

Enzyme MCAS Practice

Name: _____

Date: _____

- There are many different enzymes located in the cytoplasm of a single cell. How is a specific enzyme able to catalyze a specific reaction?
 - Different enzymes are synthesized in specific areas of the cytoplasm.
 - Most enzymes can catalyze many different reactions.
 - An enzyme binds to a specific substrate (reactant) for the reaction catalyzed.
 - Enzymes are transported to specific substrates (reactants) by ribosomes.
- Some snake venoms are harmful because they contain enzymes that destroy blood cells or tissues. The damage caused by such a snakebite could *best* be slowed by
 - applying ice to the bite area.
 - drinking large amounts of water.
 - inducing vomiting.
 - increasing blood flow to the area.
- Maltose can be broken down into glucose molecules by the enzyme maltase. Which of the following would slow the reaction rate?
 - adding maltase
 - adding maltose
 - removing glucose
 - diluting with water
- The role of an enzyme in a chemical reaction is to change which of the following?
 - the type of reaction
 - the activation energy of the reaction
 - the pH at which the reaction occurs
 - the temperature at which the reaction occurs
- Although there are a limited number of amino acids, many different types of proteins exist because the
 - size of a given amino acid can vary.
 - chemical composition of a given amino acid can vary.
 - sequence and number of amino acids is different.
 - same amino acid can have many different properties.
- Baby food manufacturers sometimes use proteases in their products. Proteases catalyze the breakdown of the proteins in these foods, making digestion easier for infants.

Proteases are which of the following types of molecules?

 - enzymes
 - fatty acids
 - hormones
 - monosaccharides
- The clear protein of an egg white becomes opaque and firm when cooked because the heat
 - mutates the DNA.
 - turns the protein into carbohydrates.
 - stops protein formation.
 - changes the protein structure.
- Proteins are large macromolecules composed of thousands of subunits. The structure of the protein depends on the sequence of
 - lipids.
 - monosaccharides.
 - amino acids.
 - nucleosides.

9. What types of monomers form proteins?
- A. Glucose B. Nucleotides
C. Amino acids D. Polyatomic ions
10. In red blood cells, the compound carbonic anhydrase increases the rate at which carbon dioxide is converted to bicarbonate ions for transport in the blood. In red blood cells, carbonic anhydrase acts as which of the following?
- A. an enzyme B. a hormone
C. a lipid D. a sugar
11. Many plants have waxy coatings on some surfaces. This coating reduces water loss because it is not water-permeable. This waxy coating is which of the following types of organic molecule?
- A. carbohydrate B. lipid
C. nucleic acid D. protein
12. Some bacteria contain a substance called nitrogenase. Nitrogenase catalyzes the chemical reaction that converts atmospheric nitrogen (N_2) into ammonia (NH_3). Nitrogenase is an example of which of the following?
- A. a sugar B. an enzyme
C. a nucleotide D. an amino acid
13. Which of the following categories of organic molecules is correctly paired with one of its functions?
- A. nucleic acids—digest dead cells
B. lipids—give quick energy to cells
C. carbohydrates—store genetic information
D. proteins—provide structure in skin, hair, and nails
14. Which of the following is the main reason that humans need to include carbohydrates in their diet?
- A. Carbohydrates are broken down in cells for energy.
B. Carbohydrates combine to form many different proteins.
C. Carbohydrates act as catalysts to speed up chemical reactions.
D. Carbohydrates are the building blocks for cell growth and repair.
15. Acetylcholine is an important chemical signal in the nervous system. Once acetylcholine is released, it is quickly broken down into other chemicals because of the activity of cholinesterase. Cholinesterase is which of the following?
- A. a hormone B. a lipid
C. an enzyme D. an organelle
16. Which of the following *best* explains why enzymes are necessary for many cellular reactions?
- A. Enzymes supply the oxygen necessary for the reactions.
B. Enzymes change reactants from solid to liquid during the reactions.
C. The reactions take up too much space in the cell if enzymes are missing.
D. The reactions are too slow to meet the needs of the cell if enzymes are missing.
17. In the human body, fibrinogen is necessary for sealing cuts and stopping the loss of blood. Since fibrinogen is made of chains of amino acids, it is an example of which type of organic molecule?
- A. carbohydrate B. protein
C. fatty acid D. nucleic acid

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