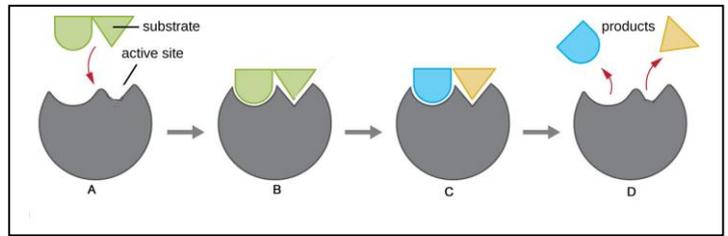


Ongoing revision 14 – cofactors, enzymes, proteins

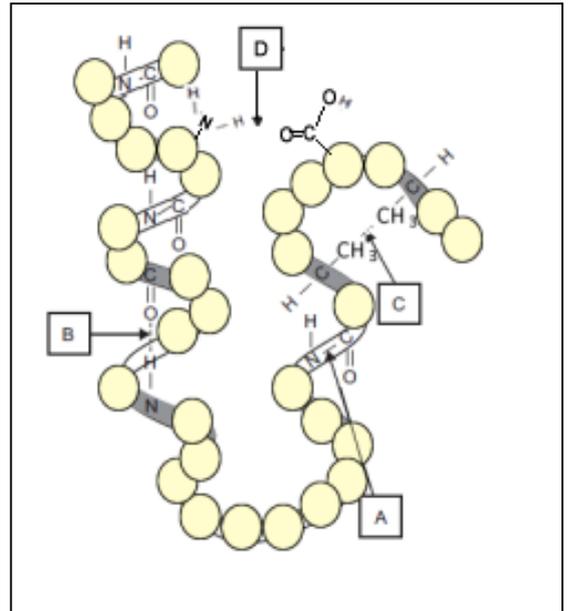
1. Label the following statements as True or False
 - a. A coenzyme is unique to only one type of enzyme.
 - b. An enzyme is unique to the catalysis of only one reaction.
 - c. Coenzymes do not chemically change during a reaction.
 - d. All enzymes require a cofactor with which to perform their role.

- e. The image on the right represents the lock and key model of how an enzyme interacts with the substrates.

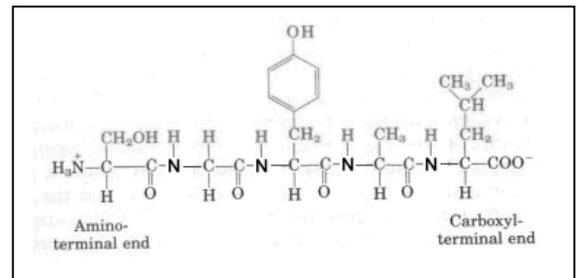


- f. Of the four images shown in the diagram above, “C” represents the enzyme-substrate complex.
- g. Ca^{2+} ions are crucial for some enzymes to catalyse their reactions. Ca^{2+} is considered a coenzyme.

2. Consider the image on the right of a small peptide. Some of the bonds associated with this peptide are labelled A-D.
- Which bond is unlikely to be disrupted by heat or pH change?
 - Which bond forms the primary structure?
 - Which bond/s is/are responsible for maintaining the tertiary structure?
 - Alpha helices and beta pleats are part of which structure of the protein and which bond is responsible for this structure?
 - Which bonds are likely to be disrupted with a change in pH?



3. Consider the small peptide on the right.
- How many different amino acid residues were involved in forming this peptide?
 - Name each amino acid that formed the peptide.
 - Circle and name the bonds that constitute the primary structure.
 - What is the difference in molar mass between the peptide and the sum of the individual amino acids that formed it?
 - What word best describes the peptide? Explain your answer.
 - Tripeptide
 - Zwitterion
 - Quaternary structure
 - Secondary structure.



4. The rate of an enzyme catalysed reaction is shown on the right.
- Explain why the rate is slow at temperatures below 30 °C.
 - Explain why at temperatures above 40 the rate also decreases.

