatedly	Cells are differentiated formed from meristematic tissues and normally do not divide.

Meristematic tissue

Q.12 What is meristematic tissue? (1 Mark)

The tissue which is responsible for an increase in the length and girth of the plant and used to divide actively throughout their life time is known as Meristematic tissues.

Q.13 Write the characteristics of Meristematic tissues. (2 Marks)

- Cells are spherical, oval , polygonal or rectangular in shape with thin cellulose cell walls.

- Intercellular spaces absent

- Dense cytoplasm

- Prominent nucleus

- Vacuoles absent

Q.14 Meristematic tissue cells have a prominent nucleus and dense cytoplasm but they lack vacuole. Give reason (1 Mark)

Meristematic tissue works for division of cells thus have a prominent nucleus with dense cytoplasm which enables fast and easy division of cells to generate new cells. But do not have to store food so vacuole is absent in it as vacuoles main function is to store food and waste products.

Q.15 What are the different types of meristem present? Quote the types of meristematic tissue with their functions.(3 Marks)

On the basis of position, meristem is of three types:

(a) Apical meristem –

Position: Found at the growing tips of roots and steam.

Function: Helps in increase of the height of the plant.

(b) Lateral meristem-

Position: Found beneath the bark

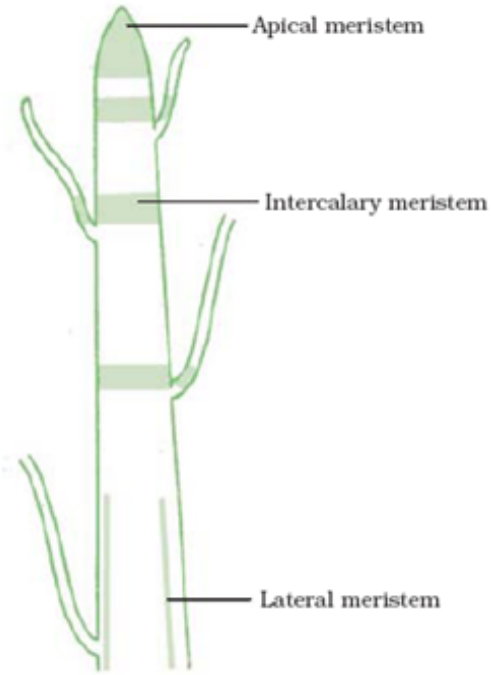
Function: helps in the increase in the diameter or girth of the stem and root

(c) Intercalary meristem –

Position: Found at the base of the leaves or internodes

Function: Helps in the increase in the length of the leaves and internodes.

Q.16 with the help of a labelled diagram show the location of various meristematic tissue.(2 Marks)



Q.17 what is primary and secondary growth? (1 Mark)

The increase in the height of the plant due to apical meristem is known as Primary growth.

The increase in the diameter and girth of a plant due to lateral meristem is known as Secondary growth.

Q.18 Quote the various functions of meristematic tissue? (2 Marks)

- *Acts as a parent tissue*: Leads to development of other tissue from itself.

***-Forms new cells*:** Sustain growth by forming news cells for the pre – existing ones.

***-Continuous production of plant parts*:** Plant parts like leaves, branches stem, roots, fruits, etc are continuly formed.

***- Easy healing of injured parts*:** Provides healing of injury by forming new cells.

Q.19 What happens to the cells formed by the Meristematic tissue? (2 Marks)

Cells formed from meristematic tissue takes up a specific role and losses the ability to divide. These cells with some specified functions are then called permanent tissue. This differentiation of permanent tissue forms meristematic tissue.

Q.20 A Gardner was cutting the the excess plants growing in the garden by mistake he cuts the apical meristem of a plant. What will happen? Will there be any change in the growth of the plant?(2 Marks)

Apical meristem is a type of meristematic tissue found on the tips of roots , shoots, leaves, etc. There basic function is to provide growth to the plant by growing roots and shoots from the tips. There by there would be no or less growth shown by the plant.

Q.21 Show with a help of an experiment show apical meristem causes growth in length of plant.(3 Marks)

Procedure:

1. Take two onions in jar filled with water such that the onions are slightly dipped in water.

2. After five days observe the growth of the roots.

3. Cut the tips of roots of onion placed in jar 2.

4. After few days observe the growth of roots in both the jars.

Observation:

1. Jar 1 shows root elongation

2. Jar 2 do not show further growth in the roots

Inference:

Since the tips of roots in jar 2 were cut therefore no growth was shown. Therefore the tissues present at the tips i.e. apical meristem is responsible for growth of the plant.

Permanent tissue

Q.22 What are Permanent Tissues? (2 Marks)

A group of plant cells which have lost their ability to divide but have taken a particular shape , size and function. They are of two types

a) Simple permanent tissue

b) Complex permanent tissue

Q.23 What is differentiation? (1 Mark)

The process through which cells formed from meristematic tissues acquire a permanent shape, size and function is known as differentiation.

Q.24 Differentiate between simple tissue and complex tissue. (2 Marks)

S. No.	Simple Tissue	Complex Tissue
1.	These tissues are made up of same type of cells.	These tissues are made up of different type of cells which combined to perform a single function.
2.	Present in all parts of plant.	Present in some parts of plant.
3.	Performs a variety of functions	Transports water, minerals and food throughout the plant body.
4.	Includes Parenchyma, Collenchyma, Scelenchyma	Includes Xylem and Phloem

Simple permanent tissue

Q.25 What are simple permanent tissues? Name its type. (2 Mark)

These are the tissues formed from a single type of cells structurally and performing similar functions.

Types of simple permanent tissues are:

(a) Parenchyma

(b) Collenchyma

(c) Sclerenchyma

Q.26 name a type of simple permanent tissue which has dead cells. (1 Mark)

Sclerenchyma.

Q.27 Differentiate between the three different simple tissue present in plants. (2 Marks)

Characteristic	Parenchyma	Collenchyma	Sclerenchyma
Cell wall	Primary,thin	Primary	Secondary
Constituents of cell wall	Very less cellulose	Irregular thicknening of cellulose and pectin	Uniformly thick due to lignin deposition
Living/nonliving	Living	Living	Dead
Cell shape	Isodiametric	Elongated	Some cells are spindle shaped,long and narrow.

Parenchyma

Q.28 Where is the packing tissue of plants found? (1 Mark)

The packing tissue or parenchyma is found all over the plant body.

Q.29 Parenchyma specialized to perform photosynthesis. (1 Mark)

Chlorenchyma

Q.30 State the function of (2 Marks)

(a) Aerenchyma

(b) Chlorenchyma

(a) Aerenchyma- Provides buoyancy to aquatic plants as contains large air cavities.

(b) Chlorenchyma – Does Photosynthesis as contains chloroplasts.

Q.31 Water hyacinth floats on the water by maintaining buoyancy in water. What part of plant body is responsible for this? (1 Mark)

In aquatic plants, there are large cavities present in parenchyma which help these plants to float above the water by maintaining its buoyancy.

Q.32 Write the characteristics possessed by parenchyma. (3 Marks)

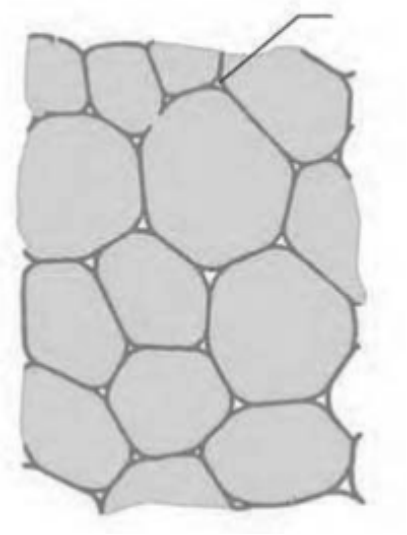
Characteristics of parenchyma:

- Cells are long and elongated

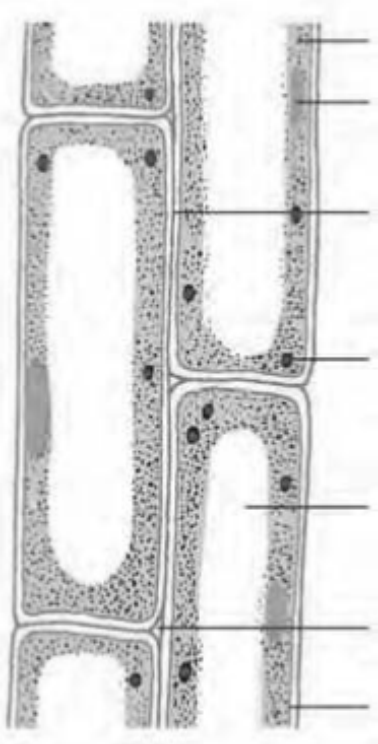
- Loosely packed with intercellular spaces.

- Large vacuole, small nucleus with thin cell wall

- Cells are living



T.s. of parenchyma



L.s of parenchyma

Q.33 Parenchyma is very important for plants. Justify. (5 Marks)

Various functions performed by parenchyma:

- Acts as a packing tissue

- Provides support to the plant body

- Acts as a storage tissue by storing and assimilating food.

- Allows gaseous exchange through intercellular spaces

- Chlorenchyma: specialised form of parenchyma performs photosynthesis due to presence of chloroplast.

- Aerenchyma: specialised form of parenchyma provides buoyancy to aquatic plants .

- Acts as a water storage tissue in xerophytes.

Collenchyma

Q.34 Collenchyma tissue is situated at which part of plant? (1 Mark)

It is present below the epidermis in leaves and stem.

Q.35 What are the characteristics of collenchyma tissue? (3 Marks)

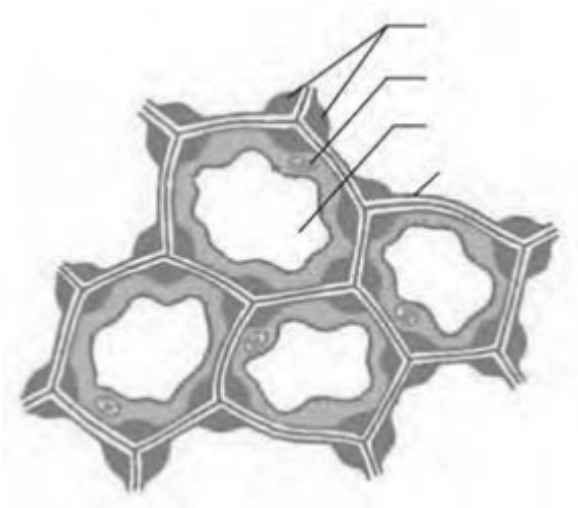
- Oval and elongated in cells

- Tightly packed with no intercellular spaces present

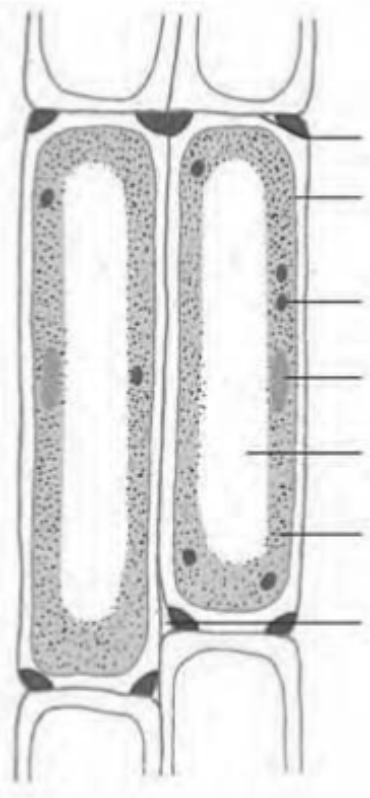
- Nucleus is small, vacuole is large

- Cell wall is thin with thick ends

- Cell is living



T.s of collenchyma



T.s of collenchyma

Q.36 Write a short note on functions of collenchymas tissue. (3 Marks)

Functions:

- Provides mechanical support to plants.

- Provides tensile strength to the plant provided with flexibility to bend its parts easily without breaking.

- Is the chief mechanical tissue for young plants

Sclerenchyma

Q.37 A chemical responsible for the stiffness of husk of the coconut. Also name the plant tissue found in the husk. (1 Mark)

Lignin, a chemical substances which gets deposited on the wall of the cell making it stiff. The plant tissue of which husk is made is known as Sclerenchyma tissue.

Q.38 Name a plant tissue which is used to make ropes and jute fibres. (1 Mark)

Sclerenchyma,mainly sclerenchyma fibres.

Q.39 Name the plant tissues which are made up of dead cells of one type showing thickenings and provide mechanical support to the plants. (1 Mark)

Sclerenchyma

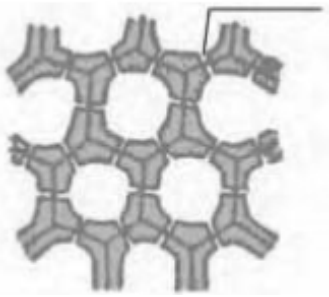
Q.40 What are the characteric features of sclerenchyma? (3 Marks)

- Cells are narrow and elongated

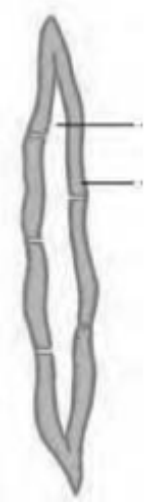
- Cells are dead

- Lignified cell wall

- Narrow lumen or cavity



T.s of sclerenchyma



L.s. of sclernchyma

Q.41 What are the basic functions of sclerenchyma tissue? (2 Marks)

- Mechanical function : makes parts of a plant hard and stiff.

- Protective function : provides strength and enables it to withstand strains.

Q.42 Where are sclerenchyma tissues found in plants? (1 Mark)

- Around vascular bundles

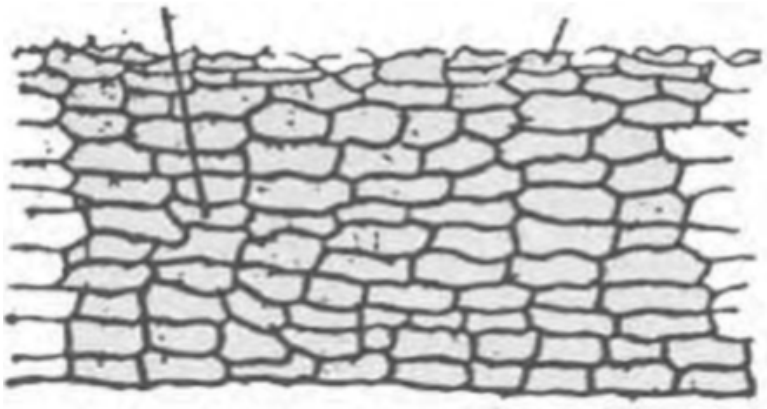
- Veins of leaves.

-Hard coverings of seeds and nuts.

Protective tissue

Q.43 What are protective tissues? (1 Mark)

The tissues which provides protection to the plants from desiccation.These includes epidermis and cork.



Q.44 Name the outermost layer of cells in old plants. (1 Mark)

Cork

Q.45 State the functions of the following (3 Marks)

(a) Epidermis

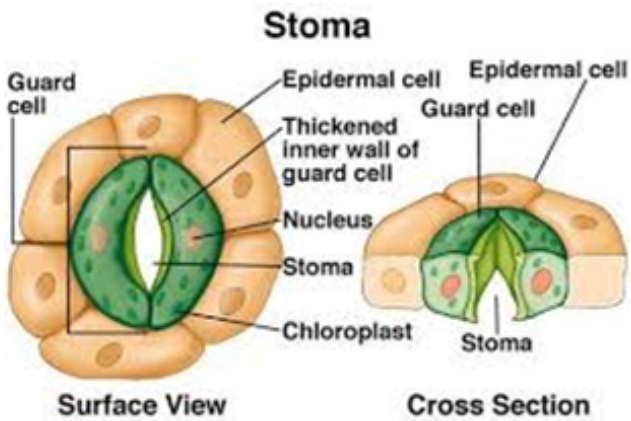
(b) Cork

(a) Epidermis provides protection to all body parts of plant as there structure does not have any intercellular spaces in between the cells. In dry places, epidermis forms a thick covering on the plant to protect the plant from drying due to transpiration. It also protects the plant towards mechanical injury and invasion from foreign organisms.

(b) Cork forms the bark of the tree and is protective in function like epidermis. The walls of cork cells are thickened by a chemical known as suberin. This chemical makes the cells impermeable to water and gases which prevents desiccation, infection and mechanical injury to plant.

Q.46 What are stomata? What are its functions? (3 Marks)

Small pores present in the epidermal cells guarded by guard cells are called stomata. These stomata are responsible for exchange of gases and water vapour through it in the atmosphere. The opening and closing of stomata was guarded by guard cell.



Q.47 Name the processes through which water is lost from the plant to the atmosphere. (1 Mark)

Transpiration

Q.48 A short note on Types of epidermis. (3 Marks)

A) Aerial epidermis

B) Root epidermis

(A) Aerial epidermis is the epidermis making an outer covering of the aerial parts of plant. Epidermis sometimes secrete waxy substance called cutin which makes a water proof layer around the plant.

Function: Helps in preventing plants from desiccation and foreign invasion.

Stomata are present on epidermal cells for exchange of gases with atmosphere and loss of water in atmosphere.

In desert plants, the epidermis and cutin is thick preventing greater water loss from the plant surface.

(B) Root epidermis the epidermis present on the surface of root making its outer covering.

Function: This also helps in absorption of water.

This epidermis has some hairy projection which increases water absorption by increasing the surface area for absorption.

Q.49 What is the function of guard cell in the stomata? (1 Mark)

The guard cell controls the opening and closing of the stomata which helps in exchange of gases and water vapour in the atmosphere.

Q.50 How does cork act as a protective tissue? (2 Marks)

Cork forms several layers on the tree which are known as bark of tree. The properties of cell like absence of intercellular spaces and presence of suberin,a chemical present present in their wall makes the cell impervious to gases and water snd thus protects the undrlying tissues from desiccation.

Q.51 What is the function of root hairs? (1 Mark)

The hair like projections present on the roots helps in the increased absorption of water through soil by increasing the surface area for absorption.

Q.52 Write some features of cork and where they have application. (3 Marks)

Features:

- Dead cells with no intercellular spaces.

- Contains a chemical substance , suberin which restricts the penetration of gases and water through it.

- Protects plants from injuries, water loss and germs.

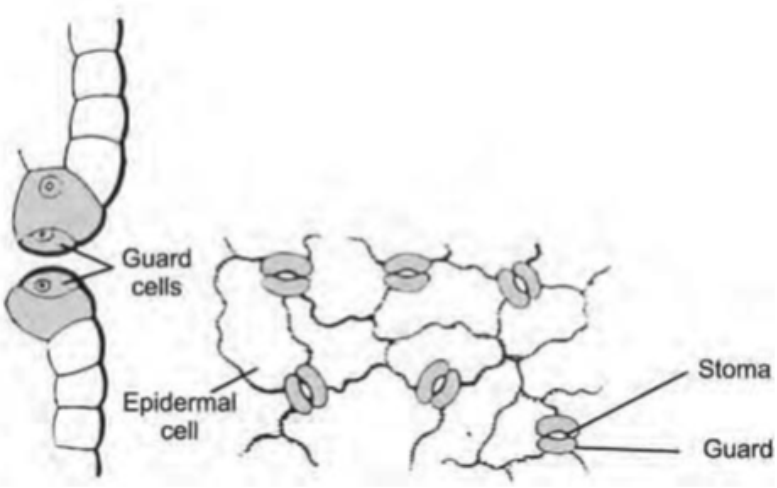
Applications

- Commercially used for making products like bottle stoppers, shuttle cork.

Q.53 Epidermis of plants living in arid regions is thicker than in the usual ones. give reason. (2 Marks)

In hot and dry regions the chances of drying of plant is more as more water is lost through transpiration. to prevent this loss the outer covering of the plants i.e. epidermis is thicker than plants in other region.

Q.54 Draw a diagram showing parts of plant undertaking part in transpiration. (2 Marks)



Complex permanent tissue

Q.55 Define complex tissues. (1 Mark)

These are a group of cells of more than one type which work together to perform a specific function.

Q.56 What is vascular tissue? How are they important for plants? (2 Marks)

Both phloem and xylem are known as vascular tissue which combines to form vascular bundle. These tissues transport water, mineral and food throughout the plant body.

Q.57 Name the helper of sieve tubes. (1 Mark)

Companion cells

Q.58 What is the function of xylem and phloem? (2 Marks)

Xylem: It carries water and minerals upward through roots to parts of plant body.

Phloem: It carries prepared food through photosynthesis from leaves to different body parts.

Q.59 Tissue A consist of two tissies B and C which carries water and food respectively. Idebtify A,B and C. (3 Marks)

A - vascular bundle

B-xylem

C-phloem

Q.60 What are the constituents of which xylem is made up of? Which of them are living and which are non-living? (3 Marks)

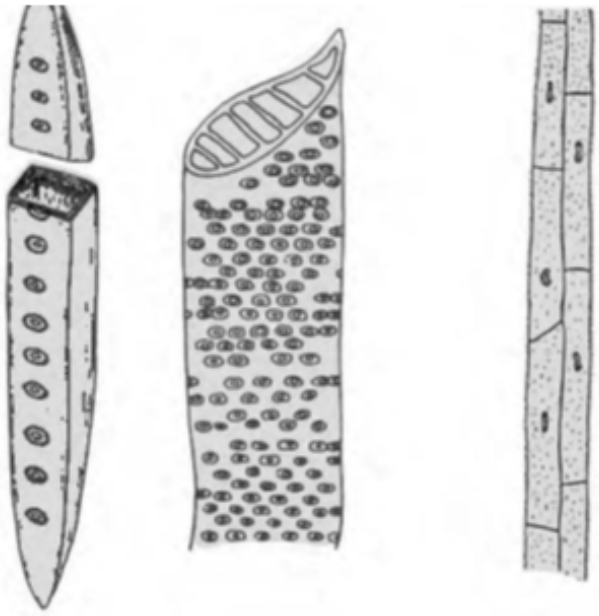
Xylem consists of following elements:

(a) Tracheids

(b) Vessels

(c) Xylem Parenchyma

(d) Xylem fibres



Xylem Parenchyma is the only element which is living component in Xylem.

Q.61 Write a short note on transportation system across plant. (5 Marks)

Transportation system in plants is composed of composed complex permanent tissue. There are xylem and phloem which conducts water,minerals,and food. These tissues are made up of more than one type of cells which all coordinate to perform a common specific functions.

Xylem:

Function: helps in water and mineral transportation from roots to different plant parts.

Constituent:

Elements	Function
Tracheids	Transport water and minerals upright
Vessels	Transport water and minerals upright
Xylem Parenchyma	Helps in sideways conduction and storage of food
Xylem fibres	Mechanical support

Phloem:

Function- transports prepared food through photosynthesis from leaves to different plant parts.

Constituent:

Element	Function
Sieve tubes	Transportation of food and nutrients
Companion cells	Helps sieve tube perform their function
Phloem parenchyma	Storage and transportation
Phloem fibres or bast fibre	Provide mechanical strength

Importance of transportation system is for growth and maintenance of plants.

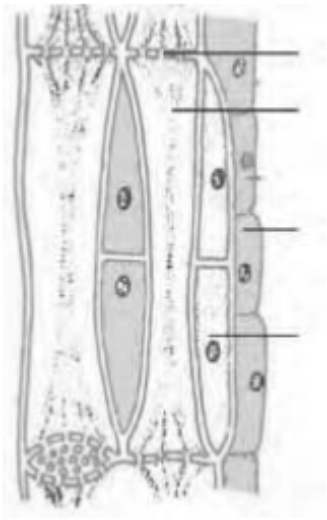
Q.62 What is the function of companion cells in the phloem? (1 Mark)

These cells have cytoplasm , nucleus and other organelles so performs task need for sustenance of life for the sieve cells.

Q.63 Draw a neat diagram of phloem and label its elements. (3 Marks)

Or

Draw a well labelled diagram showing the tissue responsible for translocation of food from plants to other parts of plant body.



Q.64 Answer in one word. (5 Marks)

1. Pigment which is helpful in performing photosynthesis.

2. Packing tissue of plant

3. Process of specialization of meristemetic tissue to a permanent shape,size and function.

4. Meristem present at growing tips of roots

5. Dead element in phloem

1. Chlorophyll

2. Parenchyma

3. Differentiation

4. Apical meristem

5. Phloem fibre or bast fibre

Q.65 Write any 5 differences between xylem and phloem. (3 Marks)

Characteristic	Xylem	Phloem
Conduction	Water and minerals from root to body parts	Prepared Food from leaves to body parts
Strength	Provides mechanical strength	Donot provide mechanical strength
Elements live	Xylem parenchyma only	Sieve tubes, companion cell and phloem parenchyms
Conduction direction	Unidirectional	Bidirectional
Conducting channel	Tracheids	Sieve tubes

Q.66 state the structure of the following: (3 Marks)

(a) Vessels

(b) Tracheids

(c) Sieve tubes

(a) Vessels:

- Dead cells

Lignified cell walls

Pipe like structure with upper and lower portions absent in the tubes

(b) tracheids:

-Dead cells

long elongated cells with tapering ends

-non-lignified areas present known as pits through which water flows.

(c) Sieve tubes:

- cells are elongated with thin cell walls

- nucleus and other organelles absent

- cytoplasm is continuous due to presence of pores

Q.67 Show the experiment used to study of the stem. (3 Marks)

Procedure:

- Cut the stem into thin slices.

-Stain them with safranin

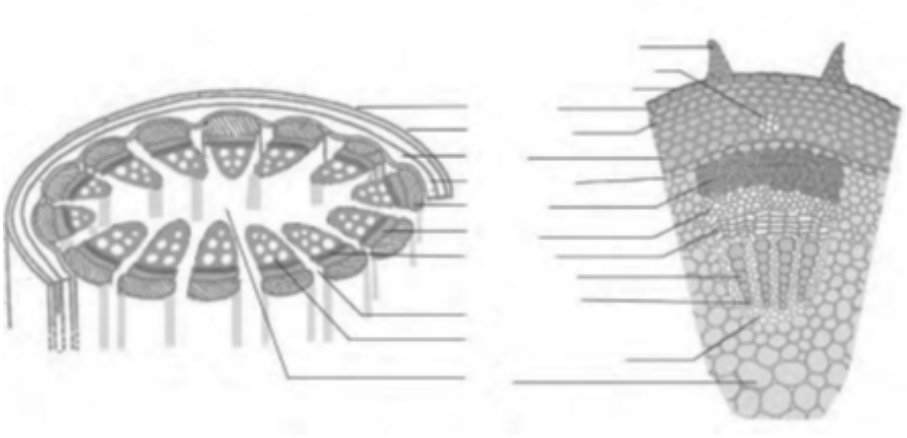
-Take thin nicely cut slice on the slide

Put a drop of glycerine on the slice and gently cover it with a cover slip.

Observe the slice into microscope

Q.68 In brief explain stem tissues with a labelled diagram. (5 Marks)

Following are the different types of cells present in the stem:



S. No.	Tissues	Functions
1	Xylem	Conduction of water
2	Phloem	Transportation of food
3	Epidermis	Protection
4	Collenchymas	Support
5	Sclerenchyma	Support
6	Parenchyma	Food storage
7	Cambium	Growth

Q.69 Write the steps involved in an experiment involved in studying of epidermis. (3 Marks)

- Take a fresh leaf, stretch and break it from the middle with pressure.

- Peel of the outermost covering of the leaf

- gently take it off and stain wit safranin

- now put it on the slide and observe under microscope

- you would be able to see the epidermal cells with stomata guarded by guard cells imbedded in them.

Animal tissue

Q.70 What are the types of tissues found in animals? (2 Marks)

On the basis of functions the animal tissues are divided into the following:

Muscular tissue

Nervous tissue

Connective tissue

Epithelial tissue

Muscular tissue

Q.71 Name the muscle which is used to work constantly throughout life of a person. (1 Mark)

Cardiac tissue

Q.72 Which tissue helps in locomotion of animals? (1 Mark)

Muscular tissue and bones

Q.73 How is involuntary action different from voluntary action? Quote an example. (2 Marks)

Voluntary action: the action which is under our will. It is attained with the help of skeletal muscles. Example: movement of the limbs

Involuntary action: the action which is not under our will. It is attained with the help of smooth and cardiac muscles. Example: movement in alimentary canal

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Q.74 Write the characteristics of muscles. (3 Marks)

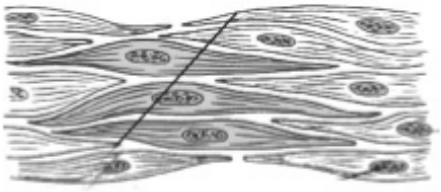
- Elongated cells also called muscle fibres

- Contain special type of contractile protein which causes contraction and relaxation of the muscles

- enables movement of the body by contraction and relaxation.

There are three types of muscles found in animal body.

skeletal



smooth

cardiac muscle

Q.75 Enlist the difference between the three type of muscles. (2 Marks)

Characteristics	Skeletal	Smooth	Cardiac
Movement	Voluntary	Involuntary	Involuntary
Structure	Cylindrical ,not branched	Spindle shaped,not branched	Cylindrical branched
Stripes in muscle fibre	Present	Absent	present
Nucleus	Many nucleus are present	Single nucleus	Single nucleus
Location	Limbs of our body	Alimentarycanal, irisofpupilineye, bronchiinlungs, uterus	Heart

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Q.76 Write 'I' for involuntary action and 'v' for voluntary actions for the following activities:

(a) Pumping of heart

(b) Movement of head

(c) Peristaltic movement (3 Marks)

(a) I

(b) V

(c) I

Q.77 Why heart is not made of smooth muscles. (2 Marks)

Since heart pump need to regularly pump blood all over the body it needs to work fast. This is not achieved by smooth muscle and so cardiac muscle makes heart to contract and relax.

Q.78 What are visceral muscles and why are they so called. (2 Marks)

Visceral muscle is another name for smooth muscle. This is so named as these are found in walls of hollow visceral organs except heart which have a specialized cardiac muscle.

Q.79 Why striated muscles are called skeletal and striped muscles? (2 Marks)

These type of muscles are attached to the bones and helps in the movement of body thus known as skeletal muscles. On the other hand,as the muscle fibres show alternative dark and light stripes thus known as striped muscles.

Nervous tissue

Q.80 What is a nervous tissue. (1 Mark)

It is a tissue specialized to transmit messages throughout the body. It is composed of brain, spinal cord and nerves.

Q.81 What is the junction between the terminal part of a axon and the dendrite of the next neuron called? (2 Marks)

Synapse is the place between the two neurons where at one side axon are present and on the otherside dendrite. This helps in the transmission of impulses from one neuron to other.

Q.82 Write any three differences between axon and Dendron. (3 Marks)

Characteristics	Axon	Dendron
number	single	one or more than one
size and structure	long,may or may not be branched	small,always branched
conduction of nerve impulse	away from cyton (efferent in nature)	towards the cyton (afferent in nature)

Q.83 'I can walk, eat or dance according to my will but cannot control functioning of heart and blinking of eyes. ' Comment. (2 Marks)

The above actions are performed by muscles of one or other type.

Actions can be divided into two Voluntary and involuntary actions which are performed by skeletal or striated muscles and smooth or involuntary muscles.

The actions like walking,eating,dancing which are under control of our will are voluntary actions whereas actions like contraction and relaxatiom of heart and blinking of eyes is not in ones own hand so is an involuntary action.

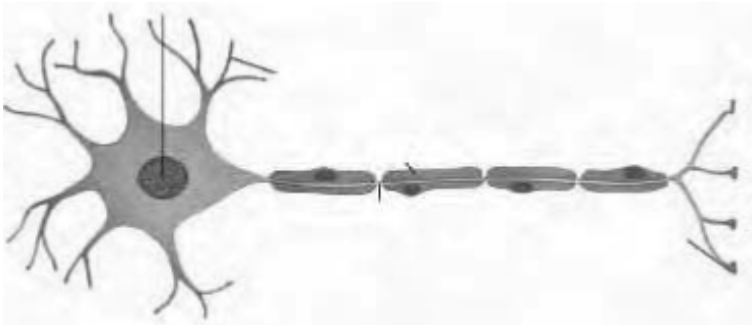
Q.84 What is an impulse? (1 Mark)

Impulse is a passage of electrical activity along axon of the nerve cell.

Q.85 Write a short note on neuron. (2 Marks)

Nerve cells or Neuron is the highly specialised unit of cells. They have the ability to receive stimulus from within the body or outside the body And to send impulses to different body parts.

Q.86 Draw a well labelled diagram of neuron. (3 Marks)



Q.87 What the different parts of neuron? (3 Marks)

(a) Cell body, contains central nucleus, cytoplasm

(b) dendrons, short processes arising from cyton or cell body, takes impulse towards the cell body.

(c) axon, a single long cylindrical process, takes impulse away from the cell body.

Connective tissue

Q.88 What is a connective tissue? (1 Mark)

Tissue which is specialized to connect and attach various body organs is known as connective tissue.

Q.89 Write a short note on connective tissue. (2 Marks)

-It contains cells in a matrix which is chemical substance usually solid,liquid, or jelly form.

-Different kind of connective tissues are blood, lymph, bones, cartilage, tendon, ligament, areolar, adipose.

Blood and lymph

Q.90 Name the liquid matrix of blood. (1 Mark)

Plasma

Q.91 Give reason why blood is considered as a connective tissue. (2 Marks)

Blood transports nutrients and waste materials from one part of the body to other. Through this circulation between different tissue and body organs occur. Therefore the tissue is known as Connective tissue.

Q.92 What is the importance of RBC in blood? (2 Marks)

RBC or erythrocytes are cells having haemoglobin which has a strong affinity towards oxygen. Therefore carries oxygen to tissue for the oxidation of food stuff.

Q.93 Which component of the cells fights against the invading infection? (2 Marks)

WBC (white blood cells) are the cells which provides resistance against infection by producing anti bodies in the body.

Q.94 What are the functions of blood? (2 Marks)

Blood carries oxygen and food to all the body cells and in return takes up the waste matter produced by the cell and carries it to liver and kidney. It carries nutrients, hormones and vitamins to the cells.

Q.95 Name the different type of blood cells present in the body of an animal. (3 Marks)

There are three different types of blood cells present:

(A) Red blood cells

(B) White blood cells

(C) Platelets

Q.96 What are the functions of blood cells? (3 Marks)

(A) RBC contains haemoglobin which has high oxygen carrying capacity so transports oxygen in the body.

(B) WBC provides immunity to the body by fighting against the foreign invading organisms.

(C) Platelets at site of injury forms clotting of blood to prevent blood loss from the body.

Q.97 A person got wounded, his blood is flowing continuously out of the wound, and blood clot is not formed. Which component of the blood is missing in the blood of the person? (2 Marks)

Blood platelets which are essential for clotting of blood at the site of injury is absent or less in no. In the person's blood which can cause serious loss of blood from the body and ultimately death.

Q.98 What is lymph? (1 Mark)

It is a colourless liquid which is filtered from the blood capillaries. Its composition is similar to blood but do not contain RBCs.

Q.99 Write a short note on the functions of lymph. (1 Mark)

It helps in transportation of nutrients like oxygen, glucose which could be filtered through blood capillaries. It also protects the body against infections.

Q. 100 differentiate between blood and lymph. (3 Marks)

Characteristics	Blood	Lymph
occurrence	in blood vessels	in lymph vessels
vascular tissue	red	white
haemoglobin	present	absent
constituent	plasma, erythrocytes, leucocutes and platelets.	plasma and leucocytes
functions	transportation of materials, defence, blood clotting factor	Acts as intermediately between blood and tissue.

Bone and Cartilage

Q.101 Write any three features of the framework forming connective tissue of the body. (2 Marks)

Bone the hard connective tissue which forms frame work of the body

- hard and inflexible

- facilitates movement of the body

- cells are embedded in matrix of calcium and phosphate compounds.

Q.102 Where does the soft connective tissue, cartilage is found? (1 Mark)

Found in ear, nose, trachea, larynx and between joints

Q.103 Name a connective tissue which smoothens the bone joints. (1 Mark)

Cartilage

Q.104 What is cartilage? (2 Marks)

Cartilage is a specialised type of connective tissue which provides support and flexibility to the body parts. It also smoothens the joint surfaces. Some of the places where cartilage is present are epiglottis,ear pinna, rings of trachea,etc.

Q.105 Write any 5 differences between bone and cartilage. (2 Marks)

Characteristics	Bone	Cartilage
nature	hard and non-flexible	
composition of matrix	calcines and phosphorus compounds	
cavity	present	absent
arrangement of matrix	form of concentric circles	uniform, not in concentric circles
porosity	porous	non porous

Aereolar tissue

Q.106 Which tissue is commonly known as packing tissue in animals? (1 Mark)

Areolar tissue

Q.107 What is aereolar tissue ? (2 Marks)

These are types of tissues in which cells and fibres are contained in a matrix. It joins skins to underlying muscles. It acts as a supporting and packing tissue for organs present in body cavities. It helps in repairing of damaged tissue.

Q.108 Where is the aereolar tissue located? (2 Marks)

Found Between skin and underlying muscles also Around blood vessels, nerves and in bone marrow.

Adipose tissue

Q.109 What is the fat-storing tissue ? State its function. (3 Marks)

Adipose tissue is a collection of fat cells present below the skin.

Function:

A) acts as a fat reservoir to be used in harsh conditions.

B) forms shock-absorbing cushions around visceral organs of the body like kidney.

C) provides shape to the body.

D) acts as an insulator by preventing heat loss from the body.Being, a poor conductor of heat it regulates body temperature in animals.

Q.110 Why does animals of colder region and fishes have thicker layers of subcutaneous fat? (1 Mark)

The subcutaneous fat layer acts as a insulator for animals living in colder region and fishes.

Q.111 Differentiate between tendon and ligament. (3 Marks)

Tendon	Ligament
Strong and inelastic	Elastic and flexible
Attaches muscles to bone	Attaches bone to bone
Made up of white fibres	Made up of white and yellow fibre

Epithelial tissue

Q.112 What are the places where epithelium tissue is found? (1 Mark)

Found in the inner lining of the mouth, lining of blood vessels covering of other body organs and body cavities.

Q.113 Tissue which forms lining of the mouth is? (1 Mark)

Squamous epithelium is a simple flat cells forming lining of the mouth.

Q.114 What is the basic functions performed by epithelium tissue? (3 Marks)

- protects the underlying organs from injuries, chemical effect and drying up.

- helps in absorption of water and nutrients.

- helps in elimination of waste products

- keeps different organs separate

- some have secretary functions, substances like saliva, mucus ,etc are secreted by some cells.

Q.115 Why is sometimes squamous epithelium called stratified squamous epithelium? (1 Mark)

The squamous epithelium when gets arranged in form of layers then it is known as stratified squamous epithelium.

Q.116 What is cilia? (2 Marks)

Cilia are hair like projections found on the outer surfaces of epithelial cells. These help in the movement of mucus. These are found in respiratory tract and keep it clear of mucus by forwarding it.

Q.117 What is glandular columnar epithelium? (2 Marks)

The columnar epithelium is many times modified to form glands which secrete various chemicals in the body which are known as glandular columnar epithelium.

Q.118 Write the differentiating features between squamous epithelium and columnar epithelium. (2 Marks)

Characteristics	Squamous epithelium	Columnar epithelium
Cell structure	Thin and flat	Pillar like
Nucleus	At centre of the cell	Near base of cell
Location	Lung alveoli, blood capillaries, buccal cavity, etc	Lining of stomach and intestine, various glands and covering of epiglottis
Function	Selective permeable membrane barrier, in ultrafilteration and wear and tear.	Acts as protective covering, does absorption and secretion.

Q.119 Write locations where the following animal tissues are found: (2 Marks)

(a) Simple squamous epithelial cells

(b) Cuboidal epithelium

(a) Oesophagus,lining of mouth

(b) Lining of kidney tubules,ducts of salivaty gland.

Q.120 Identify the tissue (3 Marks)

(a) Iris of pupil

(b) Muscles of heart

(c) Duct of salivary glands

(a) smooth muscle tissue

(b) cardiac muscle tissue

(c) stratified cuboidal epithelium

Q.121 answer in one word (5 Marks)

(a) a tissue found in abundance in animal

(b) a tissue present in brain and spinal cord

(c) a muscle type having spindle shaped cells

(d) a blood cell which is part of immune system

(e) a muscle type which show rhythmic contraction and relaxation throughout the life.

(a) connective tissue

(b) nervous tissue

(c) smooth muscles

(d) WBC

(e) cardiac muscles

Q.122 Write the functions of the following : (3 Marks)

(a) root nodule

(b) cork

(c) neuron

(a) root nodules contains nitrogen fixing bacteria which fixes nitrogen from atmosphere into the soil.

(b) cork protects plant from foreign invasion of pathogen and excessive heat and loss.

(c) neuron transmit message in the form of impulse to brain and spinal chord which controls and coordinates all the body activities.

Q.123 Identify the type of tissue on the following. Skin, bark of tree,bone,lining of kidney tubules,vascular bundle. (2 Marks)

Skin	Squamous epithelium
Bark of tree	Cork
Bone	Skeletal tissue
Lining of kidney tubules	Cuboidal epithelium
Vascular bundles	Xylem and phloem(complex permanent tissue)

Q.124 Give reason. (3 Marks)

(a) Blood, a connective tissue is red in colour.

(b) Movement of food in alimentary canal is not in control of an organism.

(c) Growth of plants takes place in some specific areas.

(a) RBC, red blood cells a component of blood are the cells containing haemoglobin in them which gives red colour to blood.

(b) As the movement of food is involuntary in nature so is not under a person will.

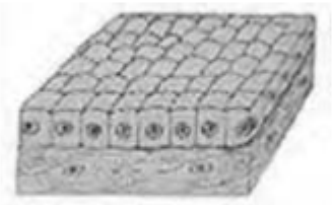
(c) This is so as only meristematic tissue present at tips ans lateral sides of roots and stems, nodes and internodes which are responsible for growth of plants.

Q.125 Depending on shape and function epithelium can be divided into how many types? Give a brief account of all. (5 Marks)

Type of epithelial tissue	Location	Function
Simple squamous	Lung alveoli and blood vessels	Allow small things to pass
Stratified squamous	Skin lining of mouth and oesophagus	Protection against wear and tear.
simple cuboidal	Kidney tubules	Mechanical support
Stratified cuboidal	Salivary and sweat glands	Mechanical support
Simple columnar	Lining of intestine and respiratory tract	Absorption and secretion and moves mucus by cilia (ciliated)
Stratified columnar	Male urethra	Protection and secretion
Transitional	Lining of urinary bladder	Helps in expansion and contraction
Pseudostratified columnar	Respiratory tract	Moves mucus by cilia

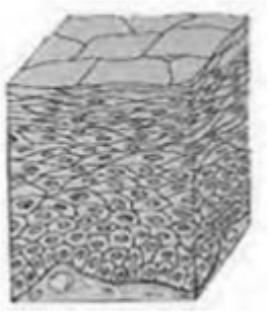
Types of epithelium

Simple squamous



Cuboidal

Columnar



Stratified squamous

Q.126 Name the following: (4 Marks)

a) Tissue that transports prepared food from leaf to the other plant body.

b) Tissue present in the brain

c) Tissue forming the inner lining of respiratory tract

d) Tissue which stores fat in our body

(a) phloem

(b) nervous tissue

(c) squamous epithelium

(d) adipose tissue

Value Based Questions :

Q.1 At school, Ravi and his friends where asked to observe the epidermis from leaf under the microscope. For proper study of the slide the tissue was stained. Ravi is confused for the function performed by stain which cleared from his teacher. (3 Marks)

From the above paragraph extract the answers for questions asked below:

(a) What is a stain used for in mounting a slide of tissues.

(b) Name the stain used here.

(c) What values of Ravi are shown here?

(a) For clear visibility of cell organelles studied under microscope, the cells are stained. The colour of stain is taken up by the different cell organelles.

(b) Safranin

(c) The paragraph shows the of attitude of Ravi towards finding new facts.

Q.2 Raj and Ajay were playing football with their friends, raj suddenly got injured. Ajay with other friends took him to hospital where doctor told them that raj got sprain in leg and should rest for some days. They took him home and regularly visited him to enquire about his situation. (3 Marks)

Answer the following questions:

(a) What is sprain?

(b) Is this a serious issue?

(c) What values are shown by raj's friends?

(a) At the time of sprain, the ligament , a type of connective tissue gets stressed out.

(b) No, this not a serious issue as with resting the stress of the ligament could be reduced in few days.

(c) Raj's friends love raj and are very helpful in nature.