Chapter-5

FUNDAMENTAL UNIT OF LIFE

I. MULTIPLE CHOICE QUESTIONS (1 MARKS)

1. A cell will swell up if
   (a) The concentration of water molecules in the cell is higher than the concentration of water molecules in surrounding medium
   (b) The concentration of water molecules in surrounding medium is higher than water molecules concentration in the cell
   (c) The concentration of water molecules is same in the cell and in the surrounding medium
   (d) Concentration of water molecules does not matter
2. Chromosomes are made up of
   (a) DNA
   (b) protein
   (c) DNA and protein
   (d) RNA
3. Which of these options is not a function of Ribosome?
   (i) It helps in manufacture of protein molecules
   (ii) It helps in manufacture of enzymes
   (iii) It helps in manufacture of hormones
   (iv) It helps in manufacture of starch molecules
   (a) (i) and (ii)
   (b) (ii) and (iii)
   (c) (iii) and (iv)
   (d) (iv) and (i)
4. Which of these is not related to endoplasmic reticulum?
   (a) It behaves as a transport channel for proteins between nucleus and cytoplasm
   (b) It transports materials between various regions in cytoplasm
   (c) It can be the site of energy generation
   (d) It can be the site for some biochemical activities of the cell
5. 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 semi permeable 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 a higher concentration of solution through a semi permeable membrane

VERY SHORT ANSWER TYPE QUESTIONS (1 MARKS)

1. 1Define Exocytosis
2. What is the role of nuclear pore in the animal cell?
3. Which cell organelle is known as "protein factory"?
4. Define nucleoid. Where these are present?
5. Name the kind of plastid which is important for photosynthesis in leaves of the plants

SHORT ANSWER TYPE QUESTIONS (3 MARKS)

1. A cell placed in a solution swells up. What kind of solution is it? Why does it happen?

   a. Why is lysosomes known as “suicidal bags”?

   b. Why is the nucleus so significant in a cell?

2. What is a semi permeable membrane? What are the differences between semi permeable membrane and selectively permeable membrane?
3. We eat food composed of all the nutrients like carbohydrates, proteins, fats, vitamins, minerals and water. After digestion, these are absorbed in the form of glucose, amino acids, fatty acids, glycerol etc. What mechanisms are involved in absorption of digested food and water?
4. If you are provided with some vegetables to cook. You generally add salt into the vegetables during cooking process. After adding salt, vegetables release water. What mechanism is responsible for this?
5. What are the consequences of the following conditions?

a) A cell containing higher water concentration than the surrounding medium
b) A cell having low water concentration than the surrounding medium.
c) A cell having equal water concentration to its surrounding medium.

LONG ANSWER TYPE QUESTIONS (5 MARKS)

1. In brief state what happens when

a) Dry apricots are left for sometime in pure water and later transferred to sugar solution?
b) A Red Blood Cell is kept in concentrated saline solution?
c) The Plasma-membrane of a cell breaks down?
d) Rheo leaves are boiled in water first and then a drop of sugar syrup is put on it?
e) Golgi apparatus is removed from the cell?

1. i) Differentiate between rough and smooth endoplasmic reticulum. How is endoplasmic reticulum important for membrane biogenesis?

ii) If cells of onion peel and RBC are separately kept in hypotonic solution, what will happen to each of them? Explain the reason for your answer.

(a) Both the cells will swell.

(b) RBC will burst easily while cells of onion peel will resist the bursting to some extent.

(c) (a) and (b) both are correct.

(d) RBC and onion peel cells will behave similarly.
