1. The phenomenon by which protoplast of a cell shrinks from the wall is

(a) Osmosis

(b) Plasmolysis

(c) Diffusion

(d) Glycolysis

(e) Endocytosis

2. Following are a few definitions of osmosis Read carefully and select the correct definition

(a) Movement of water molecules from a region of higher concentration to a region of lower concentration through a semipermeable membrane

(b) Movement of solvent molecules from its higher concentration to lower concentration

(c) Movement of solvent molecules from higher concentration to lower concentration of solution through a permeable membrane

(d) Movement of solute molecules from lower concentration to higher concentration of solution through a semipermeable membrane

(e) Both (a) and (b)

3. The undefined nuclear region of prokaryotes are known as

(a) nucleus

(b) nucleolus

(c) nucleic acid

(d) nucleoid

(e)nucleoplasm

4. Amoeba acquires its food through a process, termed

(a) exocytosis

(b) endocytosis

(c) plasmolysis

(d) exocytosis and endocytosis both

(e)Phagocytosis

5. Cell theory was given by

(a) Schleiden and Schwann

(b) Virchow

(c) Hooke

(d) Haeckel

(e) Leeuwenhoek

6. Chromosomes are made up of

(a) DNA

(b) Protein

(c) DNA and Protein

(d) RNA

(e) Lipids

WORKSHEET – FUNDAMENTAL UNIT OF LIFE

1.The solution that has higher water concentration than the cell is known as

(a) Hypertonic
(b) Hypotonic
(c) Isotonic
(d) None of these

ANS: b

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2. Colourless plastids are known as

(a) Chromoplasts

(b) Chloroplasts

(c) Leucoplasts

(d) Protoplast

ANS: c

3. The phenomenon by which protoplast of a cell shrinks from the wall is

(a) Osmosis

(b) Plasmolysis

(c) Diffusion

(d) Glycolysis

ANS: b

4. Ribosomes are the site of

(a) Photosynthesis

(b) Respiration

(c) Protein synthesis

(d) Absorption

ANS : C

5. Raisins soaked in high concentrated solution of sugar _____. The process involved is known as _____

ANS : Swells up, Osmosis6

6. In human cheek cells, the nucleus is located at the _____.

ANS: Center

7. What is a cell and who discovered?

ANS: Cell is the structural and functional unit of life. All organisms are made up of two or more **cells**. All **cells** develop from pre-existing **cells**.

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

8. Name the three important parts of a typical cell. Give one important function of each of them.

ANS : 1. **Plasma membrane** - The primary function of the plasma membrane is to protect the **cell** from its surroundings. the plasma membrane is selectively permeable to ions and organic molecules and regulates the movement of substances in and out of cells.

2. **Cytoplasm** - The cytoplasm provides a medium for the organelles to remain

3. **nucleus** –Cellular reproduction.

9. 1.What is the difference between plasma membrane and cell wall?

2. Cell membrane is known as “selectively permeable membrane”. Give reason

ANS : 1. The cell wall is the **outermost boundary** of the cell (if present), and plasma membrane is present in the inner lining of the cell.

Plasma membrane is composed of lipids and proteins

Cell wall is composed of cellulose

Cell wall is present in plant cell only

Cell membrane is present both in plant cell and animal cell

10. Define the following

1. Osmosis with an example
2. Diffusion with an example
3. Plasmolysis

ANS: 1. Osmosis - Passage of water from a region of high water concentration through a semi-permeable membrane to a region of low water concentration.

Example: Absorption of water by plant root

2. Diffusion – Spontaneous movement of a substance from a region of high concentration to a region where its concentration is low.

Example: Exchange of gas

3. Plasmolysis – When a living plant cell loses water through osmosis there is shrinkage or contraction of the contents of the cell away from the cell wall

11. What will happen if

1. A cell contains higher water concentration than the surrounding medium
2. A cell having lower water concentration than the surrounding medium.
3. A cell having same water concentration on both the sides.

ANS: 1. Cell loses water through osmosis, cell shrinks

2. Cell gains water through osmosis, cell swells up

3. Cell remains the same as the amount of water going in is the same as the amount going out.

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

ANS: **Lipids** are **synthesized** in Smooth endoplasmic reticulum (SER) and the **proteins** are **synthesized** in rough endoplasmic reticulum

13. 1. What are the functions of chromosomes?

2. Where are genes located?

3. Write the full form of DNA?

ANS: 1. Chromosomes contain information for inheritance of features from parents to next generation in the form of DNA.

2. Genes are located in DNA

3. Deoxyribo Nucleic Acid

14. Enumerate the difference between a prokaryotic and Eukaryotic cell.

ANS: **Prokaryotic**

1. Nuclear region is poorly developed due to the absence of nuclear membrane such an undefined nuclear region containing only nucleic acid known as nucleoid.

2. Single chromosome

3. Membrane –bound cell organelles absent

Eukaryotic

1. Generally large

2. Nuclear region well developed

3. More than one chromosome

4. Membrane- bound cell organelles present.

15.1. What is the importance of a nucleus?

2. Write one important function of mitochondria.

3. Which cell organelle is called “kitchen “of the cell?

ANS: 1. Cellular reproduction, controls cell activities.

2. Energy required for various chemical activities needed for life is released by mitochondria in the form of ATP

3. Chloroplast.

16. Describe the structure of a plastid. Name the types of plastids and write the functions of each.

ANS : Two types of plastids

Chromoplasts- coloured plastids

Leucoplasts (white or colourless plastids)

Chloroplasts

Chromoplasts containing the pigment chlorophyll.

Chloroplasts also contain various yellow or orange pigments in addition to chlorophyll.

Chloroplast consists of numerous membrane layers embedded in a material called the stroma.

Plastids also have their own DNA and ribosomes.

Chloroplasts are important for photosynthesis in plants

17. Why the cell is called the structural and functional unit of life?

ANS: Each cell acquires its structure and ability to function because of the organization of its membrane and organelles in specific ways. The cell thus has a basic structural organisation. This helps the cells to perform functions.

18. How do substances like CO_2 and water move in and out of the cell? Explain

ANS: CO_2 –By the process of diffusion (Explain)

Water – By the process of osmosis (explain)

19. 1. Name two organelles that contain their own genetic material.

2. Where are protein synthesized inside the cell?

ANS: 1. Mitochondria and Plastids

2. Ribosomes

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

ANS: If the plasma membrane ruptures or breakdown then the **cell will** not be able to exchange material from its surrounding by diffusion or osmosis.

21. Why are lysosomes known as the “suicide bag” of the cell?

ANS: **Lysosomes** are cellular organelles that contain digestive enzymes that break down waste materials, foreign material and cellular debris. Along with them lysosomes also digest or damage its own cells by its own enzymes, which lead to cell death. Hence lysosomes are also called as suicide bags.

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22. 1. Give two examples of the organelles absent in animal cells but are present in plant cells.

2. Write one function of each 1. Cell wall 2. ER

ANS: 1. Cell wall and Plastids

2. Function of cell wall - provide structural strength and support, protection

Function of ER – Serve as channels for the transport of materials (especially proteins) between various regions of the cytoplasm or between the cytoplasm and the nucleus.

23. Define the term Endocytosis with an example.

ANS: The flexibility of the cell membrane enables the cell to engulf in food and other material from its external environment, known as endocytosis.

Example : Amoeba acquires its food through endocytosis.

24. Why does the skin of your finger shrink when you wash clothes for a long time?

ANS: Soap solution is a hypertonic solution i.e., more concentrate than **our skin** cells. During washing of clothes, exosmosis takes place in the **skin** cells. This leads to **shrinkage** of **skin** over the **fingers while washing clothes for a long time**.

25. Draw a well labeled diagram of a prokaryotic cell.

ANS: TEXT BOOK ,PAGE: 62 FIG- 5.4

26. Draw a well labeled diagram of a typical plant cell.

ANS: TEXT BOOK, PAGE : 64 FIG:5.6