

IX/BIOLOGY/CHAPTER: 5

CELL: THE FUNDAMENTAL UNIT OF LIFE

1. Who discovered cells and how? (page 59)

Answer- Cell was discovered by an English Botanist, Robert Hooke in 1665. He used self-designed microscope to observe cells in a cork slice back then.

2. Why the cell is called the structural and functional unit of life? (Page 59)

Answer- Cells are called the structural and functional unit of life because all the living organisms are made up of cells and all the functions that take place inside the organisms are performed by cells.

3. How do substances like CO₂ and water move in and out of the cell? Discuss. (page-61)

Answer- The substances like CO₂ and water move in and out of a cell through the process called diffusion from the region of concentrated region to low concentrated one. When the concentration of carbon di-oxide and water is higher in external environment than that inside the cell, CO₂ and water moves inside the cell. When the concentration outside the cell is low but it is high inside the cell, they move outwards.

4. Why the plasma membrane is called a selectively permeable membrane? (page 61)

Answer- Plasma membrane called a selectively permeable membrane because it regulates the movement of substances from within to outside of the cell. This means that the plasma membrane allows the entry of some substances while preventing the movement of some other substance.

5. Can you name the two organelles we have studied that contain their own genetic material? (page-65)

Answer- Mitochondria and plastids their own genetic material

6. If the organization of a cell is destroyed due to some physical or chemical influence, what will happen? (page 65)

Answer- If the organization of a cell is destroyed due to some physical or chemical influence then cell will not be able to perform its basic functions like digestion, excretion, respiration etc. This may stop all the life activities and the life of an individual may come to an end.

7. Why are lysosomes known as suicide bags? (page 65)

Answer- Lysosomes are called suicide bags because in case of any disturbance of their cellular metabolism they release their own enzymes to digest their own cell.

8. Where are proteins synthesized inside the cell? (page 65)

Answer- The proteins are synthesized in the Ribosome

EXERCISE (page 66)

9. Make a comparison and write down ways in which plant cells are different from animal cells.

Answer

Animal cell

Has a cell wall.

Plant cell

Has cell wall made up of cellulose.

It does not contain chloroplast.

It contains chloroplast.

It has centrosome.

It does not has centrosome.

Vacuoles are smaller in size.

Vacuoles are larger in size.

Lysosomes are larger in number.

Lysosomes are absent or very few in number

Prominent Golgi bodies are present.

Subunits of Golgi bodies are present.

10. How is a prokaryotic cell different from a eukaryotic cell?

Answer

Prokaryotic cell

Eukaryotic cell

Most prokaryotes are unicellular.

Most eukaryotes are multi-cellular.

Size of the cell - (0.5- 5 μ).

Size of the cell - (50- 100 μ).

It contains a single chromosome.

It contains more than one chromosome.

Nucleolus is absent.

Nucleolus is present.

Membrane-bound cell organelles such as plastids, mitochondria, endoplasmic reticulum, Golgi apparatus, etc. are absent.

Cell organelles such as mitochondria, plastids, endoplasmic reticulum, Golgi apparatus, lysosomes, etc. are present.

Cell division occurs through binary fission

Cell division occurs by mitosis.

11. What would happen if the plasma membrane ruptures or breaks down?

Answer- If ever the plasma membrane ruptures or breakdown then the cell will not be able to exchange material from its surroundings by diffusion. As a result of it the protoplasmic material will disappear and the cell will die.

12. What would happen to the life of a cell if there was no Golgi apparatus?

Answer- Golgi apparatus performs the function of a storage modification and packaging of products. If Golgi apparatus is not there then materials synthesized by cell will not be packaged and transported.

13. Which organelle is known as the powerhouse of the cell? Why?

Answer- Mitochondria are known as the powerhouse of cells because energy required for various chemical activities needed to support life is released by mitochondria in the form of ATP (Adenosine triphosphate) molecules.

14. Where do the lipids and proteins constituting the cell membrane get synthesized?

Answer- Lipids are synthesized in Smooth endoplasmic reticulum and the proteins are synthesized in endoplasmic reticulum.

15. How does an Amoeba obtain its food?

Answer- Amoeba obtains food using temporary finger-like extensions on the cell surface which fuse over the food particle forming a food-vacuole. Complex substances are broken down into simpler ones inside the food vacuole which then diffuse into the cytoplasm. The remaining undigested material is moved to the surface of the cell and thrown out resulting in excretion.

16. What is osmosis?

Answer- Osmosis is the process in which water molecules moves from the region of high concentration to a region of low concentration through a semi permeable membrane.
