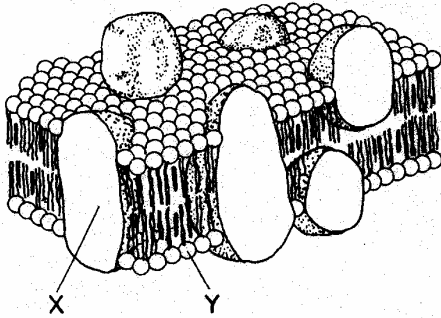


Diffusion and Membranes

HW.

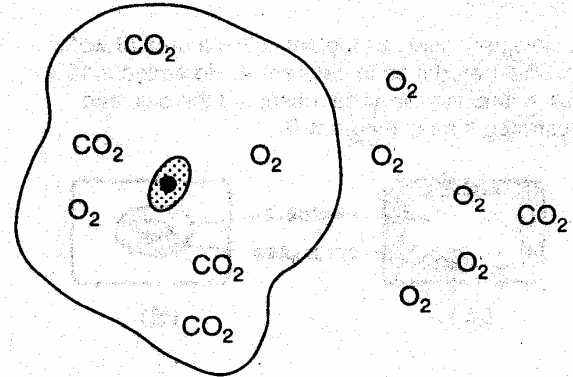
1. The diagram below represents the fluid mosaic model of a cell membrane.



The molecules labeled X and Y represent a

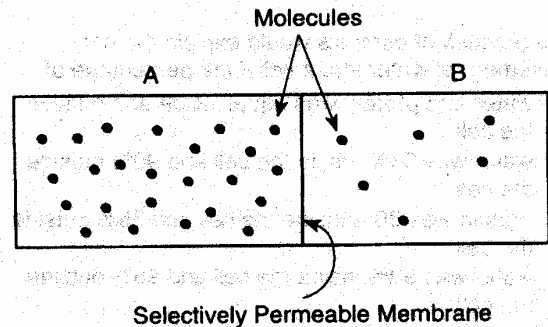
- (1) protein and a lipid
 - (2) nucleic acid and a carbohydrate
 - (3) nucleic acid and a lipid
 - (4) protein and a carbohydrate
2. Carbohydrate molecules A and B come in contact with the cell membrane of the same cell. Molecule A passes through the membrane readily, but molecule B does not. It is most likely that molecule A is
- (1) a monosaccharide, and B is a polysaccharide
 - (2) an amino acid, and B is a monosaccharide
 - (3) a polysaccharide, and B is a monosaccharide
 - (4) a protein, and B is a lipid
3. Which molecule will most likely diffuse through a cell membrane?
- | | |
|-------------|------------|
| (1) DNA | (3) water |
| (2) protein | (4) starch |

4. The diagram below represents a cell in water. Formulas of molecules that can move freely across the cell membrane are shown. Some molecules are located inside the cell and others are in the water outside the cell.



Based on the distribution of these molecules, what would most likely happen after a period of time?

- (1) The concentration of CO₂ will remain the same inside the cell.
 - (2) The concentration of O₂ will increase inside the cell.
 - (3) The concentration of CO₂ will decrease outside the cell.
 - (4) The concentration of O₂ will remain the same outside the cell.
5. The diagram below shows the same type of molecules in area A and area B. With the passage of time, some molecules move from area A to area B.



This movement is the result of the process of

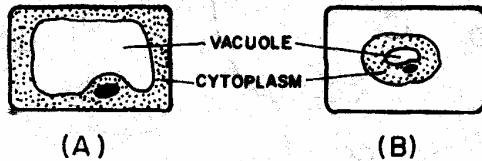
- | | |
|---------------|------------------|
| (1) diffusion | (3) phagocytosis |
| (2) cyclosis | (4) pinocytosis |

Diffusion and Membranes

6. A red blood cell placed in distilled water will swell and burst due to the diffusion of

- (1) water from the blood cell into its environment
- (2) salt from the water into the red blood cell
- (3) salt from the red blood cell into the water
- (4) water into the red blood cell

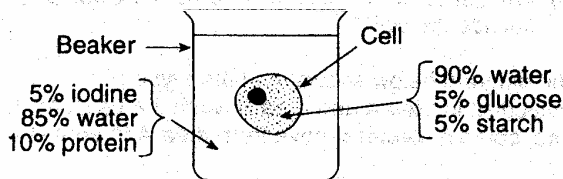
7. A biologist observed a plant cell in a drop of water and illustrated it as in diagram A. He added a 10% salt solution to the slide, observed the cell, and illustrated it as in diagram B.



The change in appearance of the cell resulted from more

- (1) salt flowing out of the cell than into the cell
- (2) salt flowing into the cell than out of the cell
- (3) water flowing into the cell than out of the cell
- (4) water flowing out of the cell than into the cell

8. Name one substance in the diagram below that would have a net movement out of the cell.



9. The process of osmosis would explain the net movement of water into a cell if the percentage of

- (1) water and protein was equal inside and outside the cell
- (2) water was 95% inside the cell and 90% outside the cell
- (3) protein was 30% inside the cell and 35% outside the cell
- (4) water was 90% inside the cell and 95% outside the cell

10. Which molecules are most commonly used as building blocks for the synthesis of new cell membranes?

- (1) glucose, fructose, and ribose
- (2) sucrose, maltose, and starch
- (3) cellulose, glycogen, and insulin
- (4) amino acids, glycerol, and fatty acids