

**DELHI PUBLIC SCHOOL, JAMMU**  
**DELHI SESSION-2025-26**  
**MONTH: MAY**  
**ASSIGNMENT**

**CLASS:IX**

**SUB: BIOLOGY**

**MM: 18 MARKS**

1. What is the function of the nucleus in a cell? 1  
(a) Synthesis of proteins  
(b) Cellular respiration  
(c) Breakdown of cellular waste  
(d) Control of cell activities and storage of genetic material

2. Which organelle is responsible for the synthesis and packaging of proteins for secretion? 1  
(a) Endoplasmic reticulum  
(b) Ribosomes  
(c) Golgi apparatus  
(d) Mitochondria

3. Which organelle is involved in the breakdown of glucose to produce energy in the form of ATP? 1  
(a) Nucleus  
(b) Lysosomes  
(c) Mitochondria  
(d) Endoplasmic reticulum

**Assertion-and-Reason Type question consists of two statements, namely, Assertion (A) and Reason (R). For selecting the correct answer, use the following code:**

- (a) Both Assertion (A) and Reason (R) are the true and Reason (R) is a correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are the true but Reason (R) is not a correct explanation of Assertion (A).
- (c) Assertion (A) is true and Reason (R) is false.
- (d) Assertion (A) is false and Reason (R) is true.

4. **Assertion:** A cell membrane shows fluid behaviour. 1  
**Reason:** A membrane is a mosaic of lipids and proteins.

5. What are the functional regions of a cell? 2

6. Why does the skin of your finger shrink when you wash clothes for a long time? 3

7. Draw a labelled diagram of mitochondria. Write the functions of mitochondria. 5

8. **CASE BASED QUESTION:** The endoplasmic reticulum is a large network of membrane-bound tubes and sheets. It looks like long tubules or round or oblong bags (vesicles). It is discovered by Porter and Thompson. The ER membrane is similar in structure to the plasma membrane. There are two types of ER– rough endoplasmic reticulum

(RER) and smooth endoplasmic reticulum (SER). RER looks rough under a microscope because it has particles called ribosomes attached to its surface. The ribosomes, which are present in all active cells, are the sites of protein manufacture. The manufactured proteins are then sent to various places in the cell depending on need, using the ER. The SER helps in the manufacture of fat molecules, or lipids, important for cell function. Some of these proteins and lipids help in building the cell membrane. This process is known as membrane biogenesis. Some other proteins and lipids function as enzymes and hormones. Although the ER varies greatly in appearance in different cells, it always forms a network system. (1+1+2=4)

(1) Who discovered endoplasmic reticulum?

- (a) Porter and Thompson
- (b) Robert Brown
- (c) Robert Hooke
- (d) Camillo Golgi

(2) Which are the components of endoplasmic reticulum? \_

- (a) Cisternae, tubules and vesicles.
- (b) Cisternae, chromatids and vacuoles
- (c) Both a and b
- (d) None of the above

(3) Enlist the types of Endoplasmic Reticulum. Also give the main function of each type.

OR

(3) Briefly explain the process of membrane biogenesis?