

Name: \_\_\_\_\_ **KEY** \_\_\_\_\_ Block: \_\_\_\_\_ Date: \_\_\_\_\_

**Biology 12 - Cell Membrane & Transport – Review Worksheet**

⇒ **Part A:** Definitions: Define the following terms, **IN YOUR OWN WORDS, IN AS FEW WORDS AS CLARITY ALLOWS.**

i. cell membrane	phospholipid and protein covering of every cell, controls what goes in and out of each cell
ii. diffusion	movement of molecules from region of greater concentration to region of lesser concentration.
iii. concentration gradient	the difference in concentration between two regions
iv. solute	the solid that is dissolved in a solution
v. solvent	the liquid that dissolves the solute in a solution
vi. osmotic pressure	the pressure of water moving across membranes caused by a concentration gradient.
vii. isotonic solution	solution that has same concentration of solute as the cells it surrounds
viii. hypertonic solution	solution that has greater concentration of solute as the cells it surrounds. Will cause cell to shrink
ix. hypotonic solution	solution that has lesser concentration of solute as the cells it surrounds. Will cause cells to burst
x. plasmolysis	shrinking of a plant cell (wilting) due to being place in a hypertonic solution.
xi. turgor pressure	hydrostatic pressure due to a plant cell being placed in hypotonic solution. Is pressure on inside of plant cell against the cell wall.
xii. facilitated transport	Carrier-mediated transport that works with the conc. gradient and requires no energy.
xiii. crenation	shrinking of animal cells placed in hypertonic solutions.
xiv. active transport	Carrier-mediated transport that works against the conc. gradient and requires energy.
xv. endocytosis	Cells bringing in materials by forming vesicle around substance outside the cell with the cell membrane.
xvi. phagocytosis	endocytosis of large particles (large enough to be seen with light microscope)
xvii. pinocytosis	"cell drinking" Endocytosis of small particles (small enough that an electron microscope is needed)
xviii. exocytosis	opposite of endocytosis. Vesicle inside cell fuses with cell membrane, depositing contents on the outside.
xix. glycolipid	carbohydrate attached to phospholipid on cell membrane. Often serves in cell identification and communication.
xx. Fluid Mosaic Model	Current model of membrane structure. A phospholipid fluid sea is embedded with a wide variety ("mosaic") of protein molecules.

**PART B - SHORT ANSWERS**

- Diffusion is the movement of molecules from the area of greater concentration to the area of lesser concentration.
- Osmosis is the movement of water across a selectively permeable membrane.
- A cell is isotonic to a solution of 0.01% sugar.
  - What concentration would be hypertonic? >0.01%
  - What concentration would be hypotonic? <0.01%
- What happens to an animal cell in a hypotonic solution? it swells and bursts
  - What happens to an animal cell in a hypertonic solution? It loses water to medium -- shrivels up.
- Turgor pressure is best exemplified by placing a plant cell in a hypotonic solution.
- Give an example:
  - of diffusion in the body the movement of O<sub>2</sub> from the air sacs into the blood
  - of facilitated transport some sugars enter the cell more quickly than others
  - of active transport the concentration ([]) of Na is greater outside a cell, the [ ] of K is greater inside a cell
- List 3 ways in which active transport differs from the process of diffusion across a cell membrane.
 

i. goes from area of less[] to area of greater
ii. requires carrier protein
iii. requires expenditure of energy