Energy, Enzymes, and Catalysis Problem Set

Energy transformations are central to all living organisms. The purpose of this problem set is to become more familiar with some key principles about enzymes, catalysis, and energy that are central to a subsequent study of metabolic pathways.

Instructions: The following problems have multiple choice answers. Correct answers are reinforced with a brief explanation. Incorrect answers are linked to tutorials to help solve the problem.

1. Features of enzyme catalyzed reactions
2. Equilibrium constant for sucrose hydrolysis
3. Kinetics of an allosteric enzyme
4. An energy barrier separating reactions and products in a chemical reaction
5. Why do enzymes reach a maximum rate at high substrate concentration?
6. Equilibrium constant for ionization of acetic acid
7. Describing the reaction rate for a chemical reaction
8. Features of an exergonic reaction
9. Kinetics of an enzyme reaction with a non-competitive inhibitor
10. Enzyme features
11. Understanding activation energy
12. Energy requiring reactions in biological systems
13. Equilibrium constant for hydrolysis of glucose-6-phosphate
14. Interpreting an "S-shaped" enzyme kinetics curve
15. Interpreting the plateau of an enzyme kinetics curve
16. Energy requiring and energy yielding reactions

BEGIN PROBLEM SET

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