

Inhibitors and Enzyme Activity Worksheet

1. If a competitive inhibitor blocks the active site, the _____ can't fit.
2. Do noncompetitive inhibitors bind to the active site? Explain.
3. Enzymes belong to which class of biomolecules?
4. The optimum temperature for most enzymes operating in the human body is _____.
 - a. 273 K
 - b. 37 °C
 - c. 98.6 °C
 - d. 120 °C
5. Trypsin, an enzyme that hydrolyzes polypeptides, functions in the small intestine at an optimum pH of 8. All except which of the following would decrease rates of a trypsin catalyzed reaction?
 - a. lowering the concentration of polypeptides
 - b. adding more trypsin
 - c. changing the pH to 3
 - d. running the reaction at 75°C
6. All except which of the following describe a competitive enzyme inhibitor?
 - a. The inhibitor forms a covalent bond in the active site of the enzyme.
 - b. The inhibitor has a structure similar to the substrate.
 - c. The inhibitor competes with the substrate for the active site.
 - d. The addition of more substrate reverses the inhibition.
7. Which of the enzymes described in the following statements does not require a cofactor?
 - a. needs Zn^{2+} for catalytic activity
 - b. an enzyme that consists of a quaternary structure attached to vitamin B₆
 - c. its active form consists of two polypeptide chains
 - d. requires vitamin B₁ (thiamine)

Answers

1. substrate
2. No, noncompetitive inhibitors bind to a site that is not at the active site. This results in a conformational change in the active site enzyme and as a result, the substrate is not able to enter the active site (doesn't have to be exactly as written).
3. Proteins
4. b
5. b
6. a
7. c