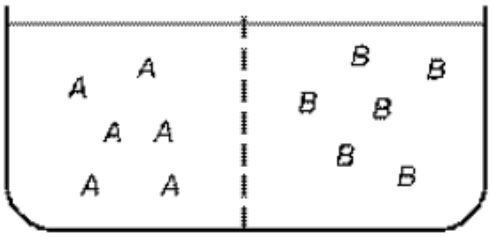
7) What will most likely happen to wastes containing nitrogen produced as a result of the breakdown of amino acids within liver cells of a mammal?

1) They will be digested by enzymes in the stomach.
2) They will be removed by the excretory system.
3) They will be absorbed by mitochondria in nearby cells.
4) They will be destroyed by specialized blood cells.

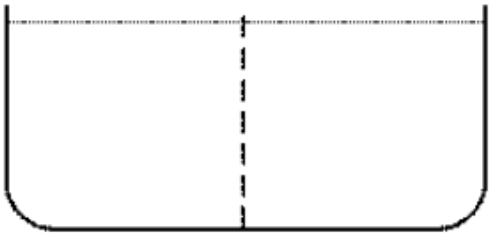
8) In the *Diffusion Through a Membrane* lab, the model cell membranes allowed certain substances to pass through based on which characteristic of the diffusing substance?

1) size
2) temperature
3) color
4) shape

9) The diagram below represents a container of water and two different kinds of molecules, *A* and *B*, separated into two chambers by a membrane through which only water and molecule *A* can pass.



On the diagram of the container below, indicate the distribution of molecules *A* and *B* after the net movement of these molecules stops.



14) A student hypothesizes that the pulse rate of a person and background music that is playing are related. The student designs an experiment to test this hypothesis. What would be an appropriate control for this experiment?

Questions 15 and 16 refer to the following:

Two students collected data on their pulse rates while performing different activities. Their average results are shown in the data table below.

Data Table

Activity	Average Pulse Rate (beats/min)
sitting quietly	70
walking	98
running	120

15) Based on the data shown, state the relationship between activity and pulse rate.

16) State *one* way that the investigation described could be improved.

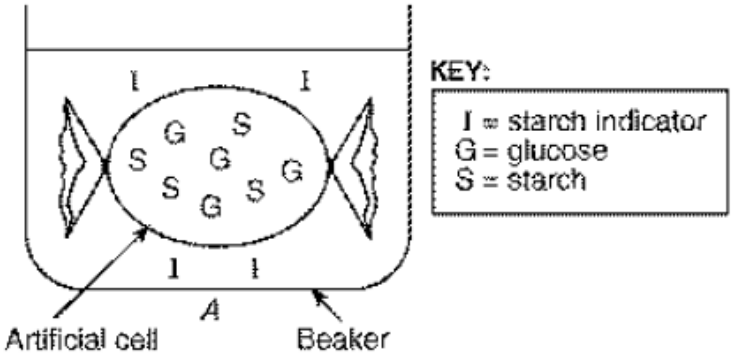
3) In humans, what happens when the breathing rate increases?

1) Additional oxygen will diffuse into the blood as carbon dioxide diffuses out of the blood in the lungs.
2) Increased oxygen dissolved in the blood will stimulate the cerebrum to slow the breathing rate.
3) Oxygen from body cells will diffuse more rapidly into red blood cells.
4) Additional carbon dioxide will diffuse into the blood as oxygen diffuses out of the blood in the lungs.

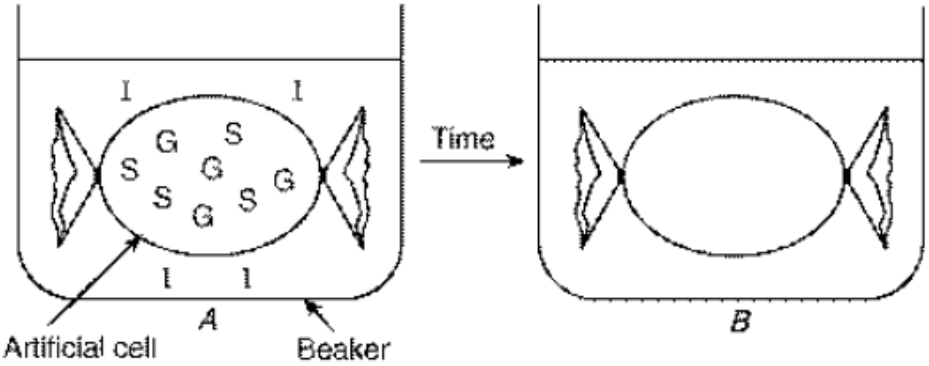
4) Which sequence represents the direction of flow of carbon dioxide as it passes out of the respiratory system into the external environment?

1) alveoli ⌗ pharynx ⌗ trachea ⌗ bronchioles ⌗ bronchi ⌗ nasal cavity
2) alveoli ⌗ trachea ⌗ bronchioles ⌗ bronchi ⌗ pharynx ⌗ nasal cavity
3) alveoli ⌗ bronchi ⌗ pharynx ⌗ bronchioles ⌗ trachea ⌗ nasal cavity
4) alveoli ⌗ bronchioles ⌗ bronchi ⌗ trachea ⌗ pharynx ⌗ nasal cavity

10) The diagram below illustrates an investigation carried out in a laboratory activity on diffusion. The beaker and the artificial cell also contain water.



Predict what would happen over time in the investigation illustrated by showing the location of molecules *I*, *G*, and *S* in diagram *B* below.

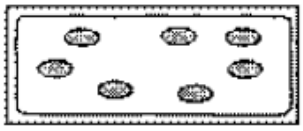


11) A red onion cell has undergone a change, as represented in the diagram below.

This change is most likely due to the cell being placed in

1) darkness
2) distilled water
3) salt water
4) light

12) *Elodea* is a plant that lives in freshwater. The diagram below represents one *Elodea* leaf cell in its normal freshwater environment.



Elodea cell in freshwater

Predict how the contents of the *Elodea* cell would change if the cell was placed in saltwater for several minutes by completing the diagram below, "*Elodea* cell in saltwater." Label the location of the cell membrane.