

Name: _____

Date: _____

- [4 pt] 1. Define Activation Energy (Barrier). Explain how it controls the rate of a reaction.
- [6 pt] 2. Draw a reaction/energy diagram illustrating how an enzyme speeds up a reaction. Be sure to label the: (R)eactants, (P)roducts, (T)ransition state, Activation Energy (AE) and the Enzyme Catalysed Activation Energy (ECAE). Is the reaction you drew endothermic or exothermic? Explain
- [4 pt] 3. Chose the set of conditions that would yield a faster enzyme-catalysed reaction. Explain your answer.
- (a) (A) [reactant] = 0.013 M, Temp = 25°C, and an activation energy of 38 kcal/mol v.s. (B) [reactant] = 0.013 M, Temp = 30°C, and an activation energy of 38 kcal/mol Explain.
- (b) (A) [reactant] = 0.5 M, Temp = 25°C, and an activation energy of 45 kcal/mol v.s. (B) [reactant] = 0.5 M, Temp = 25°C, and an activation energy of 25 kcal/mol Explain.
- [6 pt] 4. What are three common ways to increase the reaction rate. Briefly describe how each increases the reaction rate.

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- [6 pt] 5. List the 6 different classes of enzymes, and explain what type of chemical reaction (or process) each catalyses.
- [2 pt] 6. What is the difference between Maltose and Maltase?
- [3 pt] 7. Ubertase catalyses the reaction that converts ethanol to ethanal. What class of enzymes does Ubertase belong to? (Hint: Draw the reaction out). Explain.
- [4 pt] 8. Define each of the following:
- (a) Apoenzyme:

 - (b) Coenzyme:

 - (c) Holoenzyme:

 - (d) Activator: