

**CBSE TEST PAPER-02**  
**CLASS - XI BIOLOGY**  
**(Cell the Unit of Life)**

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**General Instruction:**

- All questions are compulsory.
  - Question No. 1 to 4 carry one marks each. Question No. 5 to 9 carry two marks each. Question No. 10 to 11 carry three marks each.
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1. Which structure is called little nucleus?
2. What is the function of contractile vacuole?
3. Name the enzymes present in peroxysomes?
4. Who gave the statement “Omnis cellular cellula”?
5. “Both lysosomes & vacuoles are endomembrane structures yet they differ in terms of their functions” comment.
6. Who proposed cell theory? Give its postulates?
7. Which cell organelle is known as powerhouse of cell & why?
8. What are the main functions of cell wall?
9. State differences between SER & RER?
10. Explain the fluid mosaic model of plasma membrane.
11. Describe the structure of a typical eukaryotic chloroplast.

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**[ANSWERS]**

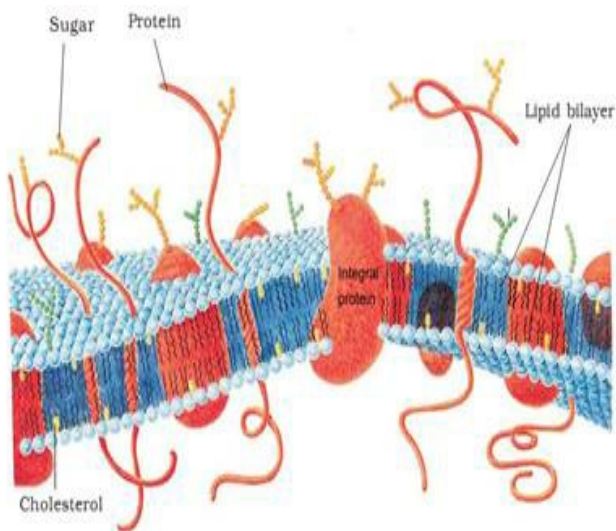
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1. Nucleolus ( As is controls the functioning of nculeus)
2. Water balance or osmoregulation.
3. Catalase, CoA-Reductase & Urate Oxidase
4. Rudolf Virchow.
5. Lysosomes & the vacuoles are endomembranous structures yet these differ in terms of their functions:-
  - i) Lysosomes contains hydrolytic enzymes eg. lipase, protease which are able to digest lipids, proteins, nucleic acid & carbohydrate.
  - ii) Vacoules are membrane bound spaces which facilitates transport of many ions & other materials against the concentration gradient.
6. M. J. Scheilden & Theodore Schwann gave the famous cell theory which states as follows:-
  - i) All living things are made of cells & cell products.
  - ii) The cell is the structural & functional unit of all living organisms.
  - iii) All metabolic reactions in the living things take place with in the cellThe cell theory was later modified by Rudolf Virchow who stated that “all new cells arise from the pre- existing cells”.
7. The biological oxidation of the fats & carbohydrates release much amount of energy which is utilized by mitochondria for ATP synthesis. When required energy is released form ATP molecules for various cell processes in cells so mitochondria are termed as “Power house of the cell”
8. FUNCTIONS OF CELL WALL:-
  - i) It provides a definite shape to the cell.
  - ii) It protects inner contents of cells
  - iii) It protects delicate plasma membrane present below it.
  - iv) It allows transport of various substances to & from the cell.
  - v) It prevents cell contents from drying up. It also provide extra strenght to cell.
- 9.

SER	RER

i) SER do not have ribosomes & is composed of vesicles & tubules	i) RER have ribosomes on its outer surface & is composed of cisternae
ii) It synthesizes steroids & lipids eg. fat cell lipid secretory cells of liver	ii) Its main function is protein synthesis due to the presence of ribosomes.
iii) Gives rise to sphaerosomes	iii) Gives rise to Golgi bodies, vacuoles as well as lysosomes.
iv) Found near the cell membrane	iv) Found near the nuclear membrane

10. The fluid mosaic model was proposed by G. Nicholson & S. Singer. According to this each phospholipid layer is bimolecular & their hydrophilic ends are pointed towards top & bottom respectively.

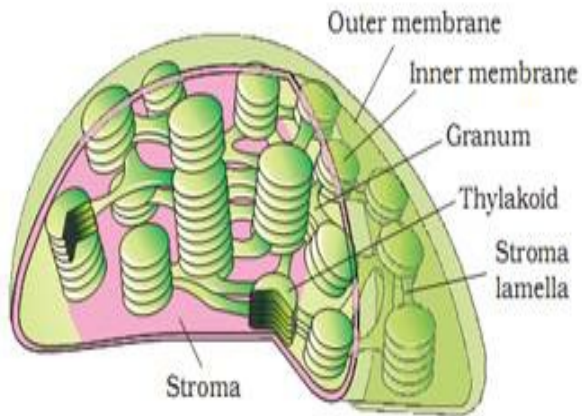


In this, proteins are of two categories- peripheral (extrinsic) & integral (intrinsic). The two layers of phospholipids that give us a membrane with hydrophilic heads oriented towards the outside and inside of the cell, where there is an aqueous environment. The fatty acid hydrophobic tails of the phospholipids don't really like to get their tails wet, so they face each other, creating this hydrophobic region inside the bilayer. A function of this bilayer is to create a distinct hydrophobic region which is essential in both keeping fluidity and moderating who can get by the selective permeable membrane and enter our miniature city. In later lessons, we'll talk about who's allowed through and when.

11. Chloroplasts can be found in the cells of the mesophyll in plant leaves. Chloroplasts are bounded by two membranes, about  $3000 \text{ \AA}$  in total thicknesses. Each membrane is  $40\text{-}60 \text{ \AA}$  thick. Intervening space between the two membranes is called the periplastidial space and is  $25\text{-}75 \text{ \AA}$ . The inner membrane is very intricately elaborated to form a system of lamellae. Internally the chloroplast is divisible into two parts

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(a) stroma- colourless, ground substance



(b) (Grana) Membrane system- made of closed flattened sacs called thylakoids filled with green pigment Chlorophyll. These thylakoids are closely packed & appears as piles of coins. These structures are called Grana. The arrangement can be in the form of simple parallel sacs running lengthwise, or may be in a complex interconnecting network of the sacs.