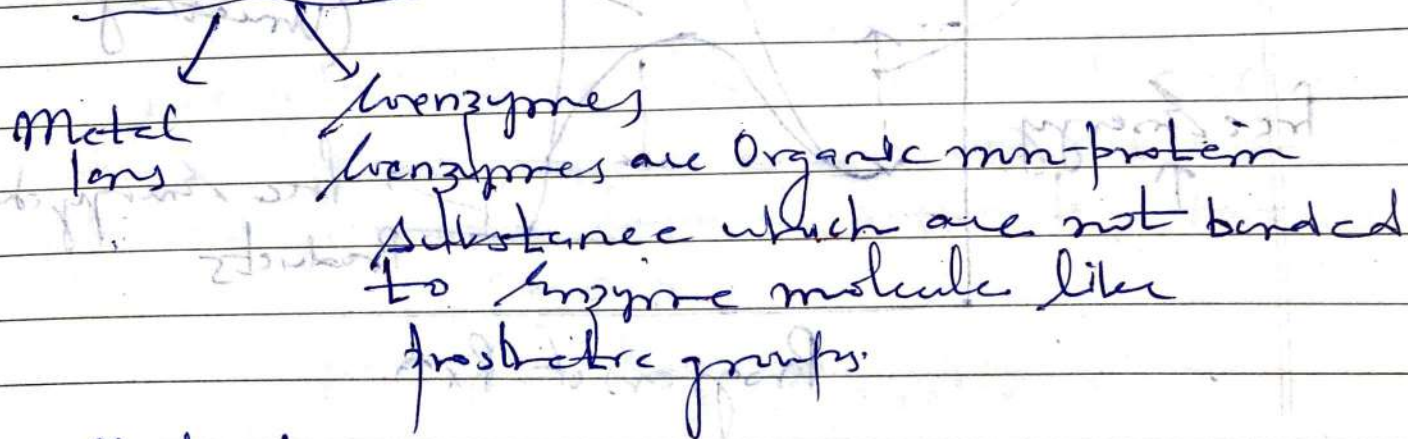


Cofactors

Cofactors are non-protein substances that take part in enzymatic rxn & are regenerated for further reaction.



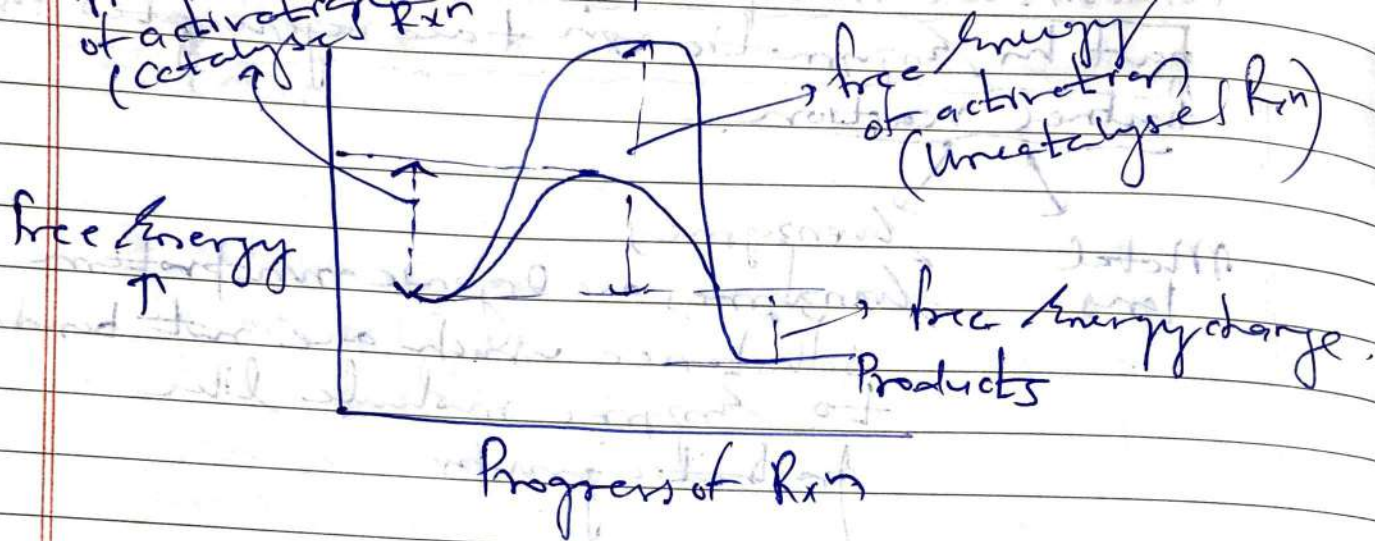
Metal Ions

eg $Zn^{(II)}$ in Carboxypeptidase
 $Fe^{(II)}$ in Hb.

Coenzymes

Important Coenzymes are Vitamins & their derivatives

Nicotinamide adenine dinucleotide [NAD⁺] is a Coenzyme which takes part in many oxidation rxn reactions.



Enzymes catalyse reactions by lowering the free energy of activation for chemical reaction. Like catalysts, enzymes accelerate rxn but do not affect the position of equilibrium. It is not always possible to recover an enzyme from the rxn mixture unchanged at the end of the reaction.

Michaelis & Menten postulated that Enzymes acts like inorganic catalyst. Energy hump, which must be overcome for rxn to take place, was lower for Enzyme-Substrate complex than for the free substrate in the absence of Enzyme. The Enzyme-Substrate complex breaks down to give the product & free Enzyme.

Binding of substrate to the enzyme at the active site.

After the substrate is bound to the enzyme via usually non-covalent interactions, the transition state is subsequently formed + catalysis can occur. The rearrangement of bonds.

Conversion of substrate into the product, bonds are broken + new bonds are formed. Release of product from the enzyme. The enzyme can now catalyse the rxn of more substrate.