CBSE Test Paper 03

Chapter 05 The Fundamental Unit of Life

1. Pick the odd one out**: (1)**

   a. Molecules soluble in organic solvent can easily pass through the membrane.
   b. The movement of water across a semi–permeable membrane is affected by the amount of substances dissolved in it.
   c. Plasma membrane contains chitin and sugar in plants.
   d. Membranes are made up of organic molecules like proteins and lipids.

2. The number of lenses in compound microscope is: **(1)**

   a. 1
   b. 4
   c. 3
   d. 2

3. Which of the following can be made into crystal? **(1)**

   a. An Amoeba
   b. A Bacterium
   c. A Virus
   d. A Sperm

4. Match the following with the correct response**: (1)**

(1) Prokaryotic cells	(A) Link between living and non-living
(2) Eukaryotic cells	(B) Nucleoid
(3) Viruses	(C) Removal of toxic substances
(4) Peroxisomes	(D) Complete cells

   a. 1-A, 2-C, 3-B, 4-D
   b. 1-B, 2-D, 3-A, 4-C
   c. 1-C, 2-B, 3-D, 4-A

d. 1-D, 2-A, 3-C, 4-B

5. Lysosomes are the reservoirs of **(1)**

   a. steroid hormones
   b. glycogen
   c. digestive enzymes
   d. oxidising enzymes

6. What is endocytosis? **(1)**

7. What is the common name of mitochondria? **(1)**

8. What is the outermost layer found in the plant cell? **(1)**

9. Name two structures found in animal cells but not in plant cells. **(1)**

10. Where are genes located? **(1)**

11. A solution of 3% glucose and a solution of 8% glucose are kept in a trough separated by a semipermeable membrane. What will you observe after 1 hour? **(3)**

12. What is the function of nuclear membrane? **(3)**

13. What do you mean by plasmodesmata? **(3)**

14. Why is light microscope called a compound microscope? **(3)**

15. What are cell organelles? Write the names of different cell organelles. **(5)**

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Answers

1. c. Plasma membrane contains chitin and sugar in plants.
   Explanation: The **odd statement** is - Plasma membrane contains chitin and sugar in plants. Other statements describe the movement of molecules across the semi-permeable membrane and the associated phenomena.

2. d. 2
   Explanation: The **compound microscope** contains two lenses that magnify the object. It uses a lens (called the **objective lens**) close to the object being viewed to collect light which focuses a real image of the object inside the microscope. The image is then magnified by a second lens (called the **eye piece**) that gives the observer an enlarged inverted virtual image of the object.

3. c. A Virus
   Explanation: Viruses are considered as an intermediate between living and non-living cells because they cannot metabolite and reproduce on their own. They can reproduce only when enters in a host's body. They are an exception to cell theory. A virus crystal is a collection of thousands of viruses. A viral crystal is a pore collection used for chemical studies.

4. b. 1-B, 2-D, 3-A, 4-C
   Explanation: In a prokaryotic cell, the nuclear region is poorly defined due to the absence of a nuclear membrane. Such an undefined nuclear region containing only nucleic acids is called a nucleoid. On the other hand, organisms with cells having a nuclear membrane are called eukaroytes. Eukaryotic cells are considered complete cells. Viruses are the link between the living and the non-living because they lack any membranes and do not show any characteristice of life until they enter the body of a host. Peroxisomes are small, membrane-enclosed organelles that contain enzymes involved in a variety of metabolic reaction. They play a key role in the removal of toxic substances from the cell. They are surrounded by only a single membrane.

5. c. digestive enzymes

   Explanation: Lysosomes enclose digestive enzymes to digest the degenerative cells and tissues
6. Endocytosis is the ingestion of material by folding of the membrane around it for its engulfment as seen in Amoeba.
7. Mitochondria is commonly known as power house of the cells. The mitochondria is a double membrane-bound organelle found in all eukaryotic organisms.
8. Cell wall
9. Lysosomes and centrioles.
10. Genes are located on chromosomes in the nucleus.
11. After 1 hour the solutions on both the sides of the semipermeable membrane will become isotonic because of the process of osmosis.
12. i. A nuclear envelope separates the environment of nucleus from that of rest of the cell.
    ii. It protects the genetic material from damage.It facilitates movement of materials in and out of the nucleus.
13. Due to the presence of cell wall the exchange of materials between the plant cells is not possible. Therefore, protoplasts of plant cells are connected by cytoplasmic channels through their walls which are called as plasmodesmata. These channels are used for the exchange of the material between two cells.
14. Light microscope is called a compound microscope because it consists of two or more lens systems.
15. Cell organelles are the intracellular structures present in the cytoplasm. Various cell organelles are –
    i. Mitochondrion – It produces energy
    ii. Endoplasmic reticular – synthesize lipids and proteins
    iii. Golgi apparatus - Storage, packaging and dispatch various substances.
    iv. Lysosomes – Digest intracellular substances
    v. Ribosomes – Synthesize proteins
    vi. Vacuoles – Provide turgidity and store house of various organic substances