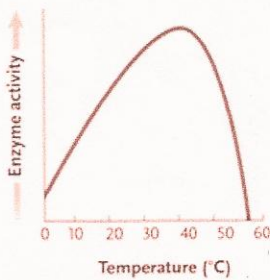


8. In the figure shown above, identify the bond that is cleaved when this molecule is coupled with an endergonic reaction to drive the endergonic reaction to completion. (A molecule of water also required for this reaction is not shown.)
- A
  - B
  - C
  - D
  - E
9. Abiotic factors include
- temperature.
  - wind speed.
  - sunlight.
  - all of the above.*
10. Enzymes work with at least three mechanisms. Which of the following is NOT a mechanism by which enzymes function?
- putting reactants in close proximity to each other
  - orienting the reactants so they are positioned to favour the transition state
  - altering the free energy ( $\Delta G$ ) of the reaction*
  - altering the immediate environment of the reactants to promote reactant interactions



11. In the above figure, why does the curve sharply drop after approximately 45°C instead of mirroring the slope of the line going from 0–40°C?
- The kinetic energy of the reactants is so great that it destabilizes the enzyme and diminishes the enzyme's activity.
  - This is true of all catalysts and is not due to any special features of enzymes.
  - The enzyme begins to denature above a certain temperature, eliminating all catalytic activity of the protein.*
  - The kinetic energy of the reactants is lower than that of the products, forcing a change in enzyme activity.