

## Biochemistry Review #2

1. Organic compounds are used as building blocks for

- A) water, DNA, and starches
- B) water, proteins, and oxygen
- C) proteins, DNA, and carbon dioxide
- D) proteins, starches, and fats

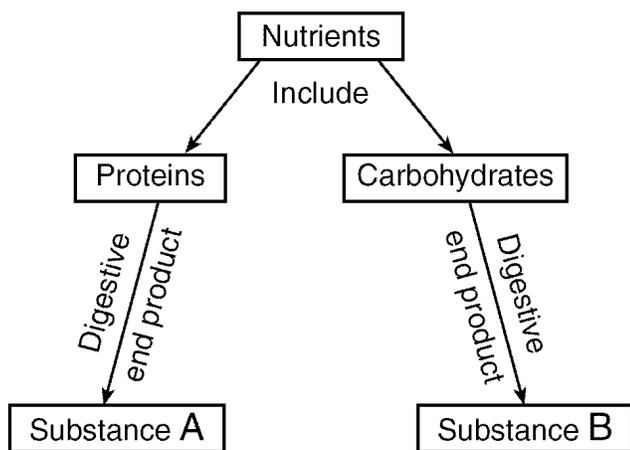
2. Which substance is an inorganic molecule?

- A) starch
- B) DNA
- C) water
- D) fat

3. Which statement best describes enzymes?

- A) Every enzyme controls many different reactions.
- B) The rate of activity of an enzyme might change as pH changes.
- C) Temperature changes do not affect enzymes.
- D) Enzymes are produced from the building blocks of carbohydrates.

4. Base your answer to the following question on the information in the diagram below and on your knowledge of biology.



In a heterotrophic organism, substance *A* could be used directly for

- A) photosynthesis
- B) synthesis of enzymes
- C) a building block of starch
- D) a genetic code

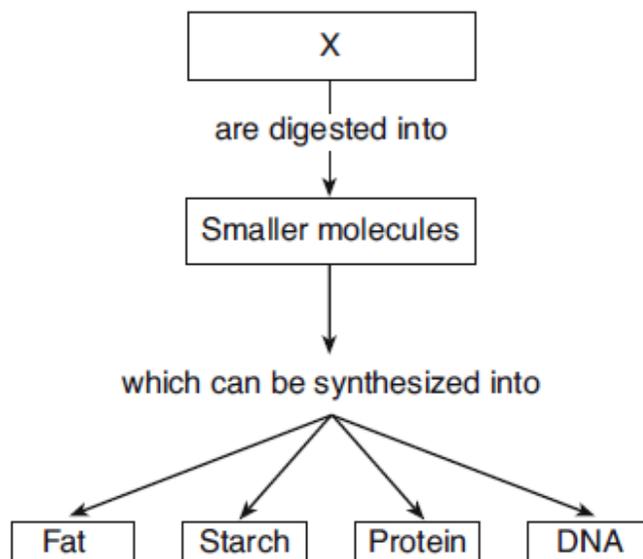
5. Which statement best describes enzymes?

- A) They slow down the rate of breathing.
- B) They are the building blocks of polymers.
- C) They speed up the conduction of impulses along a nerve cell.
- D) They influence the rate of chemical reactions.

6. Chemicals that help chemical reactions occur at faster rates in living organisms are known as

- A) biotic resources
- B) simple sugars
- C) oxygen molecules
- D) organic catalysts

7. The diagram below represents a sequence of events that occurs in living things.



Letter *X* represents

- A) inorganic molecules
- B) organic molecules
- C) biological catalysts
- D) simple sugars

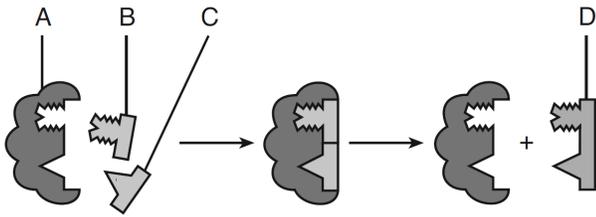
8. Which substances are produced by the hydrolysis of an oil?

- A) water and nucleic acids
- B) amino acids and dipeptides
- C) fatty acids and glycerol
- D) glucose and water

9. What are the main atoms of a protein molecule?

- A) Carbon, hydrogen, nitrogen, and oxygen
- B) Nitrogen, oxygen, and phosphorous
- C) Oxygen, sulfur, and nitrogen
- D) Carbon, phosphorous, and hydrogen

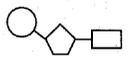
10. The diagram below represents a model of a biological process that occurs in humans at normal body temperature, 37°C.



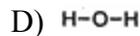
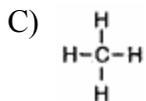
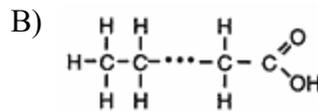
Increasing body temperature to 40°C would interfere most directly with the rate of function of structure

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

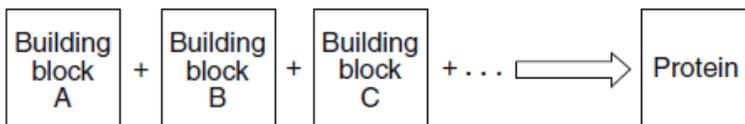
11. Base your answer to the following question on on the chart below and your knowledge of Biology.

Class of Substance	Basic Unit of Structure	One Possible Function	Examples
<i>A</i>	$\begin{array}{c} \text{H} \quad \text{H} \\   \quad   \\ \text{H}-\text{N}-\text{C}-\text{C} \\   \quad \diagup \quad \diagdown \\ \text{R} \quad \text{O} \quad \text{OH} \end{array}$	<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>

Which belongs in section **G** ?



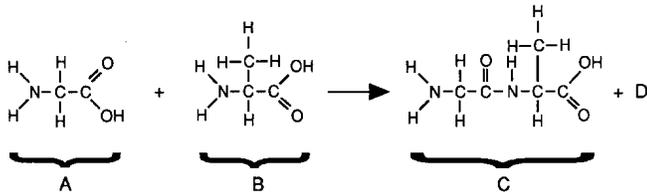
Base your answers to questions 12 and 13 on the diagram below and on your knowledge of biology.



12. If the sequence of building blocks were changed, what effect could it most likely have on the protein?

13. Identify the type of building block represented by the letters *A*, *B*, and *C*.

Base your answers to questions 14 and 15 on the diagram below and on your knowledge of biology.



14. The molecule represented by letter *D* is most likely

- A) water
- B) carbon dioxide
- C) oxygen
- D) hydrogen

15. This equation represents a process known as

- A) digestion
- B) hydrolysis
- C) aerobic respiration
- D) dehydration synthesis

16. Base your answer to the following question on the types of molecules in the list below and on your knowledge of biology.

*Types of Molecules*

- (A) Amino acid
- (B) Fatty acid
- (C) Monosaccharide
- (D) Glycerol

Which types of molecules are used for the synthesis of a lipid?

- A) *A* and *B*
- B) *B* and *D*
- C) *A* and *C*
- D) *C* and *D*

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

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

18. Proteins, starch, and DNA are similar in that they are all

- A) organic compounds
- B) parts of genes
- C) made of amino acids
- D) made of simple sugars

19. Which compound is inorganic?

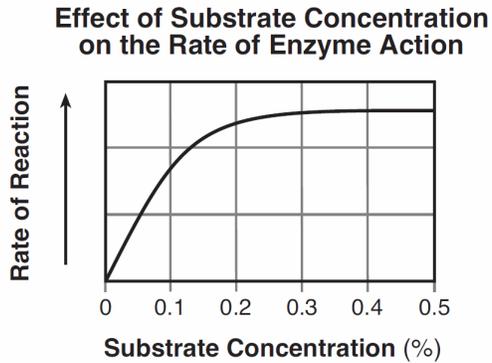
- A) glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>)
- B) carbon dioxide (CO<sub>2</sub>)
- C) ethane (C<sub>2</sub>H<sub>6</sub>)
- D) stearic acid (C<sub>18</sub>H<sub>36</sub>O<sub>2</sub>)



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23. Base your answer to the following question on the information below and on your knowledge of biology.

The graph below shows the effect of substrate concentration on the action of enzyme *X*. This enzyme is functioning at its optimal temperature, 36°C, and at its optimal pH, 5.5.



State what would most likely happen to the rate of enzyme action if the temperature were reduced by 10 degrees. Support your answer.

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