

## UNIT: 4 - CELL BIOLOGY

CLASS : VII

SUBJECT : SCIENCE

### I. Choose the correct answer

1. Basis unit of life.

**A) Cell**

B) Protoplasm

C) Cellulose

D) Nucleus

2. I am the outer most layer of an animal cell. Who am I?

A) Cell wall

B) Nucleus

**C) Cell membrane**

D) Nuclear

membrane

3. Which part of the cell is called the brain of the cell?

A) Lysosome

B) Ribosome

C) Mitochondria

**D) Nucleus**

4. \_\_\_\_\_ helps in cell division

A) Endoplasmic reticulum

B) Golgi complex

**C) Centriole**

D) Nucleus

5. Suitable term for the various components of cell is \_\_\_\_

A) Tissue

B) Nucleus

C) Cell

**D) Cell organelle**

### II Fill in the Blanks

1. The jelly like substance present in the cell is called cytoplasm.

2. I convert the Sun's energy into food for the plant. Who am I? chloroplast.

3. Mature Red blood cell do not contain a Nucleus.

4. Unicellular organisms can only be seen under a Microscope.

5. Cytoplasm plus nucleoplasm is equal to Protoplasma.

### III. True or False - If false give the correct answer

1. Animal cells have a cell wall.

**False**

2. Salmonella is a unicellular bacteria.

**True**

3. Cell membrane is fully permeable

**False**

4. Only plant cells have chloroplasts.

**True**

5. Human stomach is an organ.

**True**

6. Ribosomes are small organelles with a membrane.

**False**

### IV. Match the following

1. Transporting channel - Endoplasmic reticulum

2. Suicidal bag - Lysosome

3. Control room - Nucleus

4. Power house - Mitochondria

5. Food producer - Chloroplast

## V. Analogy

1. Bacteria: micro organism :: mango tree : Macro organism.
2. Adipose: Tissue :: eye : Organ.
3. Cell wall: plant Cell :: Centriole : Animal cell.
4. Chloroplast : photosynthesis :: mitochondria : Respiration.

## VI. Choose the correct alternative from the following

1. **Assertion (A)** : Tissue is a group of dissimilar cells.

**Reason (R)** : Muscle is made up of Muscle cell.

- a). Both A and R are true
- b). Both A and R are false
- c). A is true but R is false.
- d). A is false but R is true.

2. **Assertion (A)** : Majority of cells cannot be seen directly with naked eye because. **Reason (R)** : Cells are microscopic.

- a). Both A and R are true
- b). Both A and R are false
- c). A is true but R is false.
- d). A is false but R is true.

## VII. Very short answer

1. What are the functions of cell wall in plant cell?

The outer most covering of the plant cell.

It maintains the shape and protect the cell.

2. Which organelle uses energy from sunlight to make starch?

Chloroplast is a organelle, characterized by its two membranes and a high concentration of chlorophyll and carry out the photosynthesis.

3. What are the main things in a nucleus?

It is surrounded by a nuclear envelope. One or two nucleolus and the chromatin body are present inside the nucleus.

4. What does cell membrane do?

**Cell membrane:** The boundary of an animal cell is the plasma membrane, which is also called as cell membrane

5. Why lysosomes are known as scavengers of the cell?

They are the main digestive compartments of the cell. They lyse a cell Hence they are called scavengers of the cell.

6. Teacher said "A virus is not an organism" Do you agree with this statement or not? Explain Why?

True I agree with the statement. A virus acts as a living organism within the body of a host and behaves like a non-living thing outside.

It lacks cell wall, cell membrane, cytoplasm and organelles. Hence it is not a organism.

### **VIII. Give short Answer**

#### **1. Why the cell is very important for us?**

- ❖ The cell is a basic structural and functional unit of life. Cell is the building unit of living organisms.
- ❖ You can see in a hand, how many types of cells are there to work together to perform its functions. So, cell is known as the basic unit of life.

#### **2. Distinguish between the following pairs.**

##### **a) Smooth ER and Rough ER:**

###### **Smooth endoplasmic reticulum:**

- ❖ It is a network of tubular sacs without ribosomes on the membrane. They play a role in the synthesis of lipids, steroids and also transport them within the cell.

###### **Rough endoplasmic reticulum:**

- ❖ Rough endoplasmic reticulum are rough due to the ribosomes attached to the membrane.
- ❖ which helps in the synthesis of protein.

##### **b) Cell wall and cell membrane:**

###### **Cell wall:**

- ❖ The cell wall is formed from various compounds, the main one being cellulose.
- ❖ Cellulose helps to maintain the shape of the plant cell.

###### **Cell membrane:**

- ❖ The boundary of an animal cell is the plasma membrane, which is also called as cell membrane.

##### **c) Chloroplast and mitochondria**

###### **Chloroplast:**

- ❖ Only plants with chloroplast are able to do photosynthesis because they contain the very important green pigment, chlorophyll.
- ❖ Chlorophyll can absorb radiant energy from the Sun and convert it to the chemical energy which can be used by the plants and animals.

###### **Mitochondria:**

- ❖ Mitochondria is an oval or rod shaped double membrane bounded organelle. Aerobic respiratory reactions take place with in the mitochondrion to release energy. So it is known as "the Power House" of the cell.

- ❖ The energy produced within the mitochondrion is used for all the metabolic activities of the cell.

### 3. Write correct sequence from cell to organism?

#### Cell to organism:

Many cells function together to form tissues, different tissues combined together to form an organ and different organs to form an organ system, which leads to form an organism.

(OR)

Cell → Tissue → Organ → Organ system → Organism.

### 4. Write a short note on nucleus.

- ❖ Plant and animal cells have a nucleus inside the cytoplasm. It is surrounded by a nuclear envelope.
- ❖ One or two nucleolus and the chromatin body are present inside the nucleus.
- ❖ During cell division, the chromatin body is organized into a chromosome. Storage of genetic material and transfers heredity characters from generation to generation are the functions of chromosome.

#### Functions of Nucleus

- ❖ <sup>TM</sup>In controls all the processes and chemical reactions that take place inside the cell.
- ❖ <sup>TM</sup>Inheritance of character from one generation to another.

### 5. Classify the following terms into cells, tissues, organs and write in the tabular column given below Neuron, Lungs, Xylem, brain, adipose, Leaf, RBC, WBC, hand, muscle, heart, ovum, squamous, phloem, cartilage.

| Cell   | Tissue    | Organ |
|--------|-----------|-------|
| Neuron | Xylem     | Lungs |
| RBC    | Adipose   | Brain |
| WBC    | Muscle    | Leaf  |
| Ovum   | Squamous  | Hand  |
|        | Phloem    | Heart |
|        | Cartilage |       |



6. On the lines given below, write about what you have learned from the activities done in this lesson. Let me tell you about some of the important things I've learned about cells. First, I'll start with... \_\_\_\_.

- ❖ Cell is the basic unit of an organisms.
- ❖ Based on number of cells organisms can be classified as unicellular and multi cellular organisms.
- ❖ The cells form tissues, Tissues form organs, Organ system help an organism to function.
- ❖ The cell wall is seen only in plant cells.
- ❖ Cell membrane is seen only in plant cells.
- ❖ Cell membrane is seen in all cells.
- ❖ The organelles of the cell like chloroplast, Mitochondria, Ribosomes, Endoplasmic Reticulum, Golgi bodies etc help to perform cell functions.
- ❖ Nucleus is the controlling centre of a cell.

### IX. Give long answer

1. Write about any three organelles in detail.

#### Lysosome- "Suicidal Bag":

- ❖ Everything I touch, I destroy You will find organelles called as lysosomes, which are very small to view using a light microscope.
- ❖ They are the main digestive compartments of the cell. They lyse a cell, hence they are called "suicidal bag".

#### Chloroplast- "Food Producers":

- ❖ Only plants with chloroplast are able to do photosynthesis because they contain the very important green pigment, chlorophyll. Chlorophyll can absorb radiant energy from the Sun and convert it to the chemical energy which can be used by the plants and animals.
- ❖ Animal cells lack chloroplasts and are unable to do photosynthesis.

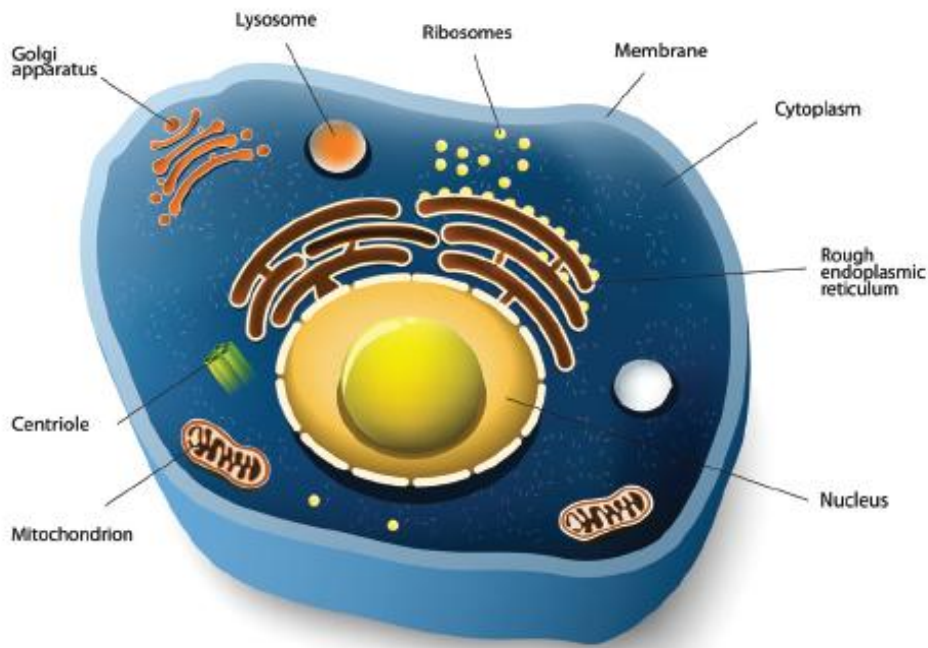
#### Centrioles:

- ❖ They are generally found close to the nucleus and are made up of tube-like structures.
- ❖ Centrioles or centrosomes are present only in animal cells and absent in plant cells. It helps in the separation of chromosomes during cell division.

2. In a situation, how to explain, while your friend ask what is this, never seen before?

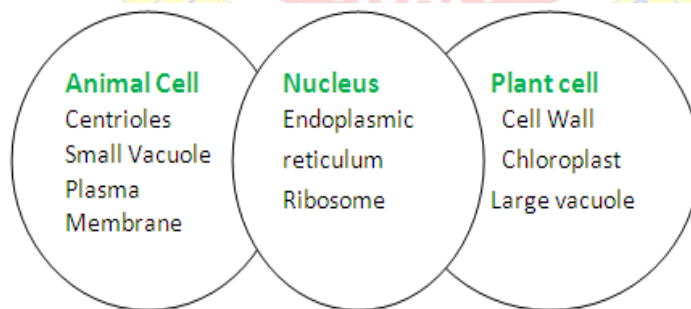
- ❖ This is a animal cell.
- ❖ It is the basic unit of an animal body.

- ❖ Animal cell is covered by a cell membrane and lacks cell wall.
- ❖ It has organelles like mitochondria, Golgi apparatus, Ribosomes, etc.
- ❖ It differs from plant cells since it lacks chloroplast.
- ❖ It has centrioles which are not seen in plant cells.
- ❖ Nucleus is the controlling centre of the cell.



Animal Cell

3. Compare the plant cell and the animal cell and complete the illustration given below.



### X. Higher order thinking question

1. Virus is called A cellular. Why?

- ❖ Virus is made up of a outer protein coat and a nucleic acid.
- ❖ It lacks cell wall, cell membrane, organelles and cytoplasm.
- ❖ Therefore a virus is described as a cellular.