

1. Answer the following questions.

i. Name three different types of specialized cells.

Red blood cells: are found in the blood. They carry oxygen around the body.

Epithelial cells: are found in outer layer of the skin. They protect and also produce some secretions.

Bone cells: make up the bones that support our body.

ii. What is the function of a cell membrane?

Cell membrane is a layer which is present in animal as well as plant cells. It controls what goes into and out of the cell.

iii. What is the name of the green-coloured pigment inside chloroplasts?

Chlorophyll is the name of the green-coloured pigment inside chloroplasts.

iv. What is a tissue?

A tissue is a collection of similar cells that work together on a specific task.

For example:

- Cardiac muscle tissue.
- Skeletal tissue.
- Nerve tissue.

v. What is the function of a cytoplasm?

Cytoplasm is a jelly-like substance which makes up most of the cell in both plants and animals. The cytoplasm contains a number of small structures called organelles. These perform several functions.

vi. **What is an organ? Name any three organs in a human body.**

An organ is a collection of two or more tissues organized to carry out a particular function

For example:

- Heart
- Skin
- Lungs
- Stomach

2. Long answer questions:

i. **A plant and an animal cell are similar in some ways yet very different in others. Compare the two types of cells in a paragraph and draw labelled diagrams.**

Plant cell	Similarities	Animal cell
Cell wall is present.	Both have mitochondria.	Cell wall is absent.
Plant cells have a large vacuole.	Both have a nucleus.	Animal cells have small vacuoles.
They have a regular shape.	Both have a cell membrane.	They have irregular shape.
They also have chloroplasts.	Both have cytoplasm.	They do not have chloroplasts.

ii. **Draw a labelled diagram of a plant and write the functions of the main organs of a flowering plant.**

Plants are made up of roots, stems, leaves and flowers. All of these are plant organs. Organs work together to keep the plant alive.

The functions of the main organs of a flowering plant are following:

- **Roots:**

Roots anchor the plant in soil. Root hairs give large surface area to absorb water and mineral salts from soil.

- **Stem:**

Stem grows upward towards light. It supports the plants body. It also carries water and mineral salts to the leaves and food around the plant.

- **Leaves:**

Leaves are the organs of photosynthesis. They make all the food for the plant body. They have green pigment called chlorophyll which absorbs sunlight for photosynthesis. They also have stomata which help in gaseous exchange.

- **Flowers:**

Flowers contain plant's reproductive organs. Many flowers attract insects which carry pollen between plants to bring about pollination and fertilization.

iii. **What is a tissue? What is the job of smooth muscle tissue?**

A tissue is a collection of similar cells that work together on a specific task.

Smooth muscle tissue:

Smooth muscle tissue contracts and relaxes to cause movement of internal body organs. They are present in stomach and help in digestion of food.

iv. Differentiate between organ and tissue.

Tissue	Organ
A tissue is a collection of similar cells that work together on a specific task.	An organ is a collection of two or more tissues organized to carry out a particular function.
For example: epithelial tissue, connective tissue, muscle tissue and nervous tissue.	For example: heart , lungs, stomach, kidney, liver, bladder etc.
It is major structural component of an organ.	It is major functional component of an organ system.
Always even in shape, without any gaps between cellular components.	Can be hollow in structure.

3. Think about it:

i. Why do you usually need to cut a very thin slice of a specimen to look at it under a light microscope?

We need to cut a very thin slice of a specimen to look at it under a light microscope. So that the material is thin enough for light to be able to pass through it.

ii. Why are cells stained or dyed before being looked at with a light microscope?

Cells are stained or dyed before being looked at with a light microscope, to show up the different parts, and particularly the nucleus and other organelles.

4. Tick the right option.

1. What is the main difference between plant and animal cells?

- | | | | |
|---|-----------------------------|--|--|
| a) Plant cells have a nucleus, animal cells do not. | b) Animal cells move about. | c) Plant cells have a cell wall which is easily seen. | d) Animal cells are always bigger than plant cells |
|---|-----------------------------|--|--|

2. Which one of the following substance in a cell traps sunlight?

- | | | | |
|--------------|-------------|--------------|-----------------------|
| a) Cytoplasm | b) Cell sap | c) Cellulose | d) chlorophyll |
|--------------|-------------|--------------|-----------------------|

3. The job of the cell membrane is to.

- | | | | |
|--------------------------------|---|--|---------------------------------|
| a) Give a plant cell its shape | b) Control what happens inside the cell | c) Control what substances go into and out of the cell. | d) Stop water entering the cell |
|--------------------------------|---|--|---------------------------------|

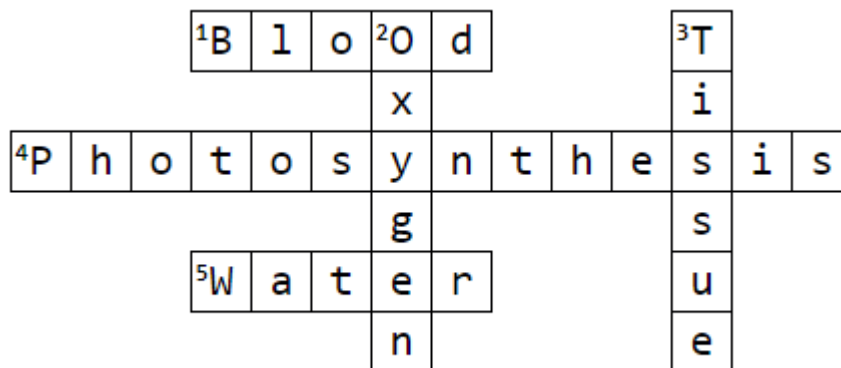
4. The job of the cell wall in a plant is to.

- | | | | |
|--|---------------------------------------|-----------------------------------|-----------------------------|
| a) Control what substances go into and out of the cell | b) Give a plant cell its shape | c) Allow photosynthesis to happen | d) Store food for the plant |
|--|---------------------------------------|-----------------------------------|-----------------------------|

5. What sort of structure is the heart?

- | | | | |
|-------------|--------------------|--------------------|---------------------|
| a) A tissue | b) An organ | c) An organ system | d) A group of cells |
|-------------|--------------------|--------------------|---------------------|

3. Crosswords



Across

1. Connective tissue.
4. Mesophyll cells.
5. Root hair cells absorb.

Down

2. Red blood cells carry.
3. Group of cells.

4. Words Search

Cardiac	Kidney	Phloem	Nervous	Mesophyll
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N	E	R	V	O	U	S	N	Z	U	E	L
X	W	G	N	R	S	U	B	C	X	R	K
G	B	Y	O	K	L	M	T	W	B	T	I
U	M	E	S	O	P	H	Y	L	L	U	D
N	F	P	G	J	H	L	N	W	B	M	N
E	K	O	R	W	Y	I	O	P	A	I	E
T	L	S	Z	I	A	L	K	Q	Z	K	Y
Q	P	S	A	Y	E	W	R	Z	C	M	B
P	W	D	P	H	L	O	E	M	Q	B	P
V	Y	O	B	N	M	S	T	U	V	C	O
Q	C	A	R	D	I	A	C	X	Q	X	W

5. Jumbled Words

- | | |
|----------------------------------|----------------------------------|
| i. OICROSMCPE <u>MICROSCOPE</u> | ii. DALIPSAE <u>PALISADE</u> |
| iii. DONENC SER <u>CONDENSER</u> | iv. GPOS NY <u>SPONGY</u> |
| v. ROASCE <u>COARSE</u> | vi. LPITEHEIAL <u>EPITHELIAL</u> |
| vii. GIAPHRDAM <u>DIAPHRAGM</u> | viii. XORTCE <u>CORTEX</u> |
| ix. TKELESAL <u>SKELETAL</u> | x. SNITETINE <u>INTESTINE</u> |

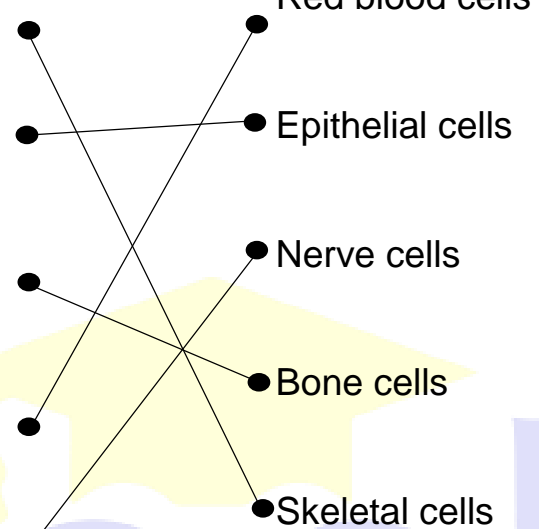
6. Columns

Match the column A with column B.

Column A

- They move parts of the body by their ability to contract.
- They perform protection and secretion.
- They make the bones that support our body.
- They carry oxygen around the body in blood.
- They receive and send message from the body to the brain and back to the body.

Column B

- Red blood cells
 - Epithelial cells
 - Nerve cells
 - Bone cells
 - Skeletal cells
- 

7. Fill in the blanks using the given words.

bigger	unicellular	more than one	tissues	tissue
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- i. A group of similar cells is called a tissue.
- ii. The glass of the in the microscope bends light waves in a way that makes an object look bigger.
- iii. An organ is made from a group of different tissues which all work together to do a particular job.
- iv. Organisms which are made up of one cell are called unicellular.
- v. Multicellular organisms are made up of more than one number of cells.

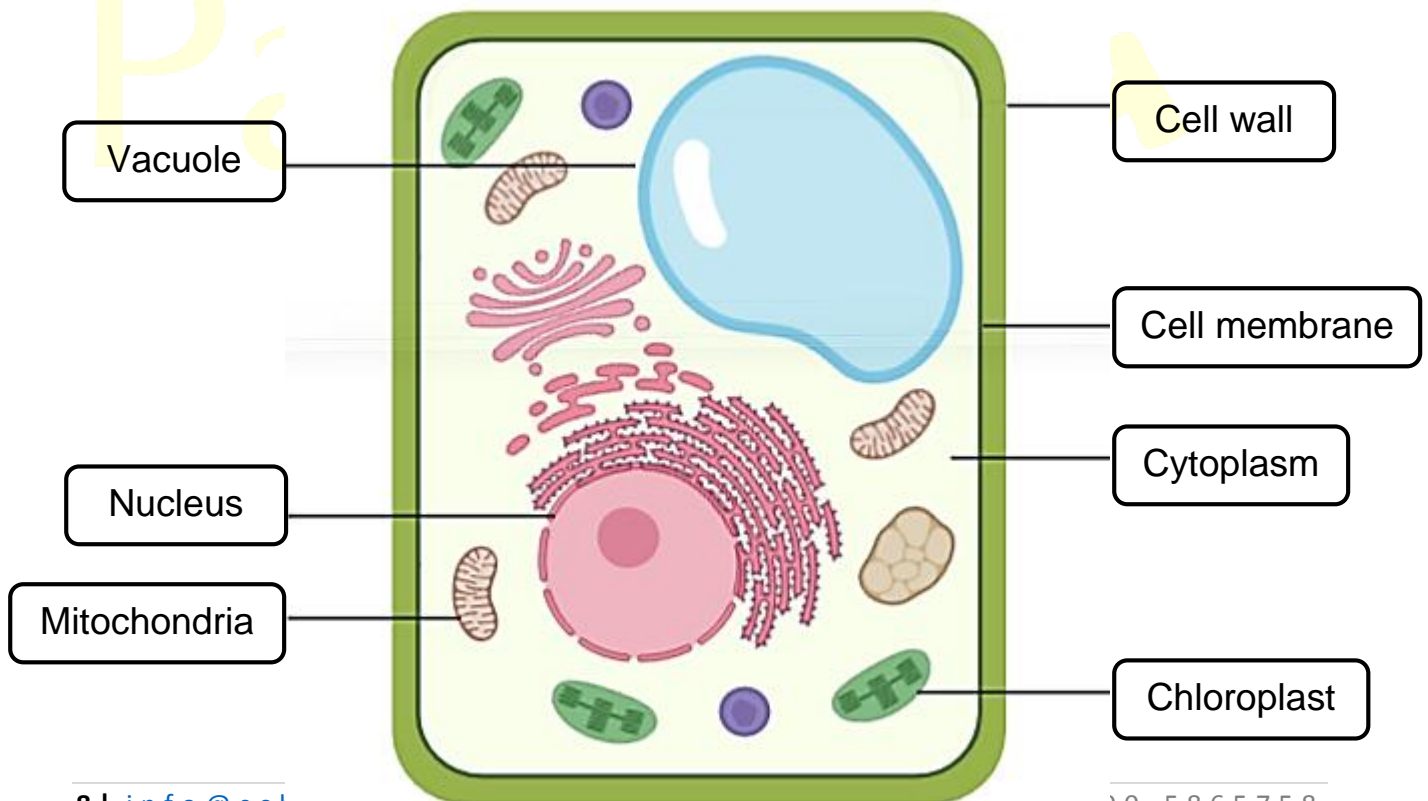
8. Write “T” for the true and “F” for the false statement.

- i. Only plant cells have chloroplasts.
- ii. Animal cells are rigid, but plant cells are floppy.
- iii. The nucleus of a cell controls its actions.
- iv. A group of similar cells is called a tissue.
- v. The chloroplasts in a plant cell carry out respiration.

T
F
T
T
F





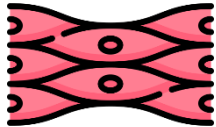
9. Label the diagram.

A Plant Cell



10. Drag and Drop

Look at the pictures and write their names in the relevant column.

				
Cell wall	Small or animal vacuole	Chloroplast	Mitochondria	Skeletal muscle

Functions

Stores waste material.

Produces energy for cell.

Give a plant cell its shape.

Performs photosynthesis.

Move different parts of body.

Names

Small or animal vacuole

Mitochondria

Cell wall

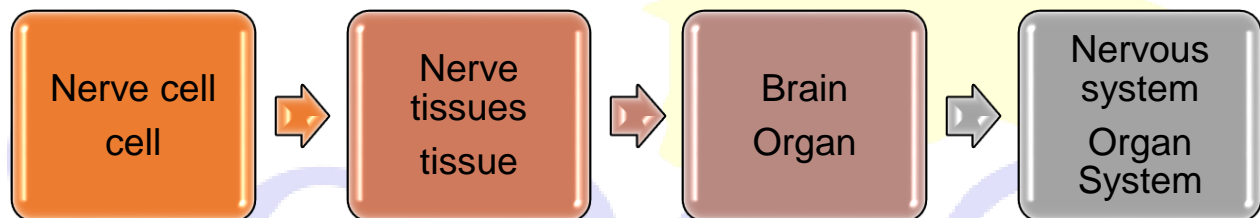
Chloroplast

Skeletal muscle

11. Comprehension

Answer the following questions after reading the paragraph.

Cellular organization refers to the hierarchical structure within living organisms, where cells are the fundamental units of life. At this level, cells perform specific functions and work together to form tissues, organs, and organ systems. Understanding cellular organization is crucial in comprehending the complexity of living organisms. The hierarchy of human levels of organization for nervous system is as follows:



i. **What is cellular organization?**

Ans: Cellular organization refers to the hierarchical structure within living organisms.

ii. **What are the fundamental units of life?**

Ans: Cells are the fundamental units of life.

iii. **What is the hierarchy of human levels of organization for nervous system?**

