

## Unit 5 - The cell

Class: VI

Subject: Science

### I. Choose the appropriate answer

1 The unit of measurement used for expressing dimension (size) of cell is \_\_\_\_\_.

- a. centimeter      b. millimeter      **c. micrometer**      d. meter

2. Under the microscope Priya observes a cell that has a cell wall and distinct nucleus. The cell that she observed is

- a. a plant cell**      b. an animal cell      c. a nerve cell      d. a bacteria cell

3. The 'control centre' of the eukaryotic cell is

- a. Cell wall      **b. Nucleus**      c. Vacuoles      d. Chloroplast

4. Which one of the following is not an unicellular organism?

- a. Yeast      b. Amoeba      **c. Spirogyra**      d. Bacteria

5. Most organelles in an eukaryotic cell is found in the

- a. Cell wall      **b. cytoplasm**      c. nucleus      d. Vacuole

### II. Fill in the Blanks

1. The instrument used to observe the cell is Microscope

2. I take part in food production of a cell. Who am I? Chloroplast

3. I am like a policeman. Who am I cell wall?

4. The Term " cell" was coined by Robert hooke

5. The egg of an Ostrich is the largest single cell.

### III. True or False. If False, give the correct answer.

1. A cell is the smallest unit of life.

True

2. Nerve cell is the longest cell

True

3. Prokaryotes were the first form of life on earth.

True

4. The organelles of both plants and animals are made up of cells.

True

5. New cells are produced from the existing cells.

True

### IV. Match the following

- |                               |   |                  |   |
|-------------------------------|---|------------------|---|
| 1. Control center             | - | Cell membrane    | 4 |
| 2. Food producer (Plant cell) | - | Mitochondria     | 5 |
| 3. Gate of the nucleus        | - | Nucleus          | 1 |
| 4. Gate of the cell           | - | Chloroplasts     | 2 |
| 5. Energy producer            | - | Nuclear Membrane | 3 |

## V. Arrange in a correct sequence

1. Elephant, Cow, Bacteria, Mango, Rose plant.

**Answer:** Bacteria, Rose plant, Mango, Cow, Elephant.

2. Hen's Egg, Ostrich's egg, Insect's egg.

**Answer:** Insect egg, Hen egg, Ostrich egg

## VI. Analogy

1. Prokaryote : Bacteria :: Eukaryote : Plant or animal cell

2. Spirogyra : Plant cell :: Amoeba : animal cell

3. Food producer : Chloroplasts :: Power house : Mitochondria

## VII. Give very short answer

1. Who discovered the cell in 1665?

The English scientist Robert Hooke discovered the cell in 1665 from cork slices kept under a microscope.

2. What type of cells do we have?

We have Eukaryotic cells.

3. What are the essential components of a cell?

- A typical cell consists of three major parts.
- An outer cell membrane
- A liquid cytoplasm
- Nucleus

4. What are the organelles found only in plant cell?

Chloroplasts and cell wall are the organelles found only in plant cell.

5. Give any three examples of eukaryotic cell?

- Plant cells
- Animal cells
- Most of fungi and Algae

6. Which one is called as "Area of movement"?

Cytoplasm is called as "Area of movement".

7. Shiva said "Bigger onion has larger cells when compared to the cells of smaller onion"! Do you agree with his statement or not? Explain Why?

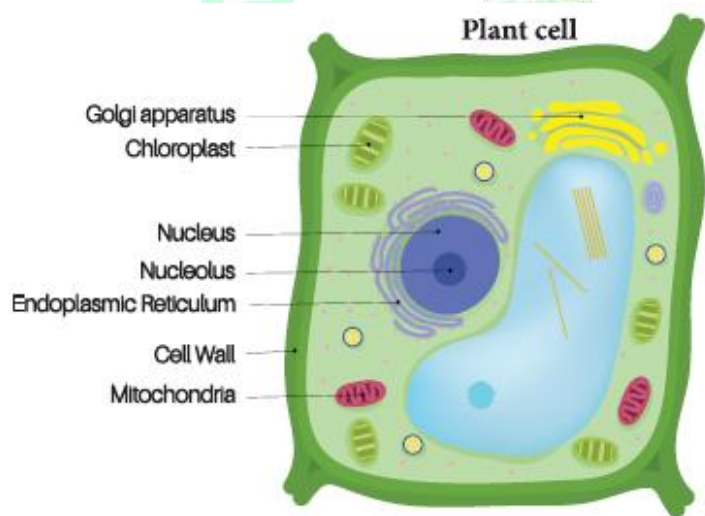
No, the big onion and small onion both of them have plant cell and the size of every cell remains same whether it is of a small onion or big one. The shape is larger means that the number of cells is more in bigger onion.

### VIII. Give short answer

1. Why cells are called building blocks of life?

- A brick is the basic building block of the wall.
- Like a brick wall, your body is composed of basic building blocks, and are named as "Cells".
- The cell is the basic structural and functional unit of every living organism.
- The cell is self-sufficient to carry out all the fundamental and essential functions of an organism.

2. Identify any four parts of the Plant cell.



3. Distinguish between prokaryotic and eukaryotic cells

#### Prokaryotic cell:

- It's diameter ranges from 1 to 2 micron
- Absence of membrane bound organelles
- Nucleus consisting of no nuclear membrane
- Absence of nucleoli

### Eukaryotic cell:

- It's diameter ranges from 10 to 100 micron
- Presence of membrane bound organelles
- True nucleus consisting of nuclear membrane
- Presence of nucleoli

### **4. Make sketches of animal and plant cells which you observe under microscope.**

#### Plant cell

- It is usually larger in size. It is hard in nature.
- Plant cell have a cell wall in addition to their cell membrane.
- Plant cell have chloroplast which contain chlorophyll
- Plant cells have large vacuoles. Centrioles are absent.

#### Animal cell:

- Animal cells are generally smaller than plant cells. It is not so hard as plant cell.
- A cell wall is absent.
- Chloroplast is usually absent.
- An animal cell may have many small vacuoles.
- Centrioles are found in animal cells.

### **5. Write about the contribution of Robert Hooke in cell biology.**

- The Englishman Robert Hooke was a scientist, mathematician, and inventor. He improved microscope which was used in those days, and built a compound microscope.
- He placed water-lens beside the microscope to focus the light from an oil-lamp on specimens to illuminate them brightly. So that he was able to see the minute parts of the objects clearly. One day Hooke made thin sections of the cork and observed them through his microscope. He observed many small identical chambers which were hexagonal in shape.
- He was surprised. After that he observed many objects like Butterfly's wings, Bee's compound eyes etc. Based on this observations, Hooke published a book named Micrographia in the year 1665, where he first used the term Cell. He described the structure of tissue using the term cell.

## IX. Answer in detail

1. Tabulate any five cell organelles and their function.

S.No	Cell Components	Main Functions	Special Name
1	Cell wall	Make the cell stiff and strong Surrounds and protects the cell	Supporter and protector
2	Cytoplasm	A watery, gel-like material in which cell parts move.	Area of movement
3	Mitochondria	Produce and supply most of the energy for the cell	Power house of the cell
4	Vacuoles	Store food, water, and chemicals	Storage tanks
5	Nucleus membrane	Surrounds and protects the nucleus control the movement of materials in and out of the nucleus	Gate of the nucleus

2. Draw a neat labelled diagram of a prokaryotic cell.

Structure of Prokaryotic cell Eg. Escherichia coli

