III. Short Answer Type Questions
Question 1. State two conditions required for osmosis.
Answer: (i) The difference in the concentration of water, one should have higher concentration than the other.
(ii) Semi-permeable membrane is also required through which water will flow.

Question 2. What is plasmolysis?
Answer: 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. This phenomenon is known as plasmolysis.

Question 3. How does fungi and bacteria can withstand much greater changes in the surrounding medium than animal cells?
Answer: The cell wall present in fungi and bacteria permits these cells to withstand very dilute external medium without bursting. The cells take up water by osmosis, swells, and builds the pressure against the cell wall. The wall exerts an equal pressure against the swollen cell. It is because of the cell wall, such cells can withstand much greater changes in the surrounding medium than animal cells.

Question 4. Give the function of nuclear membrane.
Answer: The nuclear membrane present as outer covering in the nucleus allows the transfer of material inside and out of the nucleus to cytoplasm.

Question 5. Name the cell-organelles that have their own DNA and ribosomes.
Answer: The cell organelles with their own DNA and ribosomes are mitochondria and plastids.

Question 6. State the difference between smooth endoplasmic reticulum and rough endoplasmic reticulum.
Answer:

Smooth Endoplasmic Reticulum	***Rough Endoplasmic Reticulum***
1. It looks smooth.	1. It looks rough.
2. SER helps in the manufacture of fat molecules or lipids.	2. Ribosomes are attached to RER which synthesise proteins.

Question 7. What is endocytosis?
Answer: The cell membranes flexibility allows the cell engulf in food and other material from its external environment. This process is known as endocytosis. E.g., Amoeba acquires its food through such processes.

Question 8. What is the function of vacuoles?
Answer: Vacuoles are storage sacs for solid or liquid content. In plant cells it provides turgidity and rigidity to the cell. In single-celled organisms vacuoles store food, e.g., Amoeba.

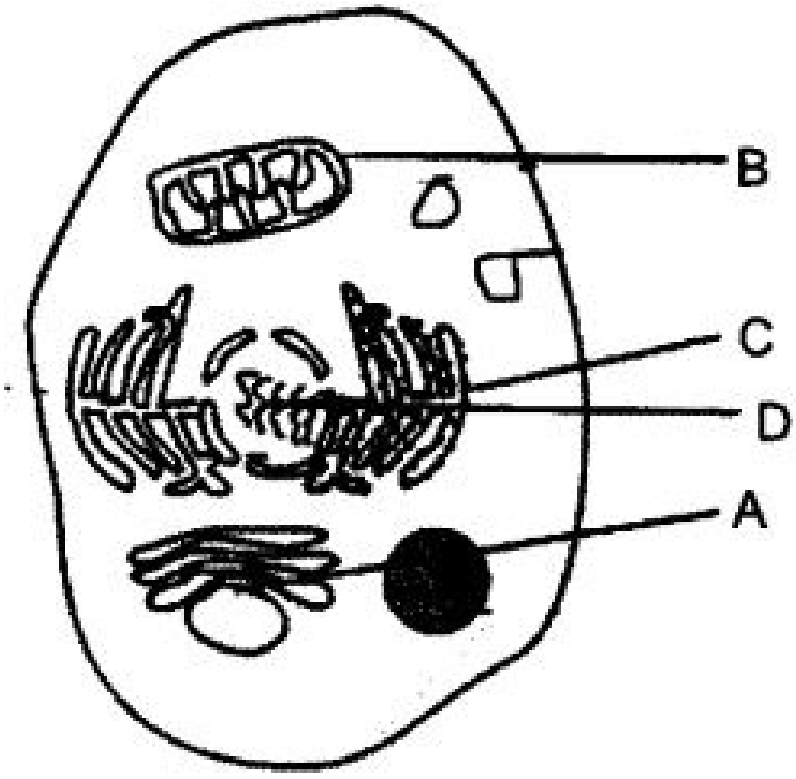
Question 9. When we put raisins in water, why do they swell?
Answer: Raisins are dry with less water inside, when they are kept in water, osmosis takes place, water flows through the cell wall, cell membrane of the raisins and therefore it swells.

Question 10. Why are lysosomes called suicidal bags?
Answer: Lysosomes contain digestive enzymes in it and helps in the cleaning of cell by digesting any foreign materials entering the cell, such as bacteria, food and old cell organelles.
When the lysosomes burst, the digestive enzyme digest its own cell. Hence it is called as suicidal bag.

Question 11. What is nucleoid?
Answer: The nuclear region in some cells are poorly defined due to the absence of a nuclear membrane, it contains only nucleic acid. This undefined nuclear region with nucleic acid in it is called nucleoid.

Question 12. What is the role, of cell organelles in the cell?
Answer: Each kind of cell organelles performs a specific function such as making new material, clearing of the waste, transporting material, etc.

Question 13. Label the figure and answer the questions:
(i) A - It is the packaging organelle
(ii) B - Provides energy
(iii) C - helps in the transport of material
(iv) D - Carries the information.



Animal Cell

Answer:
(i) A - Golgi body
(ii) B - Mitochondria
(iii) C - Endoplasmic reticulum
(iv) D - Nucleus

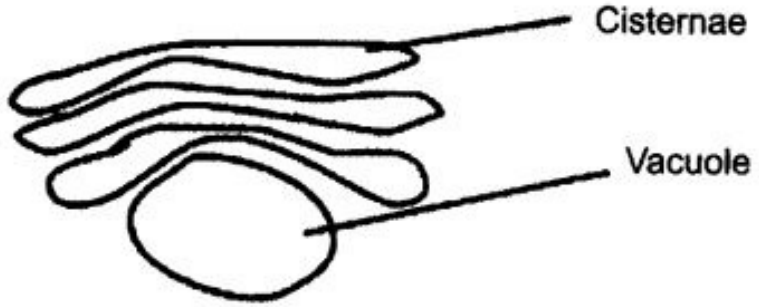
Question 14. What is the function of nucleus in a cell?
Answer: The nucleus plays a very important role in the reproduction of cells. It also helps the single cell to divide and form two new daughter cells.
It plays an important role in determining how the cell will develop and what form it will exhibit at maturity, by directing the chemical activities of the cell.

Question 15. What is the Junction of plastids?

Answer: Plastids are present only in plant cells. There are two types of plastids chromoplasts (coloured plastids) and leucoplasts (white or colourless)
Chromoplast—Consists of coloured pigments and gives different colours to flowers, fruits and leaves. The green colour pigment present in leaf is called chlorophyll which helps in the photosynthesis and a plastid with chlorophyll is called chloroplast.
Leucoplast—It stores starch, oil and protein granules in it.

Question 16. Do vacuoles store some material? If yes, name them.
Answer: Yes, vacuoles also store some important substances required in life of the plant cell. These are amino acids, sugars, various organic acids and some proteins. In some unicellular organisms, e.g. Amoeba, vacuoles also store food.

Question 17. Explain the structure and function of Golgi bodies.
Answer: Structures: Golgi bodies consist of a system of membrane-bound vesicles arranged in stacks parallel to each other called cisterns. These membranes have connections with the membrane of endoplasmic reticulum (ER).
Functions:
(1) The material synthesised near the ER is packaged and dispatched to various target inside and outside the cell through Golgi apparatus.
(2) It also stores, modifies and helps in the packaging of products in vesicles.
(3) In some cases, complex sugars may be made from simple sugars in it.
(4) It also helps in the formation of lysosomes.



Golgi Body

Question 18. What are ribosomes? Where are they located in the cell? What is their function?
Answer: Ribosomes are spherical organelles present in the cell which are either freely distributed in the cytoplasm or may be attached to the endoplasmic reticulum.
It consists of ribosomal RNA (Ribonucleic acid) and proteins.
Functions of Ribosomes: It helps in the synthesis of proteins.

Question 19. What is the difference in chromatin, chromosomes and gene?
Answer: (1) Chromatin: It is a fine network of thread-like structure made up of DNA or RNA. It gets condense to form chromosomes.
(2) Chromosome: The chromosomes are made from chromatin material and are located iri the cell.
(3) Genes are found in chromosomes.

Question 20. Why do plant cells have more in number and big-sized vacuoles as compared to the animal cells?
Answer: Plant cells attain turgidity and rigidity due to the more number of vacuoles as well as large-sized vacuoles help the plant cells to withstand the wear and tear, external environmental conditions.
They also help in the storage of essential material required by plants for their growth like amino acids, sugar and various organic

substances.

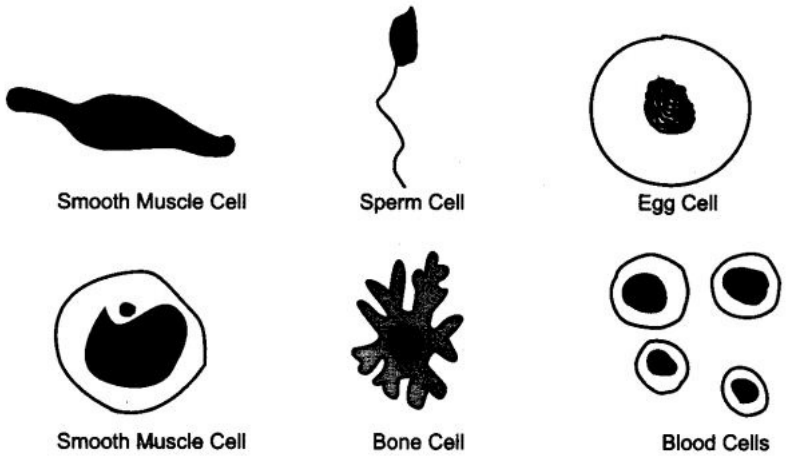
Question 21. Explain the following terms:
(a) Plasma membrane
(b) Cytoplasm
(c) Nucleus.
Answer: (a) Plasma membrane: It is a thin membrane which controls the passage of materials in and out of the cell. It is also called as selectively permeable membrane. It makes the outer boundary of the cell and is made up of lipo-protein.
(b) Cytoplasm: It is transparent jelly-like thick substance present in the cell. It makes the ground of the cell in which all the cell organelles are suspended.
(c) Nucleus: It is a double-layered membrane structure which contains chromosomes required for the inheritance of characteristics from one generation to the other.

Question 22. What is membrane biogenesis?
Answer: The endoplasmic reticulum helps in the manufacture of proteins and fat molecules or lipids which are important for the cell function. These proteins and lipids help in the building of the cell membrane. This process is known as membrane biogenesis.

Question 23. Which organelle is known as powerhouse of the cell?
Answer: Mitochondria is known as powerhouse of the cell because they store energy in the form of ATP. [Adenosine Triphosphate]

Question 24. What are genes?
Answer: Gene is a segment of DNA. They are located on chromosomes in linear fashions. One gene may perform one or more function. Genes are carrier of genetic codes.

Question 25. Draw various cells of human body.
Answer:



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