

Name:

Date:

-
- | | |
|---|--|
| <p>1. The life function of transport in an organism directly involves those activities used to</p> <ul style="list-style-type: none">1) absorb and distribute materials2) obtain and hydrolyze materials3) release energy from food4) produce cellular waste products <p>2. The passage of the end products of digestion into the cells of an organism is an example of</p> <ul style="list-style-type: none">1) absorption 3) circulation2) digestion 4) regulation <p>3. Nutrition involves those activities by which organisms</p> <ul style="list-style-type: none">1) remove cellular waste products2) obtain and process materials needed for other activities3) exchange gases with their environment4) absorb and circulate materials <p>4. For survival, a hummingbird uses a considerable amount of energy. This energy most directly results from the life activity of</p> <ul style="list-style-type: none">1) transport 3) regulation2) excretion 4) respiration <p>5. Which life function is primarily involved in the conversion of the energy stored in organic molecules to a form directly usable by a cell?</p> <ul style="list-style-type: none">1) absorption 3) digestion2) circulation 4) respiration <p>6. Living organisms can best be distinguished from nonliving things by determining the presence or absence of</p> <ul style="list-style-type: none">1) carbon atoms2) oxygen atoms3) metabolic activities4) chemical reactions <p>7. Which process includes the other three?</p> <ul style="list-style-type: none">1) synthesis 3) excretion2) metabolism 4) nutrition | <p>8. In plants, glucose is converted to cellulose, and in human muscle cells, glucose is converted to glycogen. These processes are examples of which life activity?</p> <ul style="list-style-type: none">1) regulation 3) synthesis2) respiration 4) excretion <p>9. In which process are simple materials chemically combined to form more complex materials?</p> <ul style="list-style-type: none">1) synthesis 3) hydrolysis2) pinocytosis 4) cyclosis <p>10. Homeostasis is maintained in a single-celled organism by the interaction of</p> <ul style="list-style-type: none">1) organs 3) tissues2) systems 4) organelles <p>11. Sweating is a process that helps cool the body during strenuous exercise. This is an example of</p> <ul style="list-style-type: none">1) recycling of gases2) cellular respiration3) gene malfunction4) a feedback mechanism <p>12. When a duck dives into cold water, the capillaries in its skin constrict and move deeper below the surface of the skin. This reaction is an example of</p> <ul style="list-style-type: none">1) homeostasis 3) respiration2) synthesis 4) excretion <p>13. During a race, the body temperature of a runner increases. The runner responds by perspiring, which lowers body temperature. This process is an example of</p> <ul style="list-style-type: none">1) maintenance of homeostasis2) an antigen-antibody reaction3) an acquired characteristic4) environmental factors affecting phenotype <p>14. Which process is most directly responsible for maintaining internal stability in an organism when its environment is constantly changing?</p> <ul style="list-style-type: none">1) digestion 3) reproduction2) feedback 4) evolution |
|---|--|
-

15. Excretion is best described as the removal of
- 1) metabolic wastes from a cell
 - 2) toxic wastes by the process of cyclosis
 - 3) water molecules from dipeptide hydrolysis
 - 4) undigested material from the digestive tract

16. After eating a meal, blood sugar levels are elevated. The body secretes hormones to help absorb excess sugar into cells and return blood sugar levels to normal. This is an example of

- 1) Excretion
- 2) Regulation
- 3) Synthesis
- 4) Reproduction

17. Which statement concerning sexual reproduction is correct?

- 1) It is not necessary in order for the individual to survive.
- 2) The offspring are identical to the parent.
- 3) It is necessary in order for the individual to survive.
- 4) The offspring are identical to each other.

18. All of the following are true regarding cells except?

- 1) All cells have genetic material
- 2) All cells have cell walls
- 3) All cells have plasma membranes
- 4) All cells can divide to form new cells

19. Which structure is best observed using a compound light microscope?

- 1) a cell
- 2) a virus
- 3) a DNA sequence
- 4) the inner surface of a mitochondrion

20. If the ribosomes of a cell were destroyed, what effect would this most likely have on the cell?

- 1) It would stimulate mitotic cell division.
- 2) The cell would be unable to synthesize proteins.
- 3) Development of abnormal hereditary features would occur in the cell.
- 4) Increased protein absorption would occur through the cell membrane.

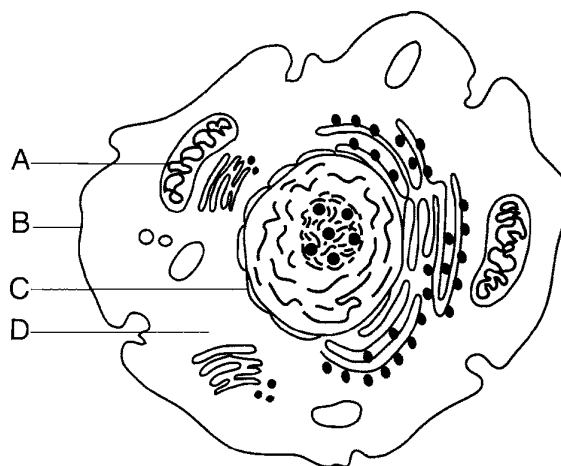
21. Which statement best describes the plasma membrane of a living plant cell?

- 1) It selectively regulates the passage of substances into and out of the cell.
- 2) It is composed of proteins and carbohydrates only.
- 3) It has the same permeability to all substances found inside or outside the cell.
- 4) It is a double protein layer with floating lipid molecules.

22. Hereditary information is stored inside the

- 1) ribosomes, which have chromosomes that contain many genes
- 2) ribosomes, which have genes that contain many chromosomes
- 3) nucleus, which has chromosomes that contain many genes
- 4) nucleus, which has genes that contain many chromosomes

23. In the diagram below, which letter indicates the part of the cell that carries out a function most similar to a function of the human excretory system?



- 1) A
- 2) B
- 3) C
- 4) D

24. Which structures carry out life functions within cells?

- 1) tissues
- 2) organ systems
- 3) organelles
- 4) organs

Date:

25. Which row in the chart below contains a cell structure paired with its primary function?

Row	Cell Structure	Function
(1)	ribosome	protein synthesis
(2)	vacuole	production of genetic information
(3)	nucleus	carbohydrate synthesis
(4)	mitochondrion	waste disposal

1) 1

2) 2

3) 3

4) 4

26. Specialized cells and organs are necessary in multicellular organisms because in these organisms

- 1) fewer cells are in direct contact with the external environment
- 2) all cells are in direct contact with the external environment
- 3) a body type evolved that relied on fewer body cells
- 4) a body type evolved that required larger sized cells

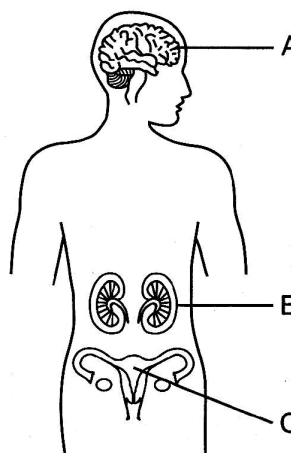
27. Which sequence shows a *decreasing* level of complexity?

- 1) organs → organism → cells → tissues
- 2) organism → cells → organs → tissues
- 3) cells → tissues → organs → organism
- 4) organism → organs → tissues → cells

28. The human heart and lungs contain cells that

- 1) produce a hormone involved in respiration
- 2) have the same genetic information but perform different specialized functions
- 3) use one part of the genetic code to synthesize all enzymes needed by the cell
- 4) contain different numbers of DNA molecule

29. Base your answer to the following question on the diagram below and on your knowledge of biology.



Structure *B* represents

- 1) cells, only
- 2) cells and tissues, only
- 3) an organ with cells and tissues
- 4) a complete system with organs, tissues, and cells

30. Which elements are present in all organic compounds?

- 1) hydrogen and oxygen
- 2) nitrogen and oxygen
- 3) nitrogen and carbon
- 4) hydrogen and carbon

31. In a chemical analysis of a sample of animal tissue, which element would most likely be found in the *smallest* quantity?

- 1) hydrogen
- 2) carbon
- 3) iodine
- 4) oxygen

32. Which substance plays a major role in most of the chemical reactions that occur in a living cell?

- 1) water 3) glycerol
- 2) glycogen 4) maltose

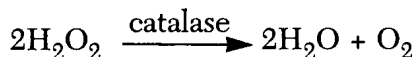
33. Two chemical equations are shown below.



What do letters *A* and *B* represent?

- 1) *A* – lipase; *B* – protease
- 2) *A* – protease; *B* – maltase
- 3) *A* – maltase; *B* – lipase
- 4) *A* – maltase; *B* – protease

34. Hydrogen peroxide (H_2O_2) is a toxic by-product of cellular metabolism in aerobic organisms. The reaction below occurs within the cells to prevent the accumulation of hydrogen peroxide.



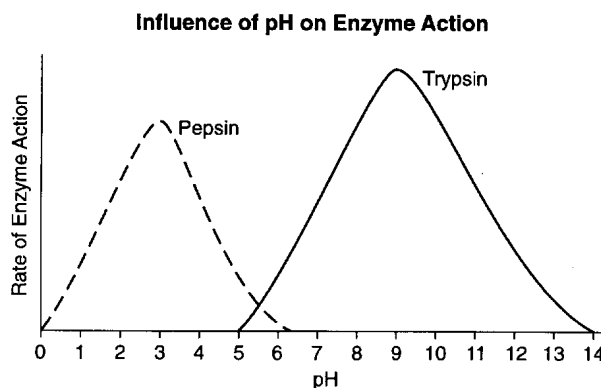
In this reaction, catalase functions as an

- 1) enzyme in the breakdown of hydrogen peroxide
- 2) enzyme in the synthesis of hydrogen peroxide
- 3) emulsifier in the digestion of hydrogen peroxide
- 4) indicator in the detection of hydrogen peroxide

35. In the body of a human, the types of chemical activities occurring within cells are most dependent on the

- 1) biological catalysts present
- 2) size of the cell
- 3) number of chromosomes in the cell
- 4) kind of sugar found on each chromosome

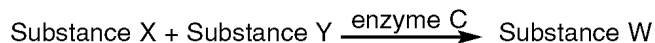
36. Base your answer to the following question on the graph below and on your knowledge of biology. The graph contains information on the rate of activity of two human enzymes at various pH levels.



The effect on the reaction rate of trypsin caused by a temperature change from 40°C to 50°C would be most similar to the effect caused by a change in pH from

- 1) 0 to 2 3) 6 to 8
- 2) 2 to 4 4) 10 to 12

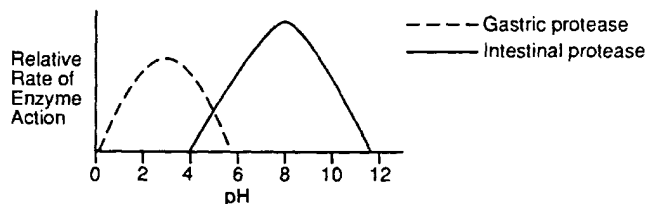
37. The equation below represents a chemical reaction that occurs in humans.



What data should be collected to support the hypothesis that enzyme *C* works best in an environment that is slightly basic?

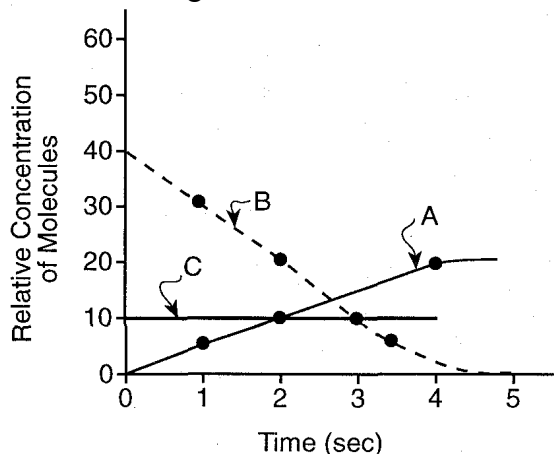
- 1) the amino acid sequence of enzyme *C*
- 2) the amount of substance *W* produced in five minutes at various pH levels
- 3) the shapes of substances *X* and *Y* after the reaction occurs
- 4) the temperature before the reaction occurs

38. Base your answer to the following question on the graph below and on your knowledge of biology.



Which is a true statement about the relationship of pH and enzyme action

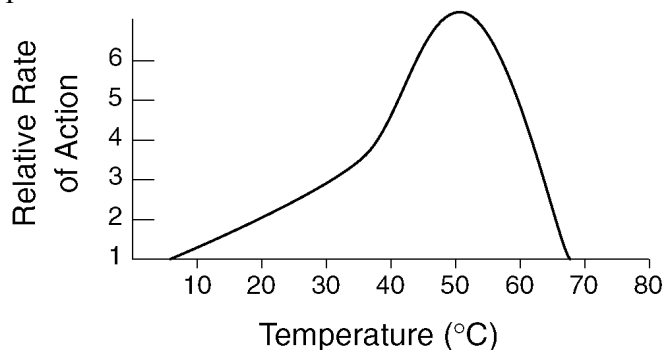
- 1) All enzymes work best at a neutral pH.
 - 2) Adding more acid does not affect the rate of activity of an enzyme
 - 3) Enzymes function only in a pH range of 4.0 to 5.5.
 - 4) The activity of an enzyme is affected by pH.
39. The graph below shows the relative concentration of molecules of three different substances, *A*, *B*, and *C*, in a reaction involving the synthesis of maltose from glucose.



The change in the concentration of maltose molecules is represented by

- 1) *A*, only
 - 2) *B*, only
 - 3) *C*, only
 - 4) both *B* and *C*
40. Which factor would have the *least* effect on the rate at which an enzyme breaks down starch?
- 1) the pH of the solution in which the reaction is occurring
 - 2) the concentrations of starch and enzyme
 - 3) the temperature at which the reaction is taking place
 - 4) the wavelength of light illuminating the reaction

41. The graph below shows the effect of temperature on the relative rate of action of enzyme *X* on a protein.



Which change would *not* affect the relative rate of action of enzyme *X*?

- 1) the addition of cold water when the reaction is at 50°C
 - 2) an increase in temperature from 70°C to 80°C
 - 3) the removal of the protein when the reaction is at 30°C
 - 4) a decrease in temperature from 40°C to 10°C
42. One effect of uncontrolled diabetes is that the blood might develop an acidic pH. As a result, cells may not be able to regulate their internal pH. Within these cells, this could cause a disruption of the function of biological catalysts known as
- 1) enzymes
 - 2) toxins
 - 3) antibodies
 - 4) antigens
43. Which activity completes an enzyme-controlled reaction?
- 1) synthesis of coenzymes by enzymes
 - 2) initial formation of an enzyme-substrate complex
 - 3) separation of the enzyme and the products of the reaction
 - 4) destruction of the enzyme
44. Which condition is necessary for enzymes and hormones to function properly in the human body?
- 1) These chemicals must have a specific shape.
 - 2) These chemicals must be able to replicate.
 - 3) Body temperature must be above 40°C.
 - 4) Body pH must be above 10.

45. Which group of organic molecules includes glycogen and glucose?

- 1) carbohydrates 3) nucleic acids
- 2) lipids 4) proteins

46. Plants store carbohydrates in the form of

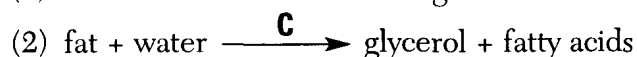
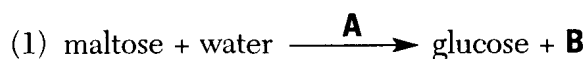
- 1) amino acids 3) starch
- 2) fatty acids 4) nucleic acids

47. What is the name of the bond linking sugar molecules together?

- 1) Peptide bond
- 2) Glycosidic bond
- 3) Phosphodiester bond
- 4) Ionic bond

Base your answers to questions **48** through **50** on the two chemical reactions shown below.

Chemical Reactions



48. Letter *B* represents a

- 1) glycerol molecule
- 2) monosaccharide
- 3) dipeptide molecule
- 4) polymer

49. Letter *A* most likely represents

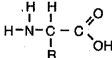
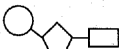
- 1) a hormone
- 2) a neurotransmitter
- 3) an organic catalyst
- 4) a hemoglobin molecule

50. Substance *C* is most likely

- 1) lipase 3) maltase
- 2) sucrase 4) amylase

Date:

Base your answers to questions **51** through **53** on on the chart below and your knowledge of Biology.

Class of Substance	Basic Unit of Structure	One Possible Function	Examples
<i>A</i>		<i>B</i>	<i>C</i>
Carbohydrate	<i>D</i>	Structural component of cell walls	<i>E</i>
<i>F</i>	<i>G</i>	Structural component of cell membranes	Fats, waxes
<i>H</i>		Protein synthesis	<i>I</i>

51. In which section of the chart do the substances starch and glycogen belong?

- 1) A 2) E 3) C 4) I

52. Which belongs in section **G** ?

- 1) $\text{O}=\text{C}=\text{O}$
- 2) $\begin{array}{c} \text{H} & \text{H} & & \text{H} \\ | & | & & | \\ \text{H}-\text{C}-\text{C}-\cdots-\text{C}-\text{C} \\ | & | & & | \\ \text{H} & \text{H} & & \text{H} \end{array} \quad \begin{array}{c} \text{O} \\ // \\ \text{C} \\ \backslash \\ \text{OH} \end{array}$
- 3) $\begin{array}{c} \text{H} \\ | \\ \text{H}-\text{C}-\text{H} \\ | \\ \text{H} \end{array}$
- 4) $\text{H}-\text{O}-\text{H}$

53. In which section of the chart do nucleic acids belong?

- 1) **F** 2) **B** 3) **H** 4) **D**

54. Every living cell contains molecules of

- 1) cellulose 3) protein
2) chlorophyll 4) hemoglobin

55. What are proteins ingested by animals immediate sources of?

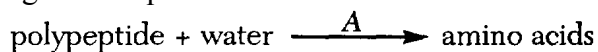
- 1) glucose
- 2) cellulose
- 3) fatty acids
- 4) amino acids

56. How many different kinds of amino acids are there?

- 1) 10 2) 20 3) 1 4) 100

57. Base your answer to the following question on the information below.

A general equation for a chemical reaction is shown below.



Which substance is represented by letter *A*?

- 1) amylase 2) lipase 3) protease 4) maltase

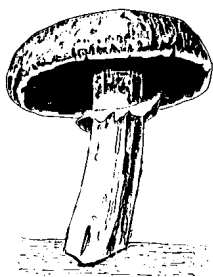
58. The ability of an organism to obtain food, seek shelter, and avoid predators is most directly related to the function of

- 1) reproduction 3) locomotion
2) egestion 4) excretion

59. Maple trees and tulips are classified as autotrophs because they both

- 1) produce gametes by the process of mitosis
2) produce carbon dioxide and water as metabolic wastes
3) are able to obtain complex organic materials from the environment
4) are able to synthesize organic molecules from inorganic raw materials

60. Why is the organism in the diagram below considered a heterotroph rather than an autotroph?



- 1) It manufactures its own food.
2) It divides by mitosis.
3) It transforms light energy into chemical energy.
4) It absorbs preformed organic molecules.

61. Plants in areas with short growing seasons often have more chloroplasts in their cells than plants in areas with longer growing seasons. Compared to plants in areas with longer growing seasons, plants in areas with shorter growing seasons most likely

- 1) make and store food more quickly
2) have a higher rate of protein metabolism
3) grow taller
4) have a different method of respiration

62. Starch molecules present in a maple tree are made from materials that originally entered the tree from the external environment. What form are these materials in before entering the tree?

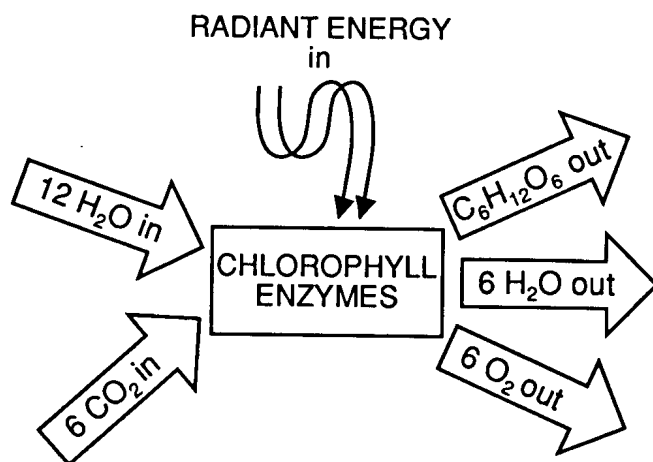
- 1) enzymes
2) simple sugars
3) amino acids
4) inorganic compounds

63. Photosynthesis transforms molecules of water and carbon dioxide into molecules of

- 1) carbohydrate and oxygen
2) carbohydrate and nitrogen
3) polypeptide and oxygen
4) polypeptide and nitrogen

Date:

64. Which process is best illustrated by the diagram?

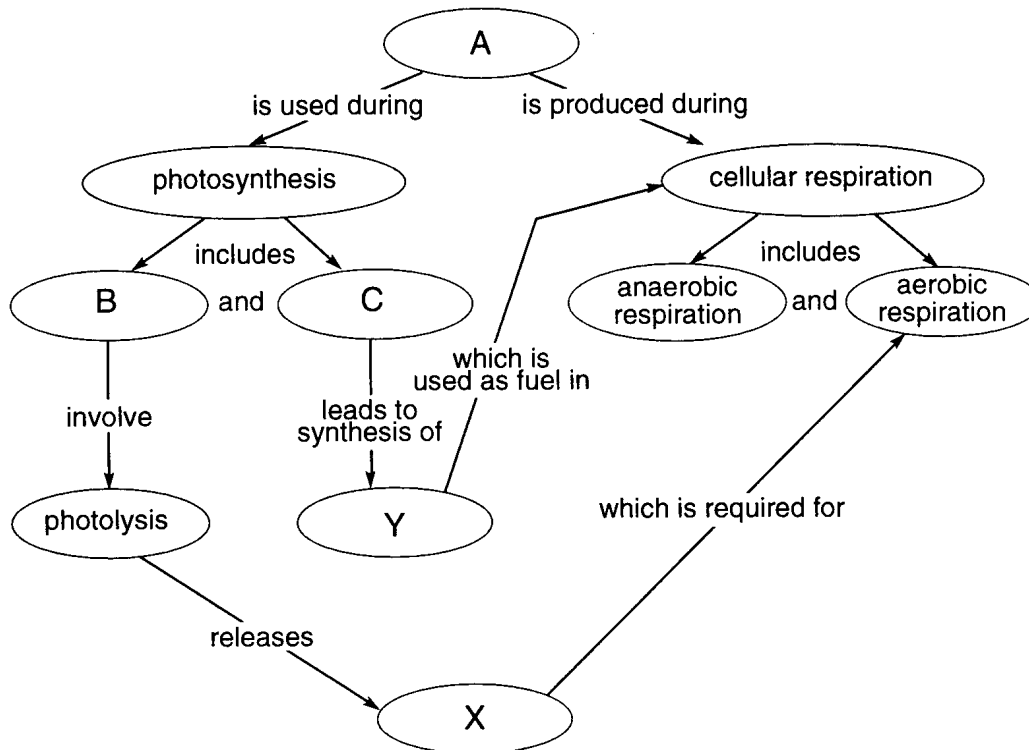


- 1) respiration
- 2) photosynthesis
- 3) transpiration
- 4) hydrolysis

65. Which gas is excreted as a waste product of autotrophic nutrition in maple trees?

- 1) nitrogen
- 2) oxygen
- 3) carbon dioxide
- 4) methane

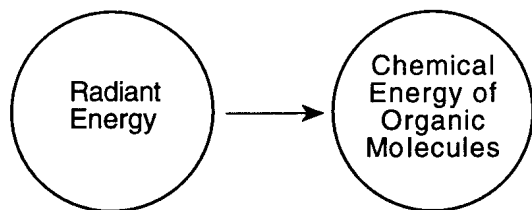
66. Base your answer to the following question on the diagram below, which is a concept map that shows the relationship between photosynthesis and respiration, and on your knowledge of biology.



In which cell organelle do the reactions that belong in areas *B* and *C* occur?

- 1) mitochondrion
- 2) chloroplast
- 3) endoplasmic reticulum
- 4) Golgi complex

67. Which process is represented by the arrow in the diagram below?



- 1) fermentation
 - 2) photosynthesis
 - 3) oxidation of glucose
 - 4) hydrolysis of nutrients
68. To determine the effect of color of light on plant growth, four groups of bean plants were grown under the light conditions described below.

Group *A* – placed under red light

Group *B* – placed under green light

Group *C* – placed under violet light

Group *D* – placed in darkness

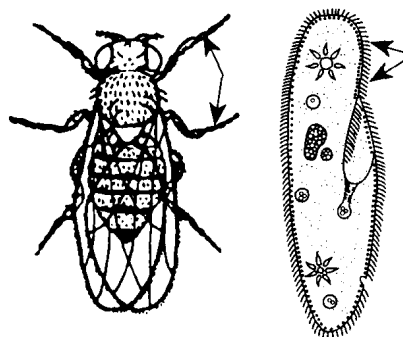
All other factors, such as light intensity and amount of moisture, were held constant. In this investigation, which group of bean plants served as the control?

- 1) *A* 2) *B* 3) *C* 4) *D*

69. Which type of energy transformation occurs in photosynthesis?

- 1) mechanical to electrical
- 2) chemical to mechanical
- 3) light to chemical
- 4) heat to electrical

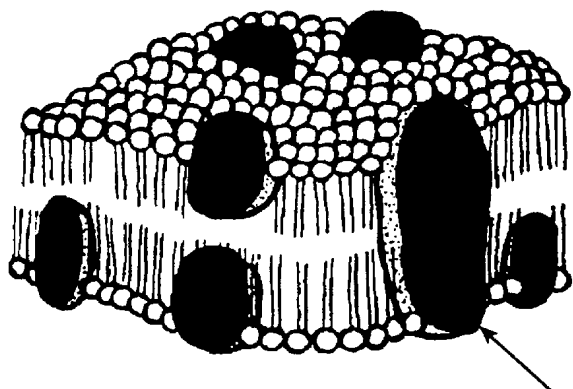
70. Two organisms are shown in the diagrams below.



In the diagram, what do the structures indicated by arrows help these organisms do?

- 1) carry out respiration
 - 2) carry out photosynthesis
 - 3) obtain food
 - 4) excrete wastes
71. The main chemical process that occurs in digestion is
- 1) transpiration
 - 2) hydrolysis
 - 3) osmosis
 - 4) oxidation
72. The digestive systems of humans, grasshoppers, and earthworms are similar in that all three
- 1) contain a tube-like system with two openings
 - 2) contain a long, coiled intestine
 - 3) mechanically break down food in a mouth cavity
 - 4) chemically digest food in Malpighian tubules

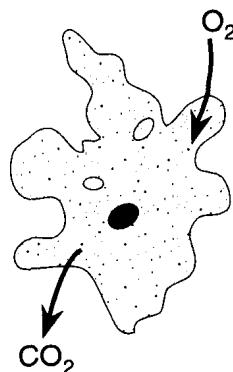
73. Base your answer to the following question on the diagram below which represents the fluid-mosaic model of a cell membrane.



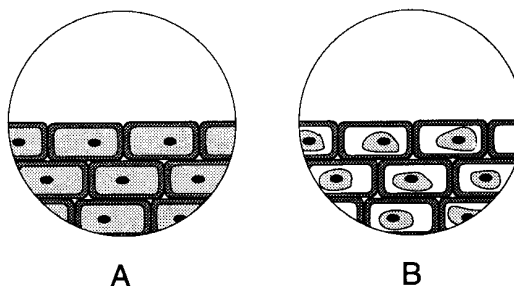
The arrow points to a component of the membrane that is best described as a

- 1) sugar floating in lipids
 - 2) protein floating in lipids
 - 3) lipid floating in proteins
 - 4) lipid floating in sugars
74. Which substances may pass through a cell membrane by simple diffusion?
- 1) starch and protein
 - 2) protein and fat
 - 3) carbon dioxide and water
 - 4) carbon dioxide and starch
75. Which statement regarding the functioning of the cell membrane of all organisms is *not* correct?
- 1) The cell membrane forms a boundary that separates the cellular contents from the outside environment.
 - 2) The cell membrane is capable of receiving and recognizing chemical signals.
 - 3) The cell membrane forms a barrier that keeps all substances that might harm the cell from entering the cell.
 - 4) The cell membrane controls the movement of molecules into and out of the cell.
76. Which substance can enter a cell by diffusion without having to be digested?
- 1) water
 - 2) protein
 - 3) starch
 - 4) fat

77. Which process accomplishes the movement of gases illustrated by the arrows in the diagram below?



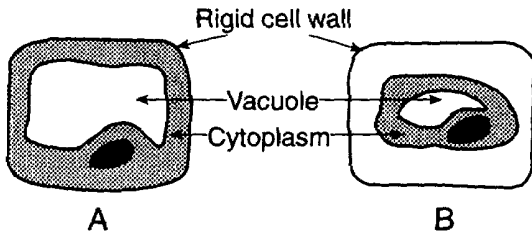
- 1) transpiration
 - 2) diffusion
 - 3) phagocytosis
 - 4) osmosis
78. A student observed a wet mount of some stained plant cells in the high-power field of a compound light microscope. Diagram *A* represents the general appearance of these cells. The student then added several drops of a liquid to the wet mount and continued the observations. Diagram *B* represents the general appearance of the cells a few minutes after adding the liquid.



The liquid that the student added to the wet mount was most likely

- 1) salt water
- 2) distilled water
- 3) pond water
- 4) tap water

79. A biologist observed a plant cell in a drop of water as shown in diagram *A*. The biologist added a 10% salt solution to the slide and observed the cell as shown in diagram *B*.



The change in appearance of the cell resulted from

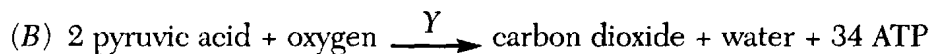
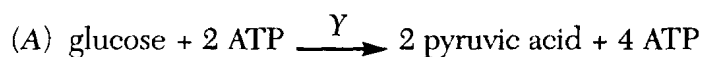
- 1) more salt moving out of the cell than into the cell
 - 2) more salt moving into the cell than out of the cell
 - 3) more water moving into the cell than out of the cell
 - 4) more water moving out of the cell than into the cell
80. A substance is most likely to diffuse into a cell when
- 1) it is a large organic food molecule such as protein or starch
 - 2) it is enclosed in an organelle such as a vacuole
 - 3) the concentration of the substance is greater outside the cell than inside
 - 4) the pH of the substance is greater than the pH of the cell

81. Which statement is a valid inference concerning structure *X* represented in the diagram below?



- 1) Structure *X* contains guard cells that regulate glucose intake.
 - 2) Structure *X* carries out heterotrophic nutrition.
 - 3) Structure *X* produces gametes for asexual reproduction.
 - 4) Structure *X* transports materials for metabolic activities.
82. The vascular tissue in a stem and a leaf is an adaptation for the
- 1) breakdown of inorganic raw materials
 - 2) transport of nutrients and water
 - 3) regulation of auxin distribution
 - 4) removal of gases from the plant
83. To remain healthy, organisms must be able to obtain materials, change the materials, move the materials around, and get rid of waste. These activities directly require
- 1) energy from ATP
 - 2) the replication of DNA
 - 3) nutrients from inorganic sources
 - 4) manipulation of altered genes
84. Base your answer to the following question on the equations shown below.

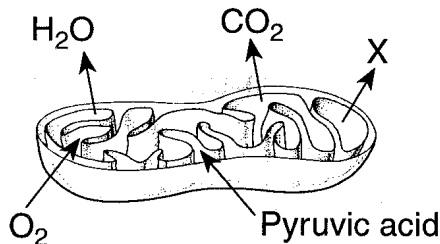
Equations



In animals, the reaction in equation *B* occurs in the

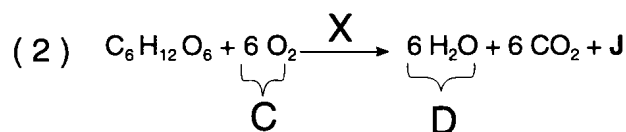
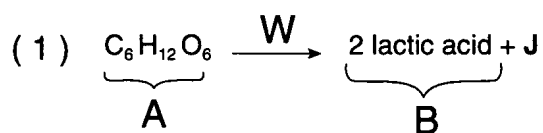
- 1) lysosomes
- 2) chloroplasts
- 3) mitochondria
- 4) ribosomes

85. Base your answer to the following question on the diagram below of a mitochondrion and on your knowledge of biology.



Letter *X* most likely represents

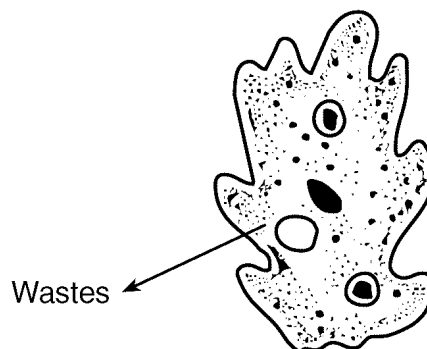
- 1) ATP
 - 2) maltose
 - 3) lactic acid
 - 4) PGAL
86. Base your answer to the following question on the chemical reactions below and on your knowledge of biology.



What is the chemical compound represented by letter *J*?

- 1) a protease
 - 2) a polysaccharide
 - 3) ATP
 - 4) ADP
87. Which phrase best describes cellular respiration, a process that occurs continuously in the cells of organisms?
- 1) removal of oxygen from the cells of an organism
 - 2) conversion of light energy into the chemical bond energy of organic molecules
 - 3) transport of materials within cells and throughout the bodies of multicellular organisms
 - 4) changing of stored chemical energy in food molecules to a form usable by organisms

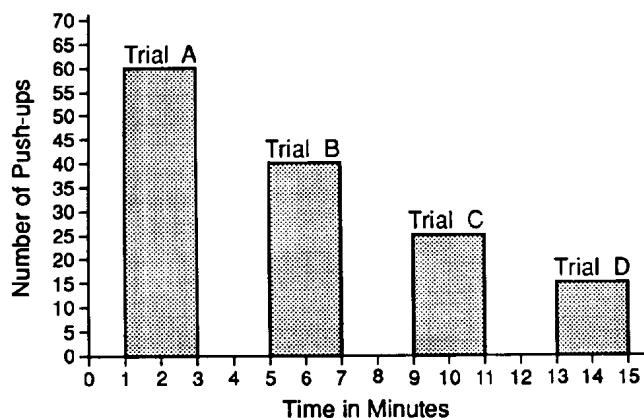
88. A single-celled organism is represented in the diagram below. An activity is indicated by the arrow.



If this activity requires the use of energy, which substance would be the source of this energy?

- 1) DNA
 - 2) ATP
 - 3) a hormone
 - 4) an antibody
89. In the cells of the human body, oxygen molecules are used directly in a process that
- 1) releases energy
 - 2) digests fats
 - 3) synthesizes carbohydrate molecules
 - 4) alters the genetic traits of the cell
90. Anaerobic respiration is considered to be less efficient than aerobic respiration because
- 1) less lactic acid is formed during anaerobic respiration than aerobic respiration
 - 2) anaerobic respiration requires more oxygen than aerobic respiration
 - 3) the net gain of ATP molecules is less in anaerobic respiration than in aerobic respiration
 - 4) less energy is required during anaerobic respiration than aerobic respiration
91. The production of alcohol by yeast cells is the result of
- 1) fermentation
 - 2) aerobic respiration
 - 3) budding
 - 4) dehydration synthesis

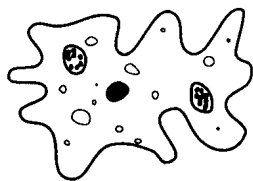
92. The graph below shows the number of push-ups a student completed in each of four 2-minute trials (A-D) during a 15-minute exercise period.



The concentration of lactic acid in the student's muscle tissue was most likely greatest during trial

- 1) A 2) B 3) C 4) D

93. Base your answer to the following question on the diagram below which represents a unicellular organism.



Why is this organism able to survive without a specialized respiratory system?

- 1) it possesses a nucleus that controls the synthesis of respiratory enzymes
- 2) its vacuoles release oxygen from stored nutrients
- 3) its respiratory surface is in direct contact with a watery environment
- 4) it possesses chloroplasts that produce oxygen when exposed to sunlight

94. The exchange of oxygen and carbon dioxide between internal leaf cells and the external environment will occur most efficiently if

- 1) the surfaces of these cells are dry and the stomates are closed
- 2) these cells are dry and the stomates are open
- 3) the surfaces of these cells are moist and the stomates are open
- 4) these cells are moist and the stomates are closed

95. In the hydra, gas exchange occurs by diffusion across the membranes of

- 1) the cells of the tentacles, only
- 2) the outer layer of cells, only
- 3) the inner layer of cells, only
- 4) all the cells of the organism

96. A blockage of the spiracles in a grasshopper would first affect the ability of the grasshopper to

- 1) reproduce sexually
- 2) synthesize proteins
- 3) exchange gases
- 4) excrete ammonia

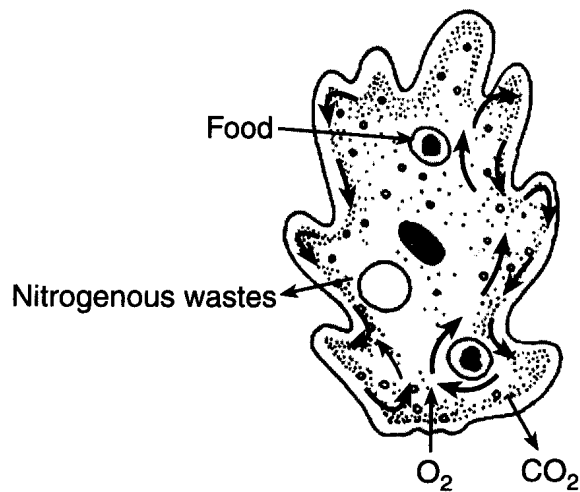
97. The function of the contractile vacuole in many freshwater protozoans is to

- 1) store carbon dioxide
- 2) aid in mechanical digestion
- 3) eliminate wastes such as ammonia
- 4) eliminate excess water

98. In humans, which substance is normally excreted through both alveoli and nephrons?

- | | |
|------------|--------------|
| 1) water | 3) ammonia |
| 2) glucose | 4) uric acid |

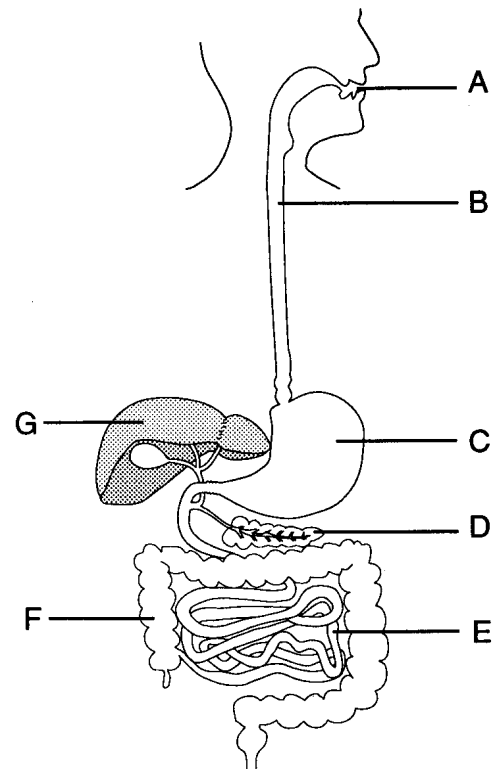
99. In the diagram of a single-celled organism shown below, the arrows indicate various activities taking place.



Which systems perform these same activities in humans?

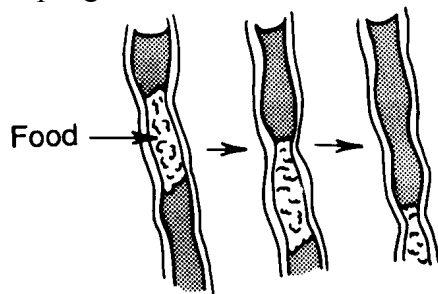
- 1) digestive, circulatory, and immune
 - 2) excretory, respiratory, and reproductive
 - 3) respiratory, excretory, and digestive
 - 4) respiratory, nervous, and endocrine
100. A change in the external or internal environment of an organism is known as
- 1) a response
 - 2) an impulse
 - 3) a synapse
 - 4) a stimulus
101. The interaction of which two systems provides the molecules needed for the metabolic activity that takes place at ribosomes?
- 1) digestive and circulatory
 - 2) reproductive and excretory
 - 3) immune and nervous
 - 4) respiratory and muscular

Base your answers to questions **102** and **103** on the diagram below, which represents the human digestive system.



102. Which statement best describes the chemical digestion of carbohydrates?
- 1) It begins in *A* and ends in *G*.
 - 2) It begins in *B* and ends in *C*.
 - 3) It begins in *G* and ends in *D*.
 - 4) It begins in *A* and ends in *E*.
103. Peristalsis occurs in the structures represented by letters
- 1) *B*, *C*, and *D*
 - 2) *B*, *C*, and *F*
 - 3) *A*, *C*, and *G*
 - 4) *D*, *F*, and *G*

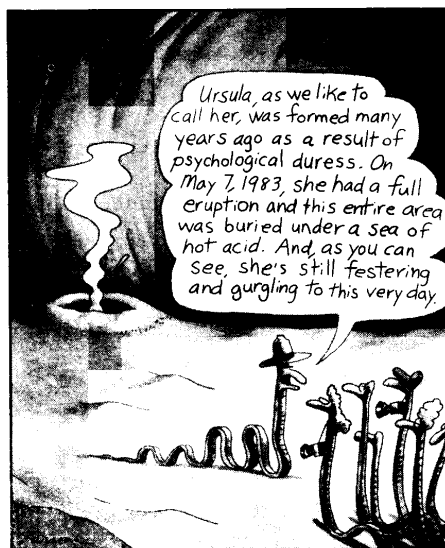
104. The diagram below represents a portion of the esophagus.



Which is a correct statement about the process shown in the diagram?

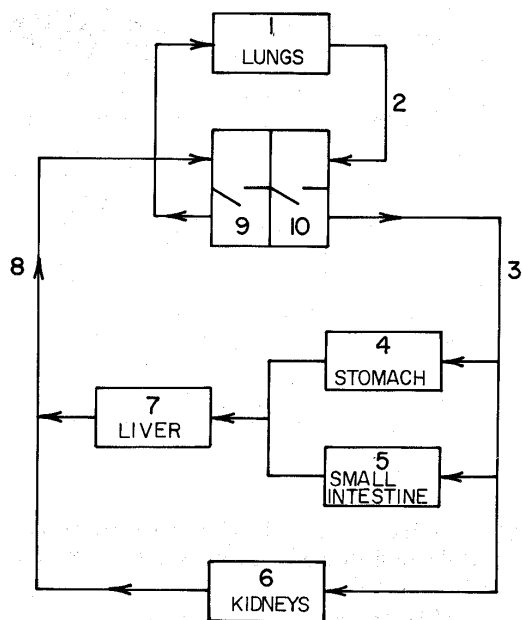
- 1) It transports nutrients within the digestive tract.
 - 2) It must occur prior to mechanical digestion food in the oral cavity.
 - 3) It emulsifies fats for hydrolysis in the small intestine.
 - 4) It increases water absorption by the esophagus.
105. Extensive damage to the large intestine would have the greatest effect on
- 1) glucose metabolism
 - 2) protein synthesis
 - 3) enzyme secretion
 - 4) water reabsorption
106. Which structures secrete chemicals utilized for the completion of digestion within the small intestine?
- 1) liver and pancreas
 - 2) glomerulus and villi
 - 3) esophagus and alveoli
 - 4) gallbladder and pharynx
107. Which nutrient should provide the largest percentage of calories in a well-balanced diet?
- 1) carbohydrates
 - 2) incomplete proteins
 - 3) saturated fats
 - 4) water

108. Which disorder is most likely represented by the "festering" pit shown in the cartoon below?



- 1) a gallstone
 - 2) an ulcer
 - 3) appendicitis
 - 4) a goiter
109. *Salmonella* bacteria can cause humans to have stomach cramps, vomiting, diarrhea, and fever. The effect these bacteria have on humans indicates that *Salmonella* bacteria are
- 1) predators
 - 2) pathogenic organisms
 - 3) parasitic fungi
 - 4) decomposers

Base your answers to questions 110 and 111 on the diagram below which represents the pathway of the blood throughout the body.



110. An acid necessary for enzyme action to occur is found within structure

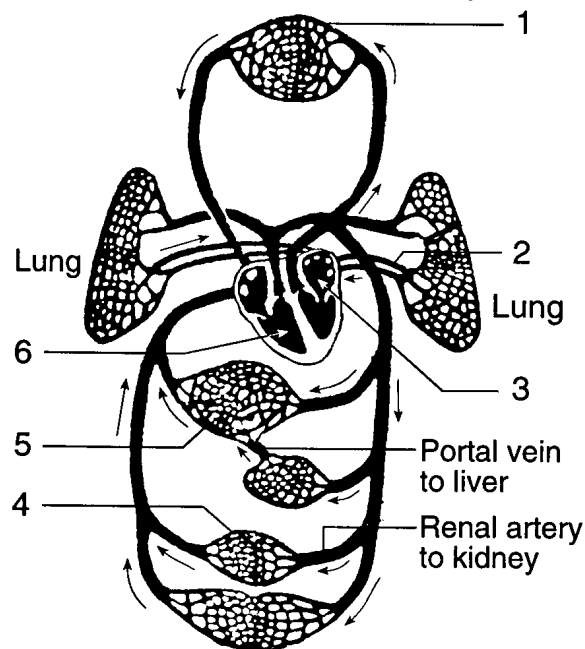
- 1) 10 2) 2 3) 5 4) 4

111. Which structure pumps oxygenated blood throughout the body?

- 1) 1 2) 8 3) 9 4) 10

112. Base your answer to the following question on the diagram below and on your knowledge of biology.

Human Circulatory Pathways



Which structure pumps blood directly to the lungs?

- 1) 1 2) 2 3) 3 4) 6

113. Which chamber of the human heart receives most of the blood returning from the brain?

- 1) left ventricle 3) left atrium
2) right ventricle 4) right atrium

114. Which body system is correctly paired with its function?

- 1) excretory—produces antibodies to fight disease-causing organisms
2) digestive—produces hormones for storage and insulation
3) circulatory—transports materials for energy release in body cells
4) respiratory—collects waste material for digestion

115. The concentration of oxygen is highest in the blood flowing through the

- 1) superior vena cava
2) inferior vena cava
3) pulmonary vein
4) pulmonary artery

Date:

116. A pulse can be detected most easily in

- 1) an artery 3) a capillary
- 2) a vein 4) a lacteal

117. Dissolved nutrients, wastes, and oxygen are exchanged between the blood and intercellular fluid through the walls of

- 1) arteries 3) capillaries
- 2) veins 4) ventricles

118. Which part of the blood is correctly paired with its function?

- 1) red blood cells – fight infection
- 2) plasma – transports wastes and hormones
- 3) platelets – produce antibodies
- 4) white blood cells – carry oxygen

119. Which part of human blood transports hormones and nutrients?

- 1) plasma 3) red blood cells
 - 2) platelets 4) white blood cells
-