CHEM 3521 Biochemistry: Enzymes

1. What are enzymes?

A. Proteins that catalyze chemical reactions in the body
B. Proteins that regulate the metabolism of the body
C. Proteins that are involved in the immune response
D. Proteins that are involved in cell signaling

2. What is the role of enzymes in chemical reactions?

A. To increase the rate of the reaction
B. To decrease the rate of the reaction
C. To change the direction of the reaction
D. To provide energy for the reaction

3. What are the three main types of enzymes?

A. Oxidoreductases
B. Transferases
C. Hydrolases

4. What is the difference between an enzyme and a substrate?

A. Enzymes are proteins and substrates are small molecules
B. Enzymes are small molecules and substrates are proteins
C. Enzymes are catalysts and substrates are reactants
D. Enzymes are products and substrates are reactants

5. How do enzymes work?

A. By binding to the substrate and changing its shape
B. By binding to the substrate and changing its structure
C. By binding to the substrate and changing its conformation
D. By binding to the substrate and changing its function

6. What is the active site of an enzyme?

A. The site where the substrate binds
B. The site where the product binds
C. The site where the enzyme binds
D. The site where the reaction occurs

7. What is the difference between a competitive inhibitor and a noncompetitive inhibitor?

A. Competitive inhibitors bind to the active site while noncompetitive inhibitors bind to the allosteric site
B. Competitive inhibitors bind to the allosteric site while noncompetitive inhibitors bind to the active site
C. Competitive inhibitors increase the rate of the reaction while noncompetitive inhibitors decrease the rate of the reaction
D. Competitive inhibitors decrease the rate of the reaction while noncompetitive inhibitors increase the rate of the reaction

8. What is the difference between an induced fit model and a lock and key model?

A. The induced fit model states that the enzyme and substrate must fit perfectly while the lock and key model states that the enzyme and substrate can have any shape
B. The induced fit model states that the enzyme and substrate can have any shape

while the lock and key model states that the enzyme and substrate must fit perfectly
C. The induced fit model states that the enzyme changes shape to fit the substrate while the lock and key model states that the substrate changes shape to fit the enzyme
D. The induced fit model states that the substrate changes shape to fit the enzyme while the lock and key model states that the enzyme changes shape to fit the substrate

9. What is the difference between a covalent modification and a allosteric regulation?

A. Covalent modification changes the shape of the enzyme while allosteric regulation changes the function of the enzyme
B. Covalent modification changes the function of the enzyme while allosteric regulation changes the shape of the enzyme
C. Covalent modification changes the activity of the enzyme while allosteric regulation changes the structure of the enzyme
D. Covalent modification changes the structure of the enzyme while allosteric regulation changes the activity of the enzyme

10. What is the difference between an enzyme and a coenzyme?

A. Enzymes are proteins and coenzymes are small molecules
B. Enzymes are small molecules and coenzymes are proteins
C. Enzymes are catalysts and coenzymes are reactants
D. Enzymes are products and coenzymes are reactants

11. What is the difference between a cofactor and a coenzyme?

A. Cofactors are small molecules and coenzymes are proteins
B. Cofactors are proteins and coenzymes are small molecules
C. Cofactors are metal ions and coenzymes are organic molecules
D. Cofactors are organic molecules and coenzymes are metal ions

12. What is the difference between an apoenzyme and a holoenzyme?

A. Apoenzymes are enzymes without cofactors while holoenzymes are enzymes with cofactors
B. Apoenzymes are enzymes with cofactors while holoenzymes are enzymes without cofactors
C. Apoenzymes are enzymes without coenzymes while holoenzymes are enzymes with coenzymes
D. Apoenzymes are enzymes with coenzymes while holoenzymes are enzymes without coenzymes

13. What is the difference between a substrate and an inhibitor?

A. Substrates are small molecules and inhibitors are proteins
B. Substrates are proteins and inhibitors are small molecules
C. Substrates are reactants and inhibitors are products
D. Substrates are products and inhibitors are reactants

14. What is the difference between an allosteric site and an active site?

A. Allosteric sites are sites where the substrate binds while active sites are sites where the product binds
B. Allosteric sites are sites where the product binds while active sites are sites where the substrate binds

C. Allosteric sites are sites where the enzyme binds while active sites are sites where the reaction occurs
D. Allosteric sites are sites where the reaction occurs while active sites are sites where the enzyme binds

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17. What is the difference between a covalent modification and a allosteric regulation?

A. Covalent modification changes