Do Now Unit 2 Biochemistry

1. Most organisms contain

   A) organic compounds, only
   B) inorganic compounds, only
   C) both organic and inorganic compounds
   D) neither organic nor inorganic compounds

2. Water is classified as an inorganic compound because it

   A) does not contain carbon
   B) does not contain nitrogen
   C) contains hydrogen
   D) contains oxygen

3. Base your answer to the following question on The chart below indicates the elements contained in four different molecules and the number of atoms of each element in those molecules.

	Number of Atoms			
Element	**Molecule *A***	**Molecule *B***	**Molecule *C***	**Molecule *D***
Hydrogen	12	0	3	0
Carbon	6	1	0	1
Nitrogen	0	0	1	0
Oxygen	6	2	0	3
Calcium	0	0	0	1

   Which molecule can be classified as organic?

   A) *A* B) *B* C) *C* D) *D*

4. Most of the chemical reactions occurring in a living cell depend on the presence of an inorganic compound known as

   A) glycerol B) glycogen
   C) maltose **D) water**

5. Base your answer to the following question on Experiments revealed the following information about a certain molecule:

   — It can be broken down into amino acids.
   — It can break down proteins into amino acids.
   — It is found in high concentrations in the small intestine of humans.

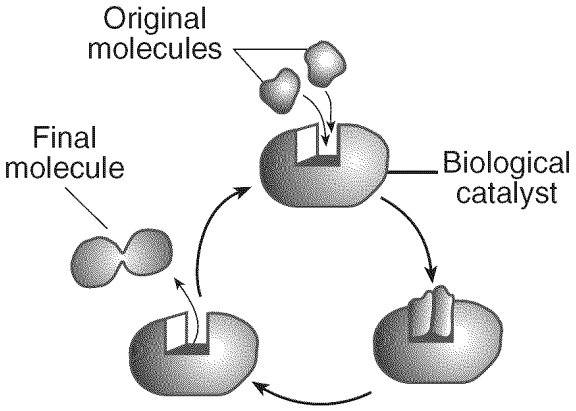
   This molecule is most likely

   A) an enzyme
   B) an inorganic compound
   C) a hormone
   D) an antigen

6. What do all chemical breakdown processes in cells directly involve?

   A) reactions that are controlled by catalysts
   B) enzymes that are stored in mitochondria
   C) the production of catalysts in vacuoles
   D) enzymes that have the same genetic base sequence

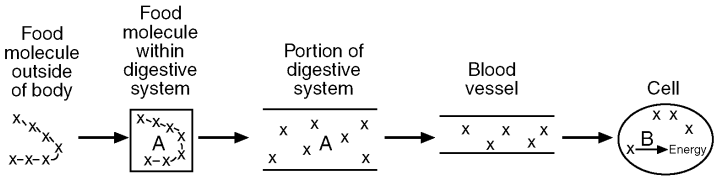
7. Base your answer to the following question on The diagram below represents a series of reactions that can occur in an organism.



   This diagram best illustrates the relationship between

   A) enzymes and synthesis
   B) amino acids and glucose
   C) antigens and immunity
   D) ribosomes and sugars

8. The diagram below represents events involved as energy is ultimately released from food.

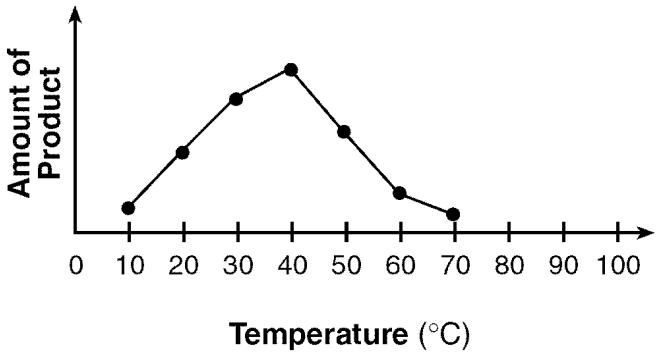


X-X-X-X-X-X-X	A and B
(1) nutrient	antibodies
(2) nutrient	enzymes
(3) hemoglobin	wastes
(4) hemoglobin	hormones

Which row in the table above best represents the chain of *X*'s and letters *A* and *B* in the diagram?

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

9. The graph below illustrates the relative amounts of product formed by the action of an enzyme in a solution with a pH of 6 at seven different temperatures.



Which statement best expresses the amount of product that will be formed at each temperature if the experiment is repeated at a pH of 4?

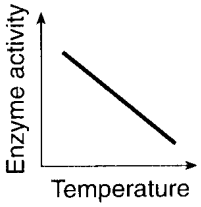
A) The amount of product formed will be equal to that produced at pH 6.
B) The amount of product formed will be greater than that produced at pH 6.
C) The amount of product formed will be less than that produced at pH 6.
D) The amount of product formed can *not* be accurately predicted.

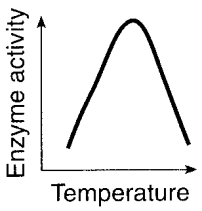
10. Meat tenderizer contains an enzyme that interacts with meat. If meat is coated with tenderizer and then placed in a refrigerator for a short time, how would the enzyme be affected?

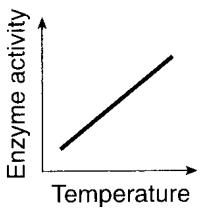
A) It would be broken down.
B) Its activity would slow down.
C) Its shape would change.
D) It would no longer act as an enzyme.

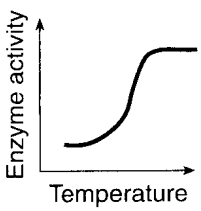
Do Now Unit 2 Biochemistry

11. Enzymes have an optimum temperature at which they work best. Temperatures above and below this optimum will decrease enzyme activity. Which graph best illustrates the effect of temperature on enzyme activity?

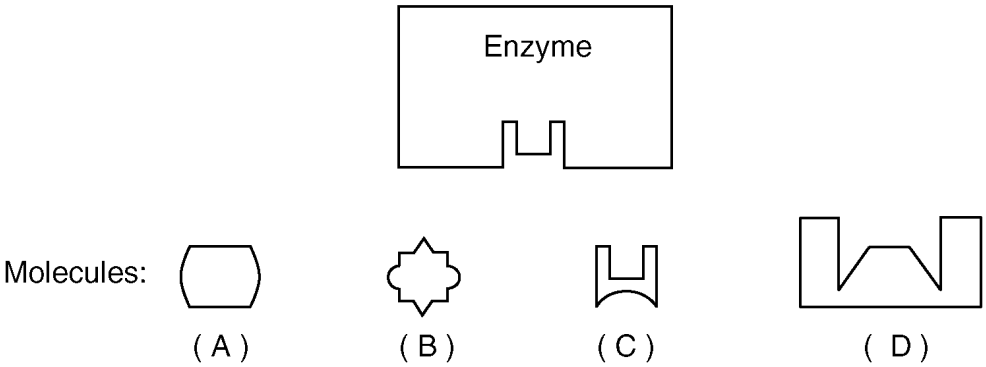
A) 

B) 

C) 

D) 

12. Base your answer to the following question on An enzyme and four different molecules are shown in the diagram below.



Which molecules would this enzyme most likely affect in a reaction?

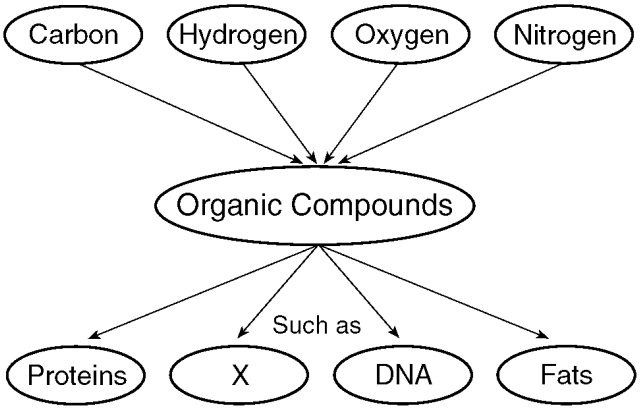
A) molecule *A*, only
B) molecule *C*, only
C) molecules *B* and *D*
D) molecules *A* and *C*

13. Base your answer to the following question on In the enzyme-controlled reaction represented by the word equation below, which molecules are considered the substrate?

monosaccharide + monosaccharide → disaccharide + water

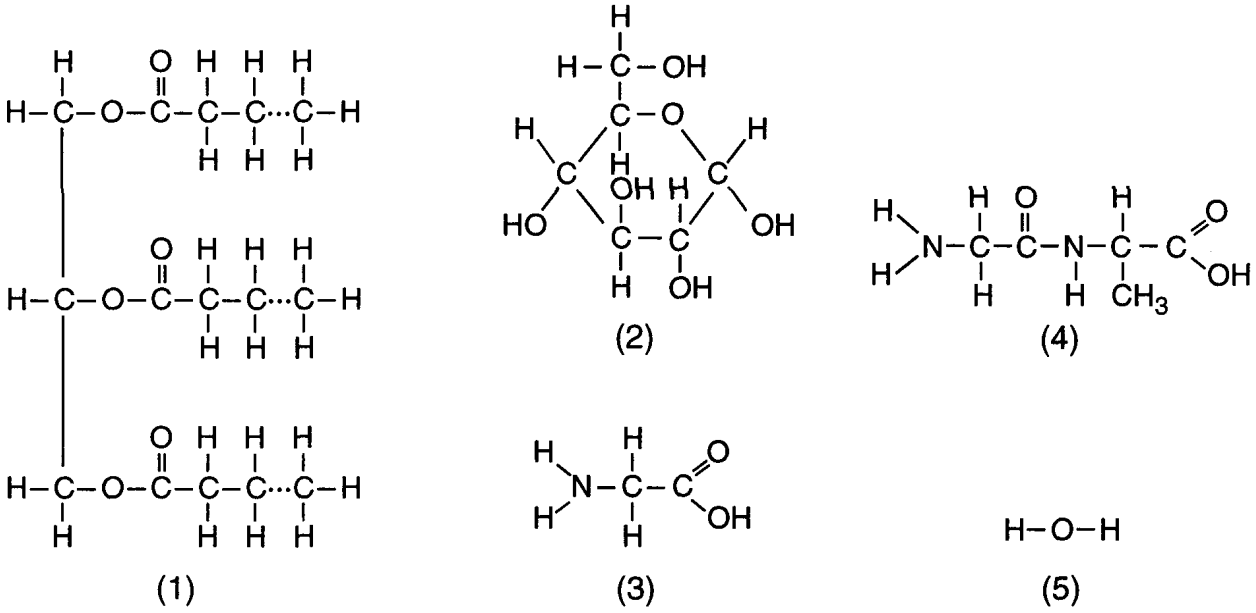
A) monosaccharide and monosaccharide
B) disaccharide and water
C) monosaccharide and water
D) monosaccharide and disaccharide

14. Base your answer to the following question on What substance could be represented by the letter *X* in the diagram below?



A) carbohydrates
B) ozone
C) carbon dioxide
D) water

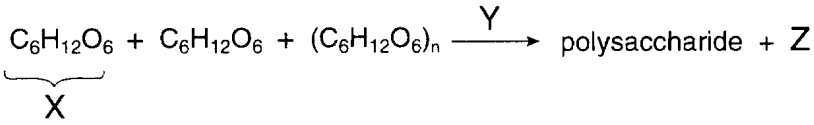
15. Base your answer to the following question on the diagram below. For each of the following phrases, select the molecule, chosen from those shown below, which is best described by that phrase.



An example of a carbohydrate

A) 1 **B) 2** C) 3 D) 4 E) 5

16. Base your answer to the following question on the chemical reaction represented below and on your knowledge of biology.



Letter *Z* most likely represents molecules of

A) water B) plant hormones C) glycogen D) nucleic acids

17. Which organic compound is produced when three fatty acid molecules bond to one glycerol molecule?

A) glycogen B) ATP
C) PGAL **D) a lipid**

18. In living organisms, lipids function mainly as

A) sources of stored energy and transmitters of genetic information
B) sources of stored energy and components of cellular membranes
C) transmitters of genetic information and catalysts of chemical reactions
D) catalysts of chemical reactions and components of cellular membranes

Base your answers to questions **19** and **20** on the two chemical reactions shown below.

Chemical Reactions

(1) maltose + water $\xrightarrow{\text{A}}$ glucose + **B**

(2) fat + water $\xrightarrow{\text{C}}$ glycerol + fatty acids

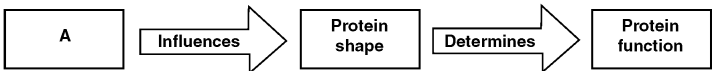
19. Letter *B* represents a

A) glycerol molecule **B) monosaccharide**
C) dipeptide molecule D) polymer

20. Substance *C* is most likely

A) lipase B) sucrase
C) maltase D) amylase

21. The diagram below provides some information concerning proteins.



Which phrase is represented by *A*?

A) sequence of amino acids
B) sequence of simple sugars
C) sequence of starch molecules
D) sequence of ATP molecules

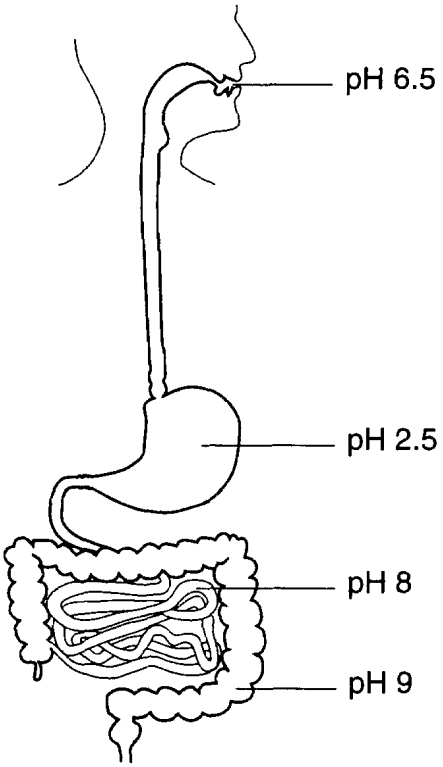
22. Which statement concerning proteins is not correct?

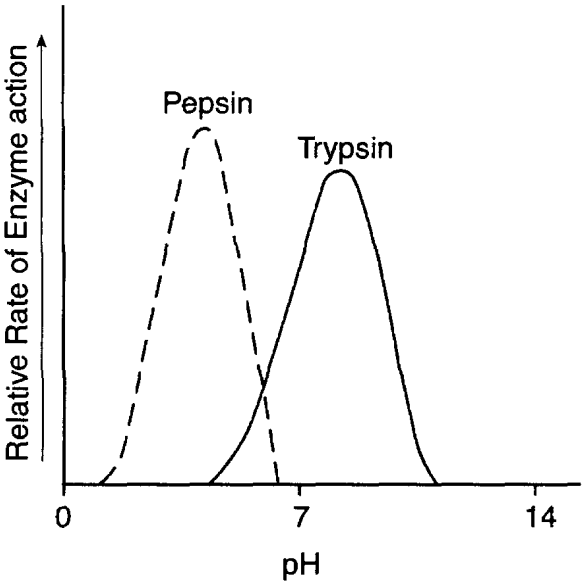
A) Proteins are long, usually folded, chains.
B) The shape of a protein molecule determines its function.
C) Proteins can be broken down and used for energy.
D) Proteins are bonded together, resulting in simple sugars.

23. What is the shape of a protein molecule influenced by?

A) whether it is organic or inorganic
B) changes in temperature or pH
C) the number of genes found in the nucleus
D) the number of chromosomes in the cell

24. Base your answer to the following question on the diagram and graph below and on your knowledge of biology. The diagram represents the human digestive system. Pepsin and trypsin are human digestive enzymes.

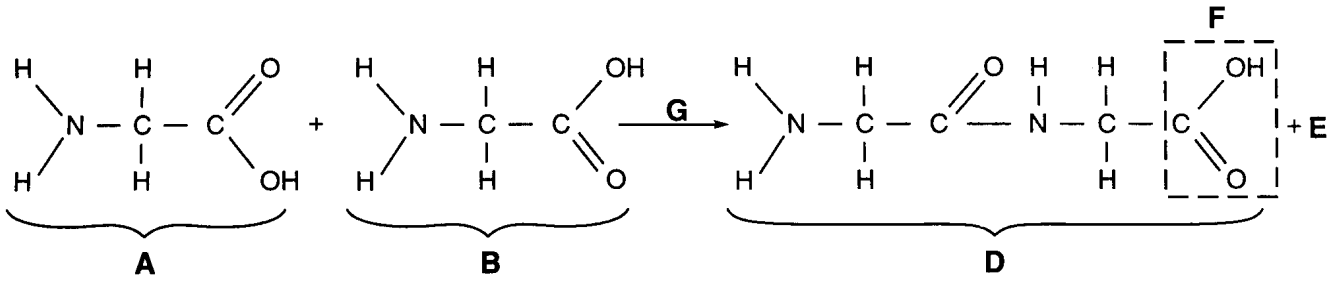




Pepsin and trypsin are classified as

A) sugars B) carbohydrates C) lipids **D) proteins**

25. Base your answer to the following question on the chemical reaction represented below.



This reaction is an example of

A) hydrolysis B) aerobic respiration
C) dehydration synthesis D) deamination

26. The bond that joins two amino acids together is known as

A) a double bond B) a hydrogen bond
C) an ionic bond **D) a peptide bond**

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

A student completed a series of experiments and found that a protein-digesting enzyme (intestinal protease) functions best when the pH is 8.0 and the temperature is 37°C. During an experiment, the student used some of the procedures listed below.

Procedures

(*A*) Adding more protease
(*B*) Adding more protein
(*C*) Decreasing the pH to 6.0
(*D*) Increasing the temperature to 45°C
(*E*) Decreasing the amount of light

Which two procedures would most likely cause a decrease in the rate of protein digestion?

A) *A* and *D*
B) *B* and *C*
C) *C* and *D*
D) *A* and *E*

Answer Key
Do Now Unit 2 Biochemistry

1. **C**
2. **A**
3. **A**
4. **D**
5. **A**
6. **A**
7. **A**
8. **B**
9. **D**
10. **B**
11. **B**
12. **B**
13. **A**
14. **A**
15. **B**
16. **A**
17. **D**
18. **B**
19. **B**
20. **A**
21. **A**
22. **D**
23. **B**
24. **D**
25. **C**
26. **D**
27. **C**