

The Fundamental Unit Of Life

Notes

- Cell – Cell is regarded as the structural and fundamental unit of living organisms .
- Discovery of the Cell – The term cell was introduced by an English Scientist Robert Hooke . He examined thin slice of cork under his self designed primitive microscope . The cork is a substance obtained from the bark of a tree . He was surprised to note that the cork resembled the structure of a honey comb and consisted of many tiny compartment . He saw dead cells of plants which looked like empty room . He called there small room as Cellular , now termed as Cell . Cellulae is a latin word which means little room

Chapter -5

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Assignment Ques/ Ans

Q1. Why Plasma Membrane is known as selectively permeable membrane?

Ans. The plasma membrane allows or permits the entry & exit of some material in & out of the cell . It also prevents movement of some other material . The Cell membrane , therefore is called a selectively permeable membrane .

Q2. Write some uses of Osmosis ?

Ans . Unicellular fresh water organism and most plant cells tend to gain water through Osmosis . Absorption of water by plant roots is also an example of Osmosis .

Q3. Differentiate between Osmosis and Diffusion ?

Ans.

| Diffusion | Osmosis |
|---|--|
| <ul style="list-style-type: none">• Diffusion can occur in any medium• It involves movement of molecules from the region of their higher concentration to the region of their lower concentration .• It can occur without through a semi permeable membrane . | <ul style="list-style-type: none">• Osmosis occurs only in liquid medium• It involves movement of solvent molecules only from the region of their higher concentration to the region of their lower concentration• It always takes place through a semi permeable membrane |

Q4. Explain Hypotonic , Hypertonic and Isotonic Solution ?

Ans. **Hypotonic Solution** :- If the water surrounding has high water concentration than the cell , The cell will be gain water by Osmosis . This is called Hypotonic solution .

Isotonic Solution :- If the medium surrounding the cell is of exactly the same water concentration as the Cell There will be no net movement of water . Such Solution is Called Isotonic Solution

Hypertonic solution :- If the medium has a lower concentration of water than the cell , the cell will lose water by osmosis and the cell will shrink. Such Solution is called Hypertonic Solution .

Q5. What are the Constituent of plasma membrane ?

Ans. The plasma membrane is Flexible & is made up of organic molecules called Proteins & Lipids .

Q6. What is Endocytosis ?

Ans. The flexibility of the cell membrane also enable the cell to engulf in food and other material from its external environment

Such processes are known as endocytosis . Amoeba acquires its food through such processes .

Q7. What is Plasmolysis ?

Ans. When a living plant cell loses water through Osmosis there is shrinkage or contraction of the contents of the cells away from the cell wall. This phenomenon is known as Plasmolysis .

Q8. What is the Composition of cell wall ?

Ans. The plant cell wall is mainly composed of cellulose . cellulose is a complex substance and provides structural strength to plant .

Q9. What is nucleoid?

Ans. In some organisms like bacteria , the nuclear region of the cell may be poorly defined due to the absence of a nuclear membrane . Such an undefined nuclear region containing only nucleic acid is called a Nucleoid .

Q10. What is membrane biogenesis ?

Ans. RER help to make the protein .The SER helps in the manufacture of Fat molecules or Lipid , important for cell function . Some of these Protein and lipids help in building the cell membrane . this process is known as membrane biogenesis.

Q11. What are the functions of Endoplasmic Reticulum ?

Ans. The functions of Endoplasmic Reticulum are :-

- One function of Endoplasmic Reticulum is to serve as Channel for the transport of material between the various region of the cytoplasm and nucleus
- The ER also function as cytoplasm framework providing a surface for some of the biochemical activities of the cells
- In the liver cells of the group of animals called vertebrates , SER plays a Crucial role in detoxifying many poison and drugs .

Q12.What are the functions of Golgi apparatus?

Ans. The functions of golgi apparatus are :-

- The material synthesized near the ER is packages and dispatched near the ER is Packaged and dispatched to various target site .
- Its function include the storage , modification & packaging of products in vesicles.
- In some cases , Complex sugar may be made from simple sugars in the golgi apparatus .
- The apparatus is also involved in the formation of lysosomes

Q13. What would happen if shelled raw egg and de shelled Boiled egg are in water ?

Ans. There will be no change in the size of eggs . , In case of raw egg , shell acts as an impermeable covering . The boiled egg

does not show any change because its membranous covering has become dead .

Q14. Why do dry apricots placed in salt solution do not swell up while they do so when kept in water ?

Ans. Dry Apricots swell up in water because their cells have high osmotic concentration which causes passage of water into them . they do not swell up when placed in salt solution because the external solution is hypertonic .

Q15. What would happen when Rhus leaves are boiled in water first & then a drop of sugar syrup is put on it ?

Ans - Boiling will kill the leaves . The dead leaves and their cells do not undergo plasmolysis .

Chapter -1

Assignment Ques / Ans

Q16. Why is the cell called the structural & functional unit of life

Ans .All living organisms are made up of cells Thus , cell is the structural unit of life. Each cell acquires distinct structure and function due to organization of its membrane and cytoplasmic organelles in specific way. Such an organization enables the cell to perform basic functions such as respiration, obtaining nutrition, clearing of waste material forming new protein etc.

The cell is therefore the basic functional unit of living organisms

Q17. How do substance like CO₂ and water move in and out of the cell discuss?

Ans. CO₂ move in and out of the cell by the process of diffusion which involves movement of molecules from higher concentration to lower concentration across the cell membrane . water moves in & out of cell by Osmosis is a process in which water molecules moves from high water concentration to low water concentration through semi permeable membrane

Q18. Differentiate between Prokaryotic and Eukaryotic cells

Ans.

| Prokaryotic | Eukaryotic |
|--|---|
| <ul style="list-style-type: none">• Size : generally small• Nuclear region : It lies in cytoplasm &not covered in nuclear membrane &known as nucleoid• Chromosome :Single• Membrane- Bound cell organelles absent | <ul style="list-style-type: none">• Size : generally large• Nuclear region : well defined and surrounded by a nuclear membrane• Chromosome: more than 1• Membrane- Bound cell organelles present |

Q19. Can you name the two organelles we have studied that contain their own genetic material ?

Ans. Plastids and Mitochondria that contain their own genetic material .

Q20.If the organization of a cell is destroyed due to some physical or chemical influence what will happen?

Ans. A well organized cell maintain homeostosis i.e. Constant internal chemical composition . It is therefore able to perform basic function like respiration, obtaining nutrition, clearing of waste , material forming new protein etc. If the organization of a cell is destroyed , it will not to maintain homeostatis & thus cell will not be able to perform above said basic function .