**Osmosis and Diffusion Practice** **Name**:

1. What is diffusion?

3. What is the term for the diffusion of water?

4. What does dynamic equilibrium mean?

5-7. Draw and clearly label an example for each of the following: a cell in a hypotonic solution, a cell in a hypertonic solution, and a cell in an isotonic solution.

**II.**  In the table below, assume that the dots are dissolved particles on either side of the cell membrane. They are like **oxygen** molecules that can go across the membrane. Do the following situations represent concentration gradients? If so, in which direction would **diffusion** occur?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | |  | |  | |
| **gradient?**  **Yes** or **No** |  | **gradient?**  **Yes** or **No** |  | **gradient?**  **Yes** or **No**? |  |
| movement  **left**, **right**, or **none** |  | movement  **left**, **right**, or **none** |  | movement  **left**, **right**, or **none** |  |

**III.** Observe the diagrams in the table below. Assume that the dots are dissolved solutes (like

**protein** or **carbohydrate** molecules) in water on either side of the cell membrane. Do the following situations represent concentration gradients? If so, in which direction would **osmosis** occur?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | |  | |  | |
| **gradient?**  **Yes** or **No** |  | **gradient?**  **Yes** or **No** |  | **gradient?**  **Yes** or **No**? |  |
| movement  **left**, **right**, or **none** |  | movement  **left**, **right**, or **none** |  | movement  **left**, **right**, or **none** |  |

IV. Observe the table below. Are the following hypotonic, hypertonic, or isotonic solutions? Which way will water mostly move?

|  |  |  |  |
| --- | --- | --- | --- |
| ***intracellular fluid***  *(inside the cell)* | ***extracellular fluid***  *(outside of the cell)* | ***Hypotonic****,*  ***Hypertonic****,*  ***Isotonic*** | *water moves mostly*  ***inside*** *or* ***outside*** *the cell* |
| 5% salt | 10% salt |  |  |
| 10% salt | 10% salt |  |  |
| 3% glucose | 1% glucose |  |  |
| 2% protein | 1% protein |  |  |
| 9% salt | 9% salt |  |  |
| 13% water | 25% water |  |  |
| 59% water | 45% water |  |  |
| 90% water | 92% water |  |  |
| 74% glucose | 87% glucose |  |  |

**V.** *Observe the diagram below and answer the questions.*



1. Can you tell if the cell is in a hypertonic, hypotonic, or isotonic solution? EXPLAIN!

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2. What will happen to the cell if it is placed in a 50% salt solution?

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3. What will happen if the cell is placed in pure water?

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