

Class 9 Science Chapter 5 - The Fundamental Unit of Life.

1. The structural and functional unit of life is:

- a) Organ
- b) Tissue
- c) Cell
- d) Organ system

2. Who discovered the cell in 1665?

- a) Robert Brown
- b) Anton van Leeuwenhoek
- c) Robert Hooke
- d) Matthias Schleiden

3. Which organelle is known as the ‘powerhouse of the cell’?

- a) Nucleus
- b) Mitochondria
- c) Ribosome
- d) Golgi apparatus

4. The control center of the cell is:

- a) Mitochondria
- b) Ribosome
- c) Nucleus
- d) Cytoplasm

5. Which of the following is a single membrane-bound organelle?

- a) Mitochondria
- b) Nucleus
- c) Lysosome
- d) Chloroplast

6. The function of ribosomes is:

- a) Digestion
- b) Protein synthesis
- c) Energy production
- d) Waste removal

7. The outermost layer of a plant cell is called:

- a) Plasma membrane
- b) Cell wall
- c) Cytoplasm
- d) Nucleus

8. Which organelle is responsible for packaging and transport in the cell?

- a) Golgi apparatus
- b) Lysosome
- c) Ribosome
- d) Mitochondria

9. Which process allows substances to move from higher to lower concentration?

- a) Active transport
- b) Diffusion
- c) Osmosis
- d) Endocytosis

10. The shrinking of a plant cell in a hypertonic solution is called:

- a) Endocytosis
 - b) Exocytosis
 - c) Plasmolysis
 - d) Phagocytosis
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Short Answer Questions (2-3 marks each)

1. What is the **cell theory**? Who proposed it?
 2. Differentiate between **prokaryotic and eukaryotic cells**.
 3. Why is the **plasma membrane** called a **selectively permeable membrane**?
 4. What is **osmosis**? Explain with an example.
 5. What are **lysosomes**? Why are they called **suicidal bags**?
 6. Explain the **function of mitochondria** in a cell.
 7. What happens when a **plant cell is placed in a hypertonic solution**?
 8. What is the difference between **diffusion and osmosis**?
 9. What is **endocytosis**? Name an organism that shows this process.
 10. Explain the **role of the nucleus** in a cell.
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Long Answer Questions (4-5 marks each)

1. **Explain the structure and functions of the plasma membrane. How does transport occur across it?**
2. **Describe the structure and function of the nucleus. Why is it called the control center of the cell?**
3. **What is the difference between plant and animal cells? Explain with a diagram.**
4. **What is plasmolysis? Explain with an experiment and a diagram.**
5. **Explain the function of the endoplasmic reticulum (ER). Differentiate between smooth ER and rough ER.**

