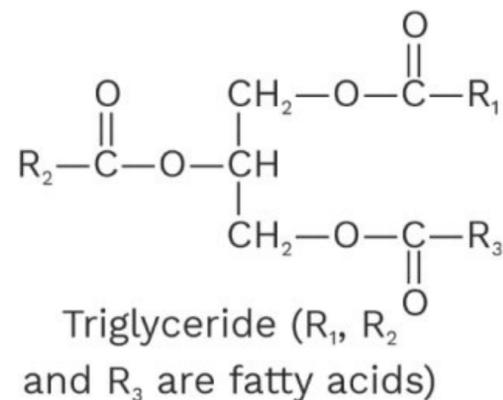
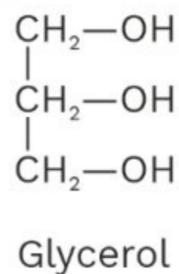
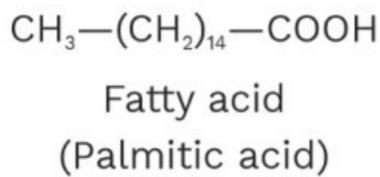




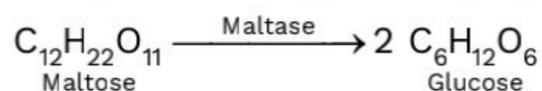
- Phospholipids are some lipids containing phosphorous and a phosphorylated organic compound in them. Lecithin is one example. They are found in cell membrane.
- Some tissues especially the neural tissues have lipids with more complex structures.



ENZYMES

- The biological catalysts which can increase the rate of biochemical reactions even under mild conditions of temperature and pH of living organisms are termed as enzymes.
- Enzymes are chemically similar to globular proteins.
- They are very specific for each reaction and for every substrate.
- They are usually named after the compound or group of compounds upon which they work.

Ex : The enzyme that catalyses hydrolysis of maltose into glucose is named as maltase



- After the reaction enzymes are also mentioned, where they are used.
- Ex :** Oxidoreductase enzymes are the enzymes which can catalyse the oxidation of one substrate and simultaneously reduce another substrate.
- They are very specific in their action on substrates and each enzyme catalyses only a specific type of reaction.

Concept Ladder



Iodine number is no. of grams of I_2 that combines with 100 g of fat or oil. It is used to measure extent of unsaturation in oil or fat.

Previous Year's Questions



Enzymes are made up of

[AIPMT]

- (1) Edible proteins
- (2) Proteins with specific structure
- (3) Nitrogen containing carbohydrates
- (4) Carbohydrates

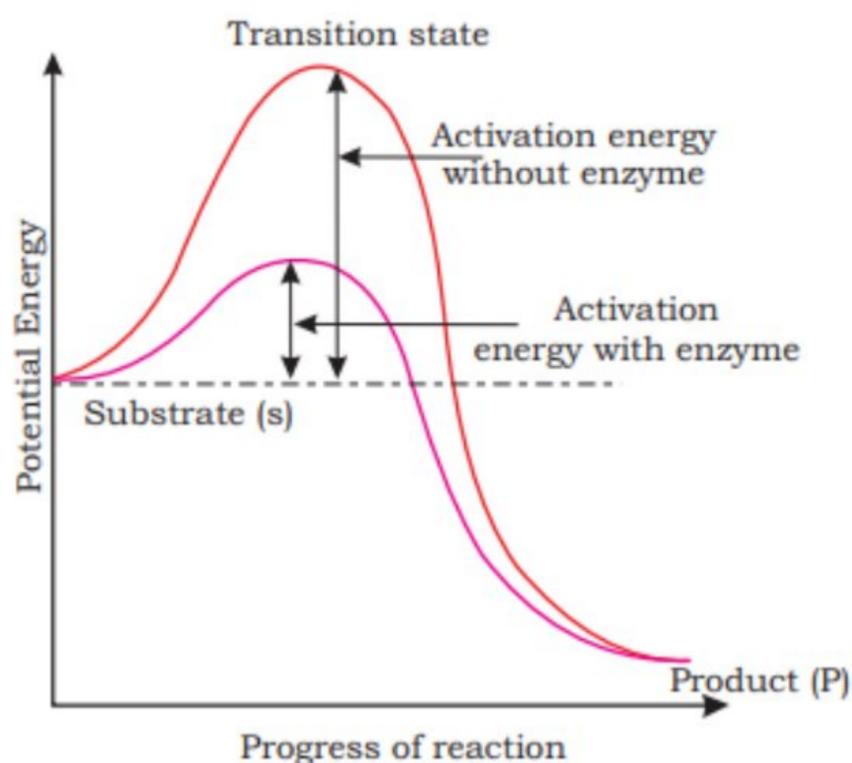


- They are active at moderate temperature (310 K), neutral pH (7) and 1 atmospheric pressure.
- The action of enzymes are inhibited by various organic and inorganic molecules called inhibitors.
- The activity of enzymes can be increased by metal ions and smaller organic molecules called coenzymes or cofactors. For example, inorganic ions, Mg^{2+} , Mn^{2+} , Fe^{2+} , Co^{2+} , Cu^{2+} , organic molecules like vitamins (thiamine, riboflavin).

Mechanism of Enzyme Action

- For the progress in reaction enzymes are needed only in small quantities.
- Enzymes function by lowering the energy of activation of a particular reaction.

Ex : For sucrose the activation energy for acid hydrolysis is 6.22 kJ mol^{-1} , whereas when it is hydrolysed by the enzyme its activation energy is only of 2.15 kJ mol^{-1} .



Concept Ladder



Protein co-factor complex is called holoenzyme while the inactive protein part is apoenzyme.
Holoenzyme \rightleftharpoons Apoenzyme + cofactor

Rack your Brain



which is cause of albinism?

Concept Ladder



Enzyme streptokinase is used to dissolve blood clot in coronary artery (which is cause of heart attack).



Lock and Key Hypothesis

- A number of cavities are present on the surface of enzymes. These cavities have specific shapes and groups like -NH_2 -COOH , -OH etc.
- These are active centres on enzyme surfaces.
- Here 'key' (reagent or substrate) fits in the 'lock', that is, the active site of catalyst to give an intermediate complex, which changes into product and the enzyme catalyst is released.



Rack your Brain



Urea's enzyme can catalyse hydrolysis of urea but not of n-methyl urea. Why?

S.No.	Enzyme	Enzymatic Reaction
(i)	Invertase or sucrose	Sucrose \rightarrow Glucose + Fructose
(ii)	Maltase	Maltose \rightarrow Glucose + Glucose
(iii)	Lactose	Lactose \rightarrow Glucose + Galactose
(iv)	α -Amylase	Starch \rightarrow $n \times$ Glucose
(v)	Pepsin	Proteins \rightarrow α -Amino acids
(vi)	Trypsin	Proteins \rightarrow α -Amino acids
(vii)	Nucleases	DNA or RNA \rightarrow Nucleotides
(viii)	DNA polymerase	Deoxynucleotide triphosphates \rightarrow DNA
(ix)	RNA polymerase	Ribonucleotide triphosphates \rightarrow RNA