

Name: _____ Section: _____

CELLULAR TRANSPORT REVIEW

Helpful Hints:

- Hypo =Hippo: The cell will swell
- If you are ACTIVE...you are using energy
- If you are passive...you are NOT using energy
- Remember water will always move in the direction of the most solute.

Match the definition on the left with the term on the right.

1. _____ release of wastes or cell products from inside to outside a cell
2. _____ diffusion of water molecules through a selectively permeable membrane
3. _____ cell swells so much that it bursts
4. _____ continuous movement of particles but no overall change in concentration
5. _____ movement of particles from an area of higher concentration to one of lower concentration

- | |
|----------------|
| a. diffusion |
| b. equilibrium |
| c. exocytosis |
| d. osmosis |
| e. lysis |

In the space at the left, write true if the statement is true. If the statement is false, change the italicized term to make the statement true. Write this answer in the blank provided.

- _____ 7. A solution in which the concentration of dissolved substances is lower than the concentration inside a cell is *hypertonic*.
- _____ 8. In *passive transport*, the movement of particles across a membrane requires energy.
- _____ 9. *Endocytosis* is a process by which a cell membrane surrounds and takes in material from the environment.
- _____ 10. The passive transport of material across a membrane by means of transport proteins is called *activated diffusion*.
- _____ 11. A membrane that allows only some materials to pass through shows *selective permeability*.

Highlight or circle the word or phrase that best completes the statement or answers the question.

12. The structure most responsible for maintaining cell homeostasis is the
cytoplasm cell wall mitochondria cell membrane

13. A cell membrane is made up of a(n)
cholesterol layer enzyme layer lipid bilayer protein layer

14. Which of the following is not a form of passive transport?
facilitated diffusion diffusion endocytosis osmosis

15. Diffusion continues until
equilibrium is reached turgor pressure is reached one side has more

16. If a cell is placed in salt water, water leaves the cell by
osmosis diffusion active transport phagocytosis

17. ~~If it is not watered, a tulip plant wilts because it~~
~~increases active transport~~ ~~loses turgor pressure~~ ~~increases turgor pressure~~

18. A cell moves particles from a region of lesser concentration to a region of greater concentration by
facilitated diffusion osmosis passive transport active transport

20. List the functions of the cell membrane:

21. What organelle produces the energy required in active transport? _____

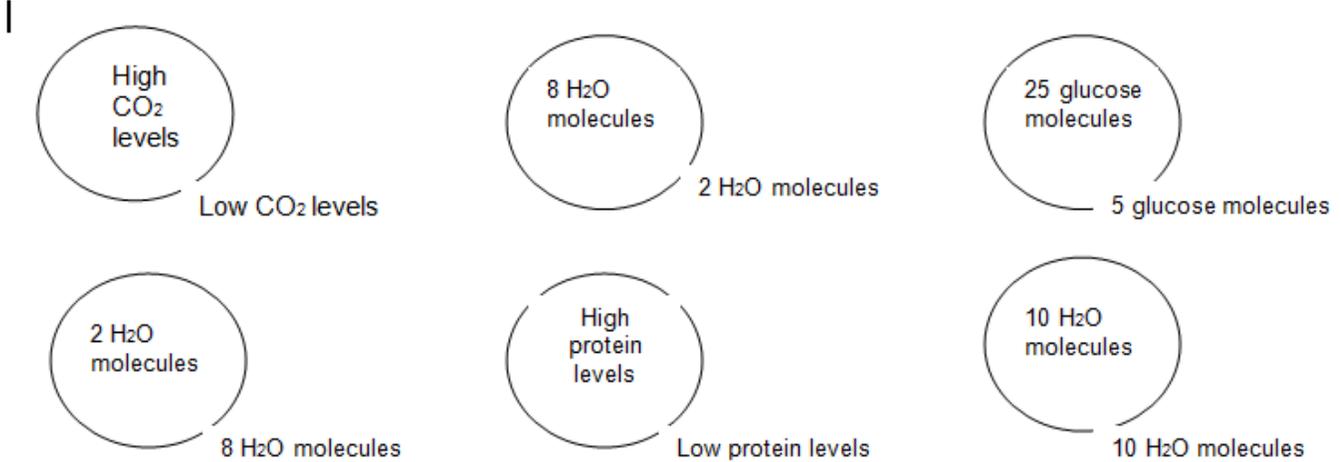
22. What organelle plays a large role in exocytosis by packaging proteins into vesicles? _____

23. If a cell normally contains 70% solute inside, and the outside solution has 60% solute what happens?

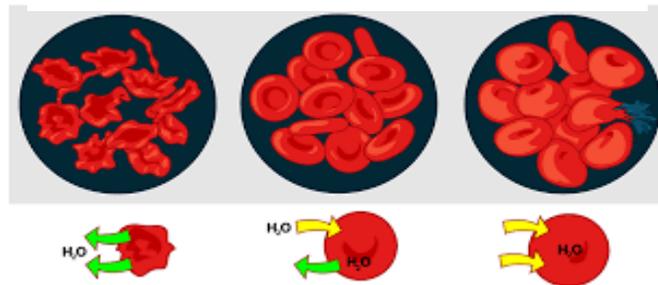
24. When molecules move **with the concentration gradient** it means they are moving from
_____ to _____ concentration

25. Define equilibrium:

Label the diagrams of cells using the following terms: **diffusion, active transport, osmosis, facilitated diffusion, or equilibrium.** The arrows show the direction of transport. You may use the terms more than once!

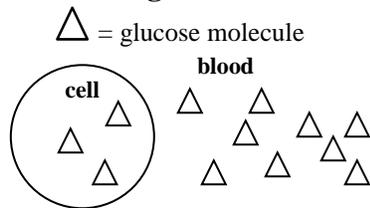


Label the following cells as isotonic, hypotonic or hypertonic



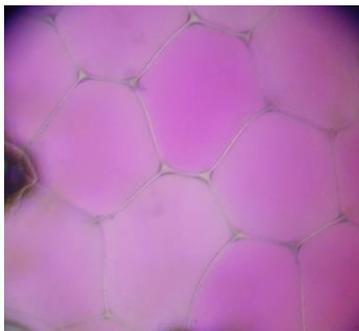
Use the pictures on the left to answer the questions on the right.

1. After digestion:



- Which side has the higher concentration of glucose? _____
- Which way will the glucose go? _____
- Does this require energy? _____
- Is this active or passive transport? _____
- What specific type of transport is this? _____

2. Plant cell after being over-watered.



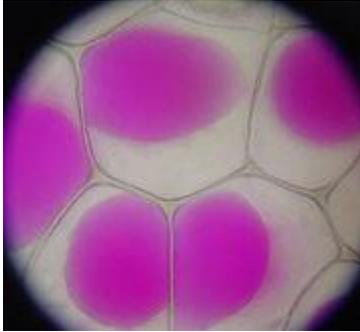
- Water rushes into the plant cell's vacuole. Is this diffusion or osmosis?

- Is this passive or active transport? _____
- What is the force called that causes water to rush into the plant cell?

- Is the plant cell in a hypertonic, hypotonic, or isotonic environment?

- What will occur to the cell if this continues?

3. Plant cell after not being watered lately, so it has begun to wilt:



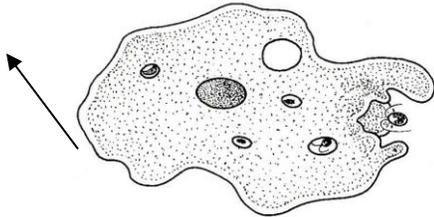
- Which way will the water go? Into the vacuole, or out of the vacuole?

- By what process will the water move?

- Is the plant cell in a hypertonic, hypotonic, or isotonic environment?

- What will occur to the cell if this continues?

4. An amoeba engulfs a particle of food.



- Does this require energy? _____
- Is this active or passive transport? _____
- Is this endocytosis or exocytosis? _____

5. An amoeba expels waste.



- Does this require energy? _____
- Is this active or passive transport? _____
- Is this endocytosis or exocytosis? _____

Complete the table by checking the correct column for each statement:

Statement	Isotonic solution	Hypotonic solution	Hypertonic solution
Causes a cell to swell			
Doesn't change the shape of a cell			
Causes osmosis			
Causes a cell to shrink			

Match the term with its correct description:

- a. energy
- b. facilitated diffusion
- c. endocytosis
- d. passive transport
- e. active transport
- f. exocytosis
- g. carrier protein
- h. channel protein

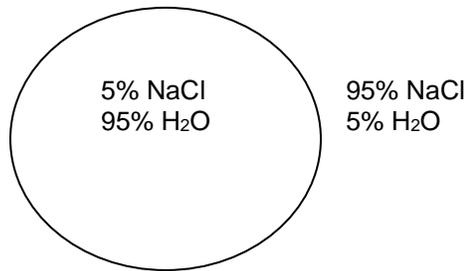
- _____ Transport protein that provides a tube-like opening in the plasma membrane through which particles can diffuse
- _____ Is used during active transport but not passive transport
- _____ Process by which a cell takes in material by forming a vacuole around it
- _____ Particle movement from an area of higher concentration to an area of lower concentration
- _____ Process by which a cell expels wastes from a vacuole
- _____ A form of passive transport that uses transport proteins
- _____ Particle movement from an area of lower concentration to an area of higher concentration
- _____ Transport protein that changes shape when a particle binds with it

Complete the following chart comparing the various methods of cell transport.

Transport Method	Active or Passive	Uses ATP (Y or N)	Transport Direction (down or against concentration gradient)	Uses Transport Proteins (Y or N)
Diffusion				
Osmosis				
Facilitated Diffusion				
Active Transport				
Endo/Exocytosis				

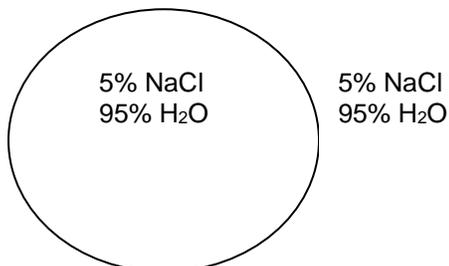
Use the diagrams to answer the questions. Draw arrows to indicate the movement of water.

1.



- a. Water will flow _____ (into the cell, out of the cell, in both directions).
- b. The cell will _____ (shrink, burst, stay the same).

2.



- a. Water will flow _____ (into the cell, out of the cell, in both directions).
- b. The cell will _____ (shrink, burst, stay the same).