



INDIAN SCHOOL AL WADI AL KABIR



<b>Class: VIII</b>	<b>Department: SCIENCE 2021 - 22</b>	<b>Date: 18-04-2021</b>
<b>Worksheet No.: 1</b>	<b>Topic: Cell- structure and functions</b>	<b>NOTE: A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT:</b>	<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

**I. VERY SHORT ANSWER (1M)**

1. Name the scientist who coined the term ‘cell’ and What is a cell?  
[Hint- Robert Hooke, Cell is a structural and functional unit of life.]
2. A hen’s egg can be seen easily. Is it a single cell or a group of cells?  
[Hint- A single cell]
3. What are tissues?  
[Hint- Group of cells that carry out a specific function E.g. Muscular tissue, blood.]
4. Name the cell organelle and pigment that is responsible for green colour in leaves.  
[Hint-Chloroplast is the organelle and chlorophyll is the pigment responsible for the green colour of leaves.]
5. What are stains? Give an example of a stain.  
[Hint-Stains are the dyes which are used to colour the parts of a cell to observe them clearly under a microscope E.g. Methylene blue and safranin]
6. Which of the two has a large vacuole: a plant cell or an animal cell?  
[Hint- A plant cell]
7. The table given below has certain terms and four blank spaces named A, B, C and D. From the options given below choose the correct combination of terms.

Cell	Feature/part	Function
Amoeba	A	Movement
Plant cell	Plastid	B
C	Spindle shaped	Contraction
Nerve cell	D	Stimuli and response

[Hint -A-Pseudopodia; B-Photosynthesis; C-Muscle cell; D- Branched]

8. How is division of labour done in the cells of living organisms?

[Hint- Cells show very neat division of labour, each cell has various organelles which have their own function to perform.]

9. Name a cell and an organism which can change their shape.

[Hint- Organism- Amoeba, Cell- White blood cells]

10. What advantage does amoeba derive by changing shape?

[Hint-The change in shape is due to the formation of pseudopodia which facilitates movement and help in capturing food.]

*For the question numbers 11,12 and 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below*

*i) Both A and R are true and R is the correct explanation of the assertion.*

*ii) Both A and R are true but R is not the correct explanation of the assertion.*

*iii) A is true but R is false.*

*iv) A is false but R is true*

11. **Assertion(A)**- Bacteria is a prokaryote.

**Reason(R)**- The bacterial cell is not surrounded by a well-defined cell membrane.

**Ans: iii) A is true but R is false.**

12. **Assertion(A)**- The nerve cell is long and branched.

**Reason(R)**- To receive and transfer messages, thereby helping to control and coordinate the working of different parts of the body.

**Ans: i) Both A and R are true and R is the correct explanation of the assertion.**

13. **Assertion(A)**-Nucleus is the control centre of a cell.

**Reason(R)**-Nucleus is a spherical body located in the centre of an animal cell.

**Ans: ii) Both A and R are true but R is not the correct explanation of the assertion.**

## **II.PASSAGE BASED QUESTIONS:**

Read the following passage and answer the questions-

A generalised cell consists of three main parts –cell membrane, cytoplasm and nucleus. The living parts of a cell which have definite shape and function are called organelles. Some of the organelles present in plant cells may not be present in animal cells. Organelles present in plant

cells only are Plastids and cell wall. Growth in living organisms occurs as a result of increase in the number of cells. The process by which cells reproduce is called cell division. Cell division helps in growth and repairing the worn out or injured body parts, as new cells are formed to replace or repair the injured part of the body. It also helps in the continuation of life through the process of reproduction.

- i) What are cell organelles?
  - a) Nucleus only
  - b) The living parts of all cells
  - c) Cytoplasm only
  - d) Plastids only
- ii) Name the parts present only in plant cells.
  - a) Cytoplasm
  - b) Nucleus
  - c) Plastids and cell wall
  - d) None of these
- iii) Define the term cell division.
  - a) The process by which a body reproduce
  - b) The process by which cells reproduce
  - c) Breaking down of tissues
  - d) All of these
- iv) How does cell division help in continuation of life?
  - a) By respiration
  - b) By reproduction
  - c) By excretion
  - d) By Circulation

### **III. a) SHORT ANSWER TYPE QUESTIONS (2 M):**

1. Differentiate between an organ and an organelle.  
[Hint- An organ is the collection of tissues performing the similar function. An organelle is a small, specialised structure found in the cytoplasm of the cells which carries out a specific life process.]
2. What is a gene? Write its function.  
[Hint- Gene is a unit of inheritance. It controls the transfer of hereditary characteristic from parents to offspring]
3. What do you understand by the terms –protoplasm and cytoplasm.  
[Hint-Protoplasm is the living contents of a cell which includes the nucleus and cytoplasm. Cytoplasm is the jellylike material, which is present between the cell membrane and the nucleus.]
4. Why is the cell called as the structural and functional unit of life?  
[Hint-A cell is capable of carrying out all the life functions, such as nutrition, excretion, respiration, etc. hence a cell is called the functional unit of life. Cell is called the structural unit of life because all living organisms are made up of cells.]
5. What would happen if a cell lacks nucleus?  
[Hint- The cell will die as all the main activities are controlled by the nucleus]

### **III. b) SHORT ANSWER TYPE QUESTIONS (3 M)**

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

[Hint- (i) To give shape and support to the plant cell. (ii) To provide protection against variations in temperature, atmospheric moisture, etc. (iii) prevents water loss.]

2. Write a short note on nucleus.

- It is generally spherical and located in the centre of the cell.
- The nucleus is separated from the cytoplasm by a membrane called the nuclear membrane.
- The nucleus contains thread-like structures called chromatin. The chromatin condenses during cell division to form chromosomes. They carry genes and help in inheritance or transfer of characters from the parents to the offspring (young ones).
- The nucleus contains a small spherical body called nucleolus.

3. Complete the given table:

SLNO:	DESCRIPTION	CELL PART
i)	It allows movement of the materials in and out of the cell.	
ii)	The coloured organelles found in the cytoplasm of a plant cell.	
iii)	The living component of a cell consisting of cytoplasm and the nucleus.	
iv)	It provides rigidity to the plant cells	

[Hint- i) Cell membrane, ii) Plastids iii) Protoplasm iv) cell wall]

4. State the differences between plant and animal cells.

PLANT CELL	ANIMAL CELL
• Has a cell wall	• Cell wall is absent
• Plastids are present.	• Plastids are absent
• Vacuole is large.	• Vacuoles are smaller in size

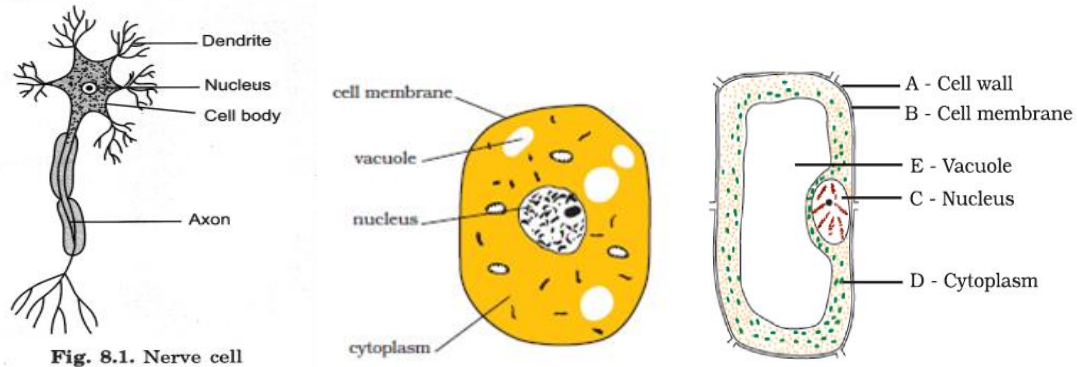
5. Distinguish between prokaryotic and eukaryotic cell with suitable examples.

[Hint: Prokaryotic-Cells without well organised nucleus i.e. lacking nuclear membrane are called prokaryotes. e.g. Bacteria and Bluegreen algae.

Eukaryotes-The cells with well organised nucleus with nuclear membrane are eukaryotic cells. e.g., onion cells, cheek cells etc.]

#### IV. LONG ANSWER TYPE QUESTIONS (5 M):

1. Draw a neat diagram of the following  
a) Nerve cell.    b) Animal cell    c) Plant cell.



- 2.a. Discuss the importance of Cell division.

[Hint: **Cell division** plays an **important** role in all living organisms, as it is essential for growth, repair and reproduction. This process helps in: Renewing of damaged **cells**.

**Production of new cells from older ones.]**

- b. Cells consist of many organelles, yet we do not call any of these organelles as structural and functional unit of living organisms. Explain. [Hint-Although cell organelles have specific structures and perform specific functions but they cannot be called structural and functional units of living organisms. This is so because they can perform their functions only when they are within a living cell. They cannot function outside the cell as an independent unit.

- c. The size of the cells of an organism has no relation with the size of its body. Do you agree?

Give reason for your answer.

[Hint- I agree because the cells in the body of an elephant is not necessarily bigger than those in a rat, it is not true that bigger organisms have cells of bigger size in their body. The size of the cell in an organism is related to the function to performs. For example, the nerve cells in

both, the elephant and the rat is long and branched. They perform the same function, that of transferring messages.]

3.Observe the following diagrams and answer the following questions:

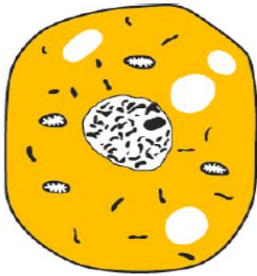


Fig 1

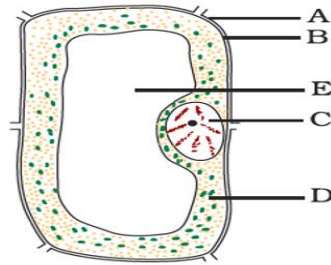


Fig 2

- i) Identify the cells given as fig 1 and 2
- ii) Label the parts marked in the fig 2
- iii) Does fig 1 represent a prokaryotic or Eukaryotic cell? Why?

[Hint- i) Animal cell and Plant cell, ii) A-cell wall, B- Cell membrane, C- Nucleus, D- Cytoplasm, E- Vacuole iii. Eukaryotic cell, because it has a well-defined nucleus surrounded by a nuclear membrane.]

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