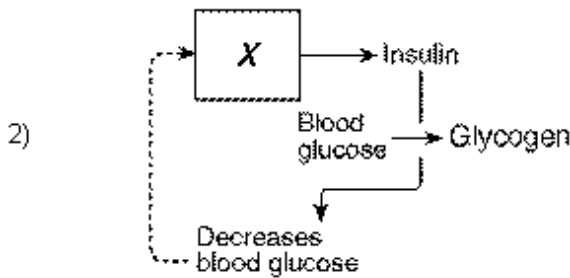


Name: \_\_\_\_\_

- 1) Feedback interactions in the human body are important because they
- 1) regulate the shape of molecules involved in cellular communication
  - 2) direct the synthesis of altered genes that are passed on to every cell in the body
  - 3) keep the internal body environment within its normal range
  - 4) determine the diversity necessary for evolution to occur



The dashed line in the given diagram represents

- 1) recycling of organic chemicals
  - 2) cellular differentiation
  - 3) a feedback mechanism
  - 4) a digestive process
- 3) Antibody molecules and receptor molecules are similar in that they *both*
- 1) remove wastes from the body
  - 2) speed up chemical reactions in cells
  - 3) have a specific shape related to their specific function
  - 4) control transport through the cell membrane
- 4) Which activity is *not* a function of white blood cells in response to an invasion of the body by bacteria?
- 1) speeding transmissions of nerve impulses to detect these bacteria
  - 2) preparing for future invasions of this type of bacteria
  - 3) engulfing these bacteria
  - 4) producing antibodies to act against this type of bacteria
- 5) Vaccinations help prepare the body to fight invasions of a specific pathogen by
- 1) stimulating red blood cell production
  - 2) inhibiting white blood cell production
  - 3) stimulating antibody production
  - 4) inhibiting antigen production

- 6) The purpose of introducing weakened microbes into the body of an organism is to stimulate the

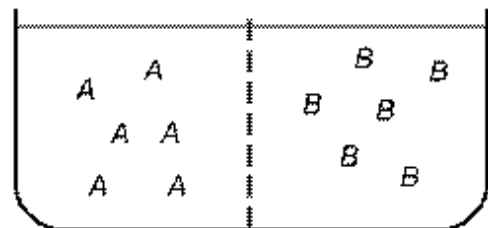
- 1) immune system to react and prepare the organism to fight future invasions by these microbes
- 2) replication of genes that direct the synthesis of hormones that regulate the number of microbes
- 3) production of antigens that will prevent infections from occurring
- 4) production of living microbes that will protect the organism from future attacks

- 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?

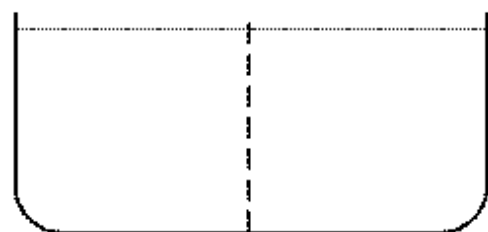
- 1) They will be digested by enzymes in the stomach.
- 2) They will be removed by the excretory system.
- 3) They will be absorbed by mitochondria in nearby cells.
- 4) They will be destroyed by specialized blood cells.

- 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?

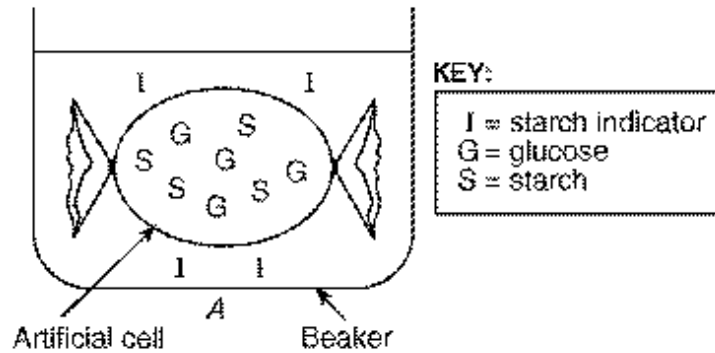
- 1) size
  - 2) temperature
  - 3) color
  - 4) shape
- 9) The diagram below represents a container of water and two different kinds of molecules, *A* and *B*, separated into two chambers by a membrane through which only water and molecule *A* can pass.



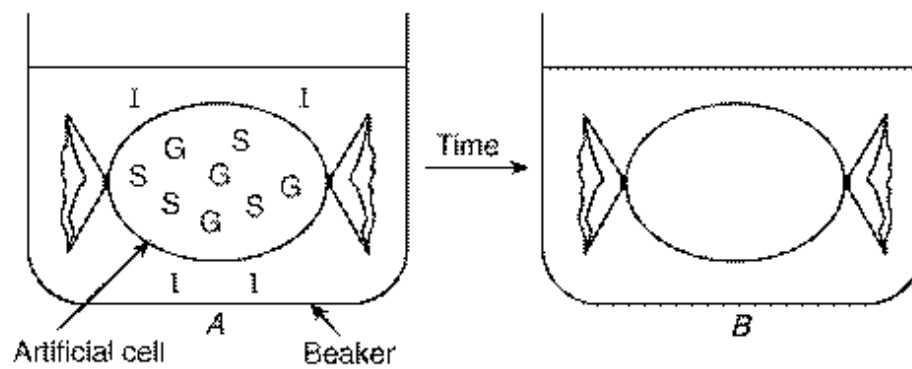
On the diagram of the container below, indicate the distribution of molecules *A* and *B* after the net movement of these molecules stops.



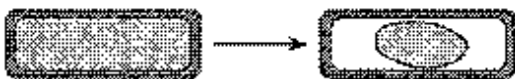
- 10) The diagram below illustrates an investigation carried out in a laboratory activity on diffusion. The beaker and the artificial cell also contain water.



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



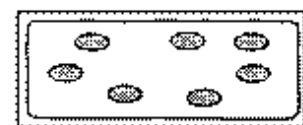
- 11) A red onion cell has undergone a change, as represented in the diagram below.



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

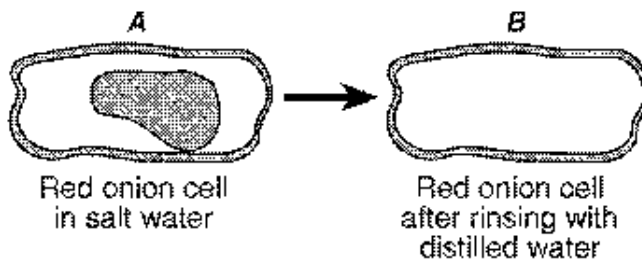
Predict how the contents of the *Elodea* cell would change if the cell was placed in saltwater for several minutes by completing the diagram below, "*Elodea* cell in saltwater." Label the location of the cell membrane.



*Elodea* cell in saltwater

- 13) A student prepared a wet-mount slide of some red onion cells and then added some salt water to the slide. The student observed the slide using a compound light microscope. Diagram A is typical of what the student observed after adding salt water.

Complete diagram B to show how the contents of the red onion cells should appear if the cell were then rinsed with distilled water for several minutes.



- 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?

- 17) A student squeezes and releases a clothespin as often as possible for 2 minutes and then takes his pulse for 20 seconds. After a 2-minute rest, he repeats the procedure. This pattern is repeated one more time. The student's 20-second pulse counts were 23, 26, and 21.

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.

Based on the information in the reading passage, complete the "Pulse/Min" column in the data table below for all three trials as well as the average pulse rate per minute.

**Pulse Rate After Activity**

Trial	20-Second Pulse Counts	Pulse/Min
1	23	
2	26	
3	21	
Average		

- 18) A group of students obtained the following data during an experiment: ----->

- a) The activity of which body system was measured to obtain the data shown in the table?
- b) The activity of which other body system would be altered as a result of the exercise?
- c) What effect would exercise have on the system you identified in *part b*?

**Data Table**

Student Tested	Pulse Rate at Rest	Pulse Rate After Exercising
1	70	97
2	75	106
3	84	120
4	60	91
5	78	122