Grade 8 LN-8 **Cell-Structure and Function** Date: 14/06/2023

Book Exercise

1.Which of these is multicellular?
(a) *Paramecium* (b) *Amoeba* (c) bacteria (d) **mushroom**

2. The egg of a hen is a
(a) **cell**. (b) tissue. (c) organ. (d) organ system.

3. Which of these is not present in an animal cell?
(a) mitochondria (b) nucleus (c) cell membrane (d) **chloroplasts**

4. Which of these is the control centre of the cell?
(a) **nucleus** (b) cytoplasm (c) mitochondria (d) protoplasm

5. Which organelles are responsible for energy production in a cell?
(a) vacuoles (b) chloroplasts (c) **mitochondria** (d) golgi bodies

6. Which of these is not stated by the cell theory?
(a) Cells are the basic structural units of living organisms.
(b) **All cells are identical**.
(c) New cells are formed due to division in old cells.
(d) The way an organism functions depends on the way the cells work.

7. In which of these does a single cell NOT perform all life functions?
(a) *Amoeba* (b) **mosquito** (c) bacteria (d) *Euglena*

8. Which of these unicellular organisms has no definite shape?
(a) ***Amoeba*** (b) *Paramecium* (c) *Euglena* (d) bacteria

B. VERY SHORT ANSWERS

1. All living organisms are made up of one or more **cells**.

2. Which is the largest known single cell?

ANS: The egg of an ostrich (measuring 170 mm 130 mm) is the largest known single cell.

3. What is the jelly-like substance present in cells called?

ANS: The cytoplasm.

4. The cell membrane which surrounds the cell does not allow anything to pass through it. True or false?

ANS: False.

5. The cytoplasm and the nucleus together make up the **protoplasm**.

6. Name the cell organelles that help to get energy from food.

ANS: Mitochondria.

7. Which of these has a cell wall−Plant cell or animal cell?

ANS: Plant cell has a cell wall, which gives shape and rigidity to the cells of a plant.

8. Name the process by which new cells are formed.

ANS: Cell division.

9. Which structure in the nucleus is a storehouse for information needed by the cell to function?

ANS: Chromosomes

10. Plant cells have large vacuoles as compared to animal cells. True or false?

ANS: True.

C. SHORT ANSWERS.

1.What are the 'building blocks of life'? Why are they so called?

ANS: Cells are the building blocks of life. They are called so because large number of cells assemble to make the body of a multicellular organism.

2. Differentiate between unicellular and multicellular organisms.

ANS:

Unicellular Organism	Multicellular Organism
A unicellular organism is made up of a single cell.	A multicellular organism is made up of more than one cell.
All the functions of the organism such as respiration, digestion and reproduction are preformed by a single cell.	Different organs are present to perform different functions of the organism.

3. What is cytoplasm?

ANS: Cytoplasm is the basic component of the cell. It is a jelly-like substance present between the cell membrane and nucleus. Various organelles of cell such as mitochondria, ribosomes, and Golgi complex are present in the cytoplasm.

4. What do you mean by protoplasm?

ANS: Protoplasm is the entire content of a living cell. It includes the cytoplasm and the nucleus of a cell.

5. What is a tissue?

ANS: A tissue is a group of one or more type of cells and their intercellular substance that performs a particular function.

6. What are organelles?

ANS: Organelles are organised cell components present in the cytoplasm. Each organelle has a specific function to perform inside the cell.
Examples: Ribosomes, mitochondria, vacuoles, etc.

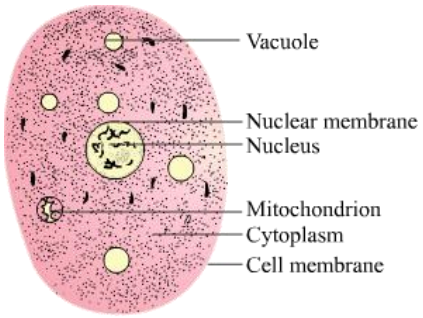
D. SHORT ANSWER QUESTIONS.

1. What are the lower levels of organization in a multicellular organism? Are these levels also present in unicellular organisms?

ANS: The lower levels of organisation in a multicellular organism are as follows:
(a) Cellular level
(b) Tissue level
(c) Organ level
(d) Organ system level
These levels are not present in unicellular organisms because their body is made up of a single cell.

2. Draw a labelled diagram to show the general structure of a cell.

ANS:



A typical cell

3. What are the differences between plant and animal cells?

ANS:

Plant Cell	Animal Cell
Cell wall is present.	Cell wall is absent.
Plastids are found in plant cell.	Plastids are absent in animal cell.
A mature plant cell has a large central vacuole.	An animal cell has many small vacuoles.

4. What is meant by the term 'cell division'? Why is cell division necessary?

ANS: Cell division is the process of formation of new cells from parent cells. Cell division is necessary for the growth and development of a multicellular organism because new cells are needed to replace the old and dead cells.

E. LONG ANSWER QUESTIONS.

1. What are the main points of the cell theory of life?

ANS: Following are the main points of the cell theory of life:
(a) All living organisms are composed of cells and their products.
(b) Each cell is made up of a small mass of protoplasm containing a nucleus on its inside and a plasma membrane with or without a cell wall on its outside.
(c) All cells are alike in chemistry and physiology.
(d) Activities of an organism are the sum total of activities and interactions of its constituent cells.

2. What are the functions of the following in a cell?
(a) cell membrane (b) cytoplasm (c) nucleus (d) chromosomes
(e) mitochondria (f) vacuoles

ANS: (a) Cell membrane: It separates the cells from their external environment. Cell membrane also protects the cell from injury.

(b) Cytoplasm: It contains raw materials and provides the same to cell organelles for their functioning.

(c) Nucleus: It stores genetic information in chromosomes that can be passed on to daughter cells. Nucleus controls the overall cell metabolism and other activities.

(d) Chromosomes: These contain genes. All the hereditary information is located in the genes. Chromosomes control the cell division and cell growth.

(e) Mitochondria: These are called powerhouses of the cell because food is oxidised inside them and energy that is liberated from it helps in performing various energy-requiring processes.

(f) Vacuoles: They play an important role in cell enlargement. Vacuoles store food, waste and water.

3. With the help of examples, show the variation in shapes and sizes of cells.

ANS: Generally, cells are round, spherical or elongated in shape. Some cells such as nerve cells are quite long and have extensive branching. Some cells such as *Amoeba* has no fixed shape. It keeps changing its shape. White blood cells in humans can also change its shape. The cell membrane provides shape to the cells of animals and plants.

There is a wide variation in the size of the cells also. Most of the cells cannot be seen with naked eye. The smallest cell (a bacterium) is 0.1–0.5 μm in size while the largest cell measuring 170 mm 130 mm is the egg of an ostrich. Longest cells of human body are the nerve cells, which may reach a length of 90 cm.

COMPLETE THE HOTS QUESTON AND BE SCIENTIST QUESTIONS WITH ANSWERS.