

Practice Questions 1: Diffusion

1. Please answer the following questions regarding if a red blood cell was placed in sea water. Where is the greatest concentration of water?

- a. inside the cell
- b. outside the cell
- c. equal inside and outside the cell

2. Which way is water moving?

- a. more into than out
- b. more out than in
- c. water is not moving
- d. both directions in equal amounts

3. The outside environment is considered _____.

- a. hypotonic
- b. isotonic
- c. hypertonic

4. An artificial cell can be made with a short length of dialysis tubing filled with liquid and clamped on each end. If the artificial cell is filled with 80% sucrose solution and then placed in a beaker of 40% sucrose solution. What effect will the movement of water have on the size of this cell? Draw diagrams to help answer the question.

- a. no change
- b. cell gets bigger
- c. cell gets smaller

5. The solution in the artificial cell is _____ to the inside of the cell.

- a. hypotonic
- b. hypertonic
- c. isotonic

6. What will happen to an onion cell in a hypotonic environment?

- a. fills up with water
- b. It puckers up
- c. plasmolysis
- d. cell ruptures

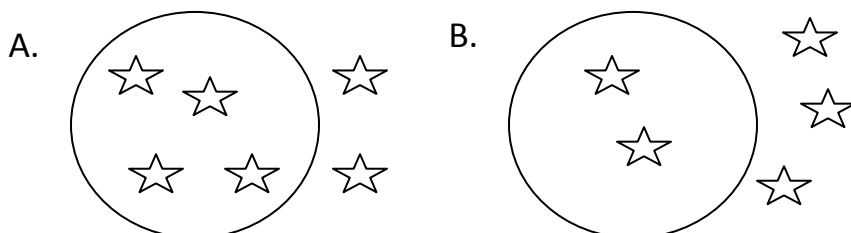
7. Diffusion is when molecules of a substance move from a higher concentration to a lower concentration. Which of the following factors do **NOT** affect the rate of diffusion?

- a. concentration gradient
- b. particle size
- c. temperature
- d. particle color

8. What could happen if a person in the hospital receives pure water as the IV fluid instead of 0.9% NaCl?

- a. The water in the IV is hypotonic compared to the environment within their cells.
- b. red blood cells will swell and possible burst.
- c. red blood cells will shrivel up.
- d. The water in the IV is hypertonic compared to the environment within their cells.
- e. Choices a & b are correct.
- f. Choices c & d are correct.

9. Examine the diagrams below and choose the answer that best illustrates the process of diffusion.



- a. In diagram A, the stars would diffuse into the cell.
- b. In diagram A, the stars would diffuse out of the cell.
- c. In diagram B, the stars would diffuse out of the cell.
- d. Neither diagram will have any movement of stars.

10. What type of transport does diagram A represent if the stars diffused out of the cell?

11. What type of transport does diagram B represent if the stars diffused out of the cell?

12. If a bowl of fresh strawberries is sprinkled with sugar, a few minutes later the berries will be covered with juice. Why?

Answer Key 1: Diffusion

1. A
2. B
3. C
4. B
5. B
6. A
7. D
8. B
9. B
10. Passive transport
11. Active transport
12. The sugar added would change the outside environment to a hypertonic environment. Therefore, water would diffuse out of the strawberries from a high to low concentration gradient.