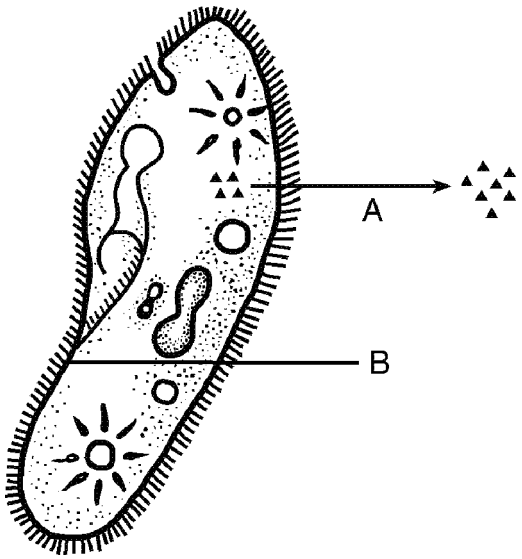
Cell Membrane

Name: _____ **Date:** _____

1. Base your answer(s) to the following question(s) on the diagram, which represents a unicellular organism in a watery environment. The ▲'s represent molecules of a specific substance.



Arrow *A* represents active transport. State *two* ways that active transport is different from diffusion.

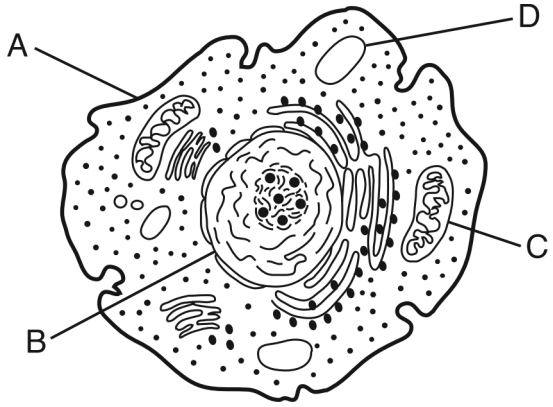
2. Describe how *two* of the cell structures listed below interact to help maintain a balanced internal environment in a cell.

mitochondrion
ribosome
cell membrane
nucleus
vacuole

In your answer be sure to:

- select *two* of these structures, write their names, and state one function of each
- describe how each structure you selected contributes to the functioning of the other

3. The diagram below represents a cell.



Which statement concerning ATP and activity within the cell is correct?

A. The absorption of ATP occurs at structure *A*.

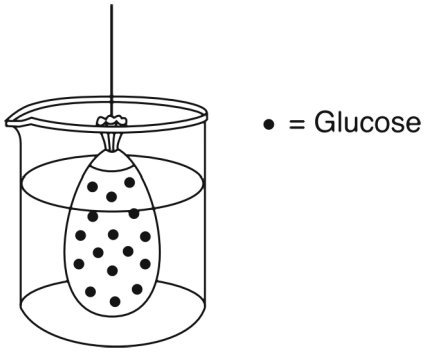
B. The synthesis of ATP occurs within structure *B*.

C. ATP is produced most efficiently by structure *C*.

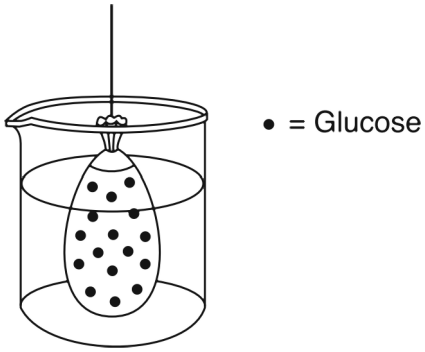
D. The template for ATP is found in structure *D*.

4. Base your answer(s) to the following question(s) on the information below and on your knowledge of biology.

An artificial cell filled with a glucose solution was placed in a beaker of water, as represented below. The beaker was left undisturbed for 20 minutes.

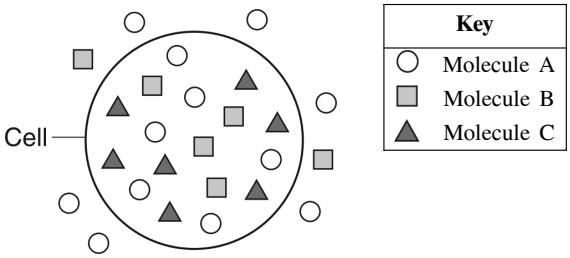


In the diagram below, draw in the expected location of the glucose molecules after 20 minutes.



5. If both glucose and starch were added to the artificial cell, where would the starch be located after 20 minutes?

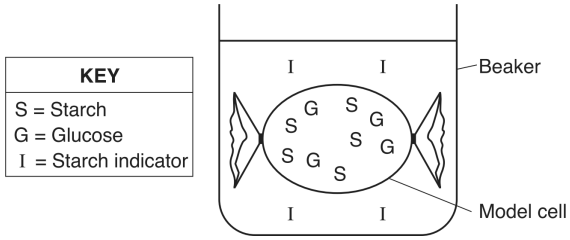
6. The diagram below represents a cell and several molecules. The number of molecules shown represents the relative concentration of the molecules inside and outside of the cell.



Molecule B could enter the cell as a direct result of

A. digestion
B. diffusion
C. active transport
D. enzyme production

7. Base your answer(s) to the following question(s) on the diagram below and on your knowledge of biology. The diagram represents a model cell setup. The locations of three different substances are indicated in the diagram.



Which statement best describes what will most likely happen after several minutes?

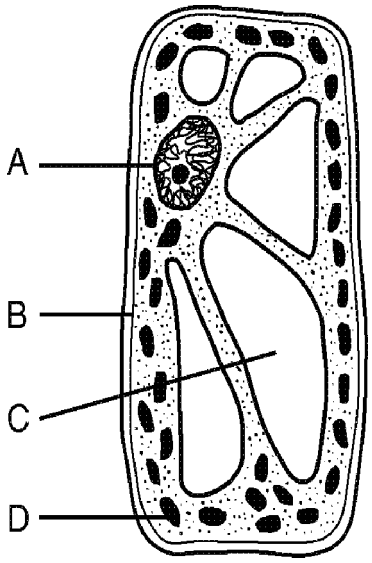
A. The contents of the model cell will change color.
B. The liquid outside the model cell will change color.
C. The model cell will shrink.
D. The model cell will rupture.

8. Which row in the chart below best explains the movement of some molecules between the model cell and the solution in the beaker?

Row	Direction of Flow of Molecules	Energy Use
(1)	from high to low concentration	without using cellular energy
(2)	from high to low concentration	using cellular energy
(3)	from low to high concentration	without using cellular energy
(4)	from low to high concentration	using cellular energy

A. Row (1)
B. Row (2)
C. Row (3)
D. Row (4)

9. Which letter indicates a cell structure that directly controls the movement of molecules into and out of the cell?



A. *A*
B. *B*
C. *C*
D. *D*

Cell Membrane 05/26/2015

1.
Answer: Active transport requires the use of energy by the organism.

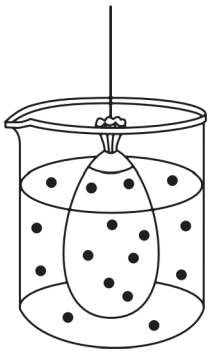
In active transport, molecules move from a region of lower concentration to a region of higher concentration of those molecules.

2.
Answer:

- mitochondrion—release of energy from nutrients, ribosome—protein synthesis, cell membrane—regulates movement of materials into and out of the cell, nucleus—regulates cell functions or carries the genetic code, or vacuole—storage
- The nucleus contains the code for the enzymes that function in the mitochondrion. The mitochondrion provides energy that is needed by the nucleus.

3.
Answer: C

4.
Answer:



• = Glucose

5.
Answer: All of the starch molecules would be in the artificial cell.

The starch would not move out of the cell.

The starch would stay in the cell.

6.
Answer: C

7.
Answer: A

8.
Answer: A

9.
Answer: B