HOTS (Higher Order Thinking Skills)

Q. 1. 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.

Ans. (b). When kept in a hypotonic solution, the onion cells will become turgid because the water will enter the cell due to osmosis. But the cell wall present outside the cell provides it rigidity and does not let any harm to occur.

Whereas, in RBC the movement of water inside the cell due to osmosis will lead to bursting of the cell because it does not have a rigid cell wall.

Q. 2. A person takes concentrated solution of salt, after sometime, he starts vomiting. What is the phenomenon responsible for such situation? Explain.

Ans. Concentrated salt solution is a hypertonic solution. This causes exosmosis in the cells of the alimentary tract. This further result into dehydration and irritation thus resulting in vomiting.

Q. 3 Where will you find more number of ribosomes-in cancer cells or in fat cells?

Ans. Ribosomes are found in greater number in actively dividing cell which are the cancer cell they need more amount of proteins for the formation of new cells.

Q. 4. 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?

Ans. After 1 hour the solution on both the sides of the semipermeable membrane will because isotonic because of the process of osmosis.

Q. 5. What are the colours absorbed by plants? The green light of the sunlight is blocked. How will the photosynthesis be affected?

Ans. Plants absorb all the colours in the spectrum. The plants reflect back the green light because which they appear green in color. Therefore, photosynthesis will not be affected if green light is blocked.

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

Ans. Soap solution is a hypertonic solution. When our finger are in contact with it for a long time, water from epidermal cells of finger diffuse out though the process of osmics and the skin shrinks.