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Diploma in Pharmacy 2nd Year
Biochemistry & Clinical Pathology
Important Questions
Chapter 6 : Introduction to Biochemistry

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Chapter 6
Introduction to Biochemistry
IMPORTANT Questions

Q1. What are Enzymes ? Write the properties of Enzymes.

Ans.

Enzymes

→ The specific type of proteins that catalyse (increase the rate of) chemical reactions in living cells are called enzymes.

Or

→ Enzymes are catalysts(a thing that causes changes) that catalyse the chemical reaction.

Properties of Enzymes

- Enzymes increase the rate of reaction
- They are unstable
- Their activity can be decreased or enzymes can be destroyed by variety of condition like temperature, changes in PH
- Enzymes are complex macromolecules with high molecular weight
- All enzymes are protein except the group of catalytic of RNA

Q2. Discuess the different factors affecting Enzymes Activity.

Ans.

Factors Affecting Enzymes Activity

- **Temperature :** Enzymes have optimal temperatures at which they function best. An increase in temperature can increase enzyme activity, but excessive heat can denature the enzyme, rendering it inactive.
- **pH :** Enzymes have optimal pH levels at which they function best. A change in pH can affect the shape of the enzyme, making it unable to bind to its substrate, and therefore less active.
- **Substrate concentration :** As the concentration of substrate increases, the rate of enzymecatalyzed reactions also increases, up to a point. Beyond that point, the enzymes become saturated and the reaction rate levels off.
- **Enzyme concentration :** Increasing the amount of enzyme present will increase the rate of the reaction, up to a point. Beyond that point, the reaction rate levels off.
- **Inhibitors :** Compounds that bind to enzymes and prevent them from functioning properly are called inhibitors. They can be competitive or non-competitive, and can be reversible or irreversible.
- **Co-factors :** Many enzymes require small, non-protein molecules, called cofactors, to function. Cofactors can be metal ions or organic molecules, and if they are not present, the enzyme will not function

Q3. What are Enzymes Inhibitors ? Write the types of Enzymes Inhibitors.

Ans.

Enzyme Inhibitors

→ The agents which prevent or decrease the action of Enzymes are called Enzyme inhibitors :

Types of Enzyme Inhibitors

- **Reversible / competitive Inhibitors :** This type of Inhibitors have structural similarity with substrate , and bind at the active site of enzymes and inhibit the action of enzyme . If the concentration of Substrate increase then the inhibition is reversed.
- **Non - Competitive or Irreversible Inhibitors :** This type of Inhibitors bind with functional group other than the active site , and inhibit the action of enzymes for ever . If the concentration of Substrate increase then the inhibition does not reverse.

Q4. Give the Therapeutic and Pharmaceutical Important of Enzyme.

Ans.

Therapeutic Importance

- Trypsin ,is used to treat Inflammation
- Streptokinase are used to treat thrombosis
- Lysozyme is used as antibiotic
- Urokinase is used to dissolve blood clots

Pharmaceutical Importance

- Enzymes (used in manufacturing of drugs)
- Glucose isomerase is used for production of High fructose syrup
- Penicillin acylase is used in production of penicillin
- Amylase is used for diagnosis of Pancreatitis .(inflammation of pancreas , in which serum amylase level increase)