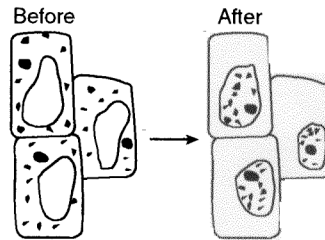


In and Out of Cells Practice Test

The diagram below represents the change that occurred after a fluid was added to a wet mount of some elodea leaf cells.



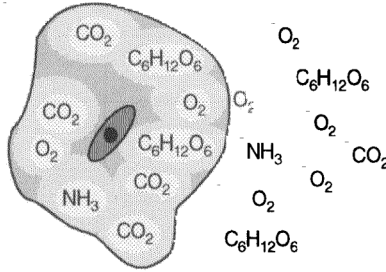
1. Which fluid was most likely added to the wet mount?
A) tap water B) 5% salt solution C) iodine solution D) methylene blue

2. Molecules that are too large to pass through the pores of a cell membrane may enter the cell by a process known as
A) phagocytosis B) osmosis C) passive transport D) exocytosis
3. Which molecule will most likely diffuse through a cell membrane?
A) starch B) water C) lipid (fat) D) protein
4. Which process would include a net movement of sugar molecules through a membrane from a region of lower concentration to a region of higher concentration?
A) active transport B) osmosis C) passive transport D) metabolism
5. Which process requires cellular respiration and therefore the production of ATP by the mitochondria?
A) active transport B) diffusion C) passive transport D) osmosis
6. When sugar is dissolved in water sugar is called the
A) solution B) solute C) solvent D) concentration

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

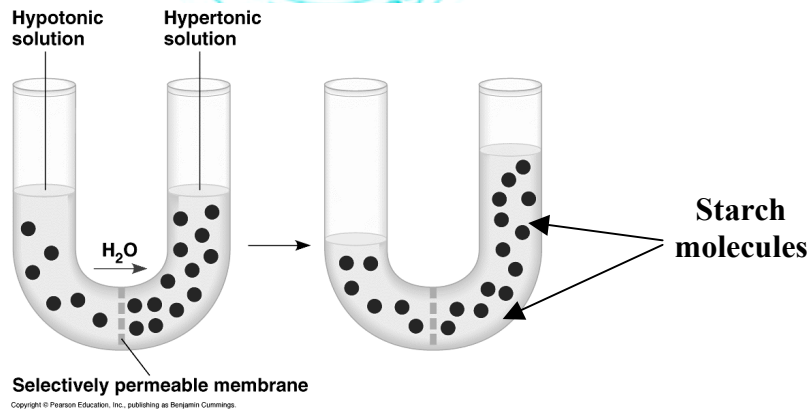
Key:

O_2 ----- oxygen
 NH_3 ----- ammonia
 CO_2 ----- carbon dioxide
 $C_6H_{12}O_6$ --- glucose



- 7 Which molecule is in the greatest concentration inside the cell
 A) oxygen B) ammonia C) carbon dioxide d) glucose
8. Which molecule is in the greatest concentration outside the cell
 A) oxygen B) ammonia C) carbon dioxide d) glucose

The following questions are based on the given diagram. The solution consists of starch molecules in water. The two sides of the "U" tube are separated by a semi-permeable membrane.

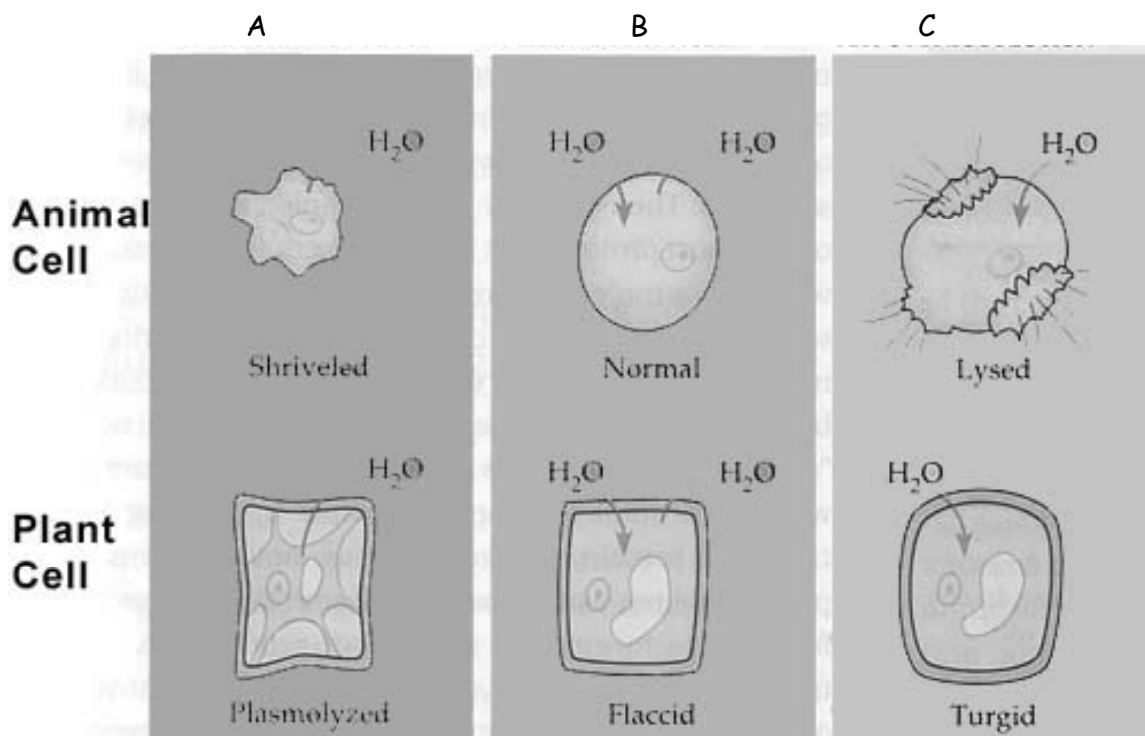


9. The starch molecules do not cross the membrane because:
- A) The membrane uses energy to keep the starch molecules from crossing over.
 B) The starch molecules are too large to pass through the membrane openings.
 C) The current produced by the water passing through the membrane keeps the starch molecules from getting across.
 D) Starch is a sticky lipid (fat). It sticks to the sides of the "U" tube so that it cannot move across the membrane.

10. The water rises in the right side of the "U" tube because:

- A) The starch molecules expand in water thereby increasing the total volume of water on that side.
- B) The starch is broken down into the monosaccharide glucose. In that process water molecules are produced as a byproduct. Thus the water volume increases
- C) Osmotic pressure formed by osmosis pushes the water into the right side causing the water level to rise
- D) The water molecules on the right feed off of the abundance of starch and therefore reproduce. The increased number of water molecules causes the water level to rise.

The following diagram shows a plant cell and an animal cell placed in three different solutions marked "A", "B", and "C"



11) The cells in "A" are in a

- A) hypertonic solution B) isotonic solution C) hypotonic solution

12) The cells in "B" are in a

- A) hypertonic solution B) isotonic solution C) hypotonic solution

13) For a plant to remain healthy it must have an aqueous (water) solution available to it that is consistent with solution

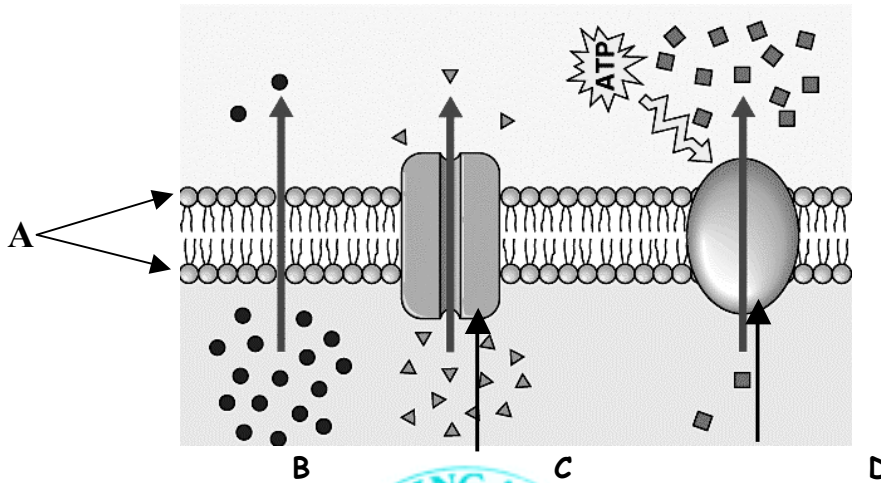
- A) A B) B C) C

14) For an animal cell to remain healthy it must have an aqueous (water) solution available to it that is consistent with solution

- A) A B) B C) C
-

15. A plant cell becomes flaccid when it is placed in an.
 A) isotonic solution B) hypertonic solution C) hypotonic solution

The diagram below represents a cell membrane with three different forms of transport. Answer the following questions by marking the corresponding letters on the answer sheet.



16. Since only "D" requires ATP it must represent:
 A) osmosis B) diffusion C) active transport D) facilitated diffusion
17. The large molecules "C" and "D" are most likely:
 A) proteins B) phospholipids C) carbohydrates D) nucleic acids
18. The protein molecule in "C" assists the transport of small molecules such as water from high to low concentration without the use of ATP. This is called:
 A) osmosis B) diffusion C) active transport D) facilitated diffusion
19. The molecules forming the inside and the outside of most of a cell's membrane as represented by "A" consist of:
 A) protein B) phospholipids C) carbohydrate D) nucleic acid
20. All the "tails" of the phospholipid membrane face inward and away from a high water concentration. This must mean that the "tail" ends of the phospholipids are:
 A) hydrophilic B) hydrophobic
21. All the "heads" of the phospholipid membrane face outward and toward a high water concentration. This must mean that the "tail" ends of the phospholipids are:
 A) hydrophilic B) hydrophobic

1. B 2. A 3. B 4. A 5. A 6. B 7. C 8. A
9. B 10. C 11. A 12. B 13. C 14. B 15. A 16. C
17. A 18. D 19. B 20. B 21. A

