1. Compound *X* increases the rate of the reaction shown below.

$$CO_2 + H_2O \xrightarrow{X} H_2CO_3$$

Compound *X* is most likely

(1) an enzyme (3) an indicator
(2) a lipid molecule (4) an ADP molecule

2. The enzyme beta-galactosidase is involved in a certain body reaction. What will most likely happen if beta-galactosidase is not available?
(1) A different enzyme will be used in the reaction.
(2) The rate of the reaction will change.
(3) Different chemicals will be used in the reaction to replace the enzyme.
(4) Coenzymes will produce beta-galactosidase.

3. Which statement best describes enzymes?
(1) They slow down the rate of breathing.
(2) They are the building blocks of polymers.
(3) They speed up the conduction of impulses along a nerve cell.
(4) They influence the rate of chemical reactions.

4. In order to survive, all organisms must carry out
(1) autotrophic nutrition
(2) heterotrophic nutrition
(3) enzyme-controlled reactions
(4) the process of locomotion

5. The equations below represent a summary of a cellular process. Letters *A*, *B*, *C*, and *D* represent some components of this process.

$$\underset{\text{carbon dioxide}}{A} + \underset{\text{water}}{B} \xrightarrow{\text{enzymes}} \underset{\text{glucose}}{C} + \underset{\text{oxygen}}{D}$$

A chemical that destroys proteins was added to a cell in which this process was taking place. Which component would most likely have been affected first?

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

6. The reaction below occurs in many organisms.
urea + water --$^{\text{urease}}$--> carbon dioxide + ammonia

This reaction would still occur, but at a much slower rate, in the absence of

(1) urea **(3) urease**
(2) carbon dioxide (4) ammonia

7. The equation below summarizes the process that produces the flashing light of a firefly. The molecule luciferin is broken down, and energy is released in the form of heat and light.

$$\text{luciferin} \xrightarrow[\text{luciferase}]{\text{ATP}} \text{heat} + \text{light}$$

In this process, luciferase functions as

(1) a reactant (3) an inorganic catalyst
(2) a substrate **(4) an enzyme**

8. Although a certain molecule is involved in a specific reaction, its structure and chemical composition are exactly the same after the reaction as before the reaction. This molecule is most likely classified as

(1) an enzyme (3) a sugar
(2) a salt (4) an acid