



SHORT QUESTIONS

Q.1 What are fatty acids?

Ans. The aliphatic mono-carboxylic acids are also called fatty acids. These acids are obtained by the hydrolysis of fats having long chain alkyl group and oils which are natural glycerides or ester of glycerol.

Q.2 What is an ester?

Ans. Esters are the derivatives of carbocyclic acids which are formed when carboxylic acid reacts with alcohol in the presence of H_2SO_4 .



All fats and oils are esters.

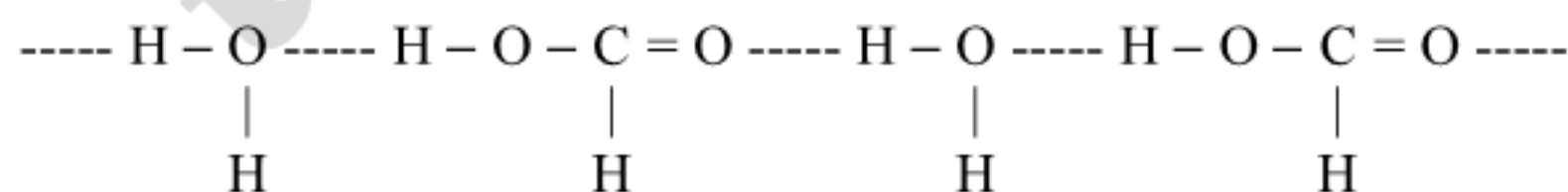
Q.3 Define esterification with one example?

Ans. Alcohol and carboxylic acid reacts in the presence of conc. H_2SO_4 to form an ester and this process is called esterification.



Q.4 Lower carboxylic acids are water soluble, why?

Ans. Lower carboxylic acids are water soluble due to hydrogen bonding with water.



The solubility of carboxylic acid decreases by increasing chain length of alkyl group which is non-polar and insoluble.

Q.5 In non-polar solvent like benzene the molecular mass of carboxylic acid becomes double?

Ans. In non-polar solvents like benzene, carboxylic acids exist in dimeric form. When molecular mass is determined that dimer behave like a single particle and molecular mass becomes double.



Q.6 Melting point of even number of carboxylic acids are greater than melting points of odd number of carboxylic acids, why?

Ans. Carboxylic acids with even number of carbon atoms have more closer packing because terminal groups are present in opposite direction. In carboxylic acids with odd carbons have terminal groups in same direction and has less closer packing.



Carboxylic acid with even carbons.



Carboxylic acid with odd carbons.

For example, melting point of butyric acid is -6°C while that of valeric acid is -36°C .

Q.7 Give two reactions of carboxylic acid in which O-H bond is broken?

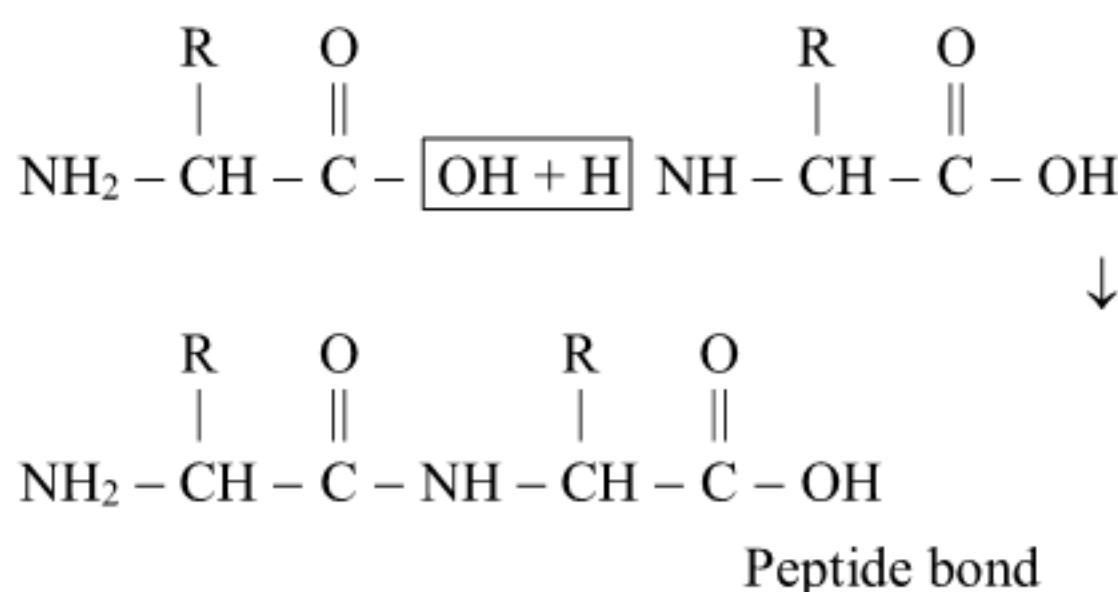
Ans. (i) $\text{CH}_3\text{COOH} + \text{NaOH} \longrightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O}$
 (ii) $2\text{CH}_3\text{COOH} + 2\text{Na} \longrightarrow 2\text{CH}_3\text{COONa} + \text{H}_2$

Q.8 What is difference between essential and non-essential amino acids?

Ans. The amino acids which are synthesized in our body are called non-essential amino acids. Out of 20 amino acids 10 are non-essential. The amino acids which are not synthesized by our body are called essential amino acids.

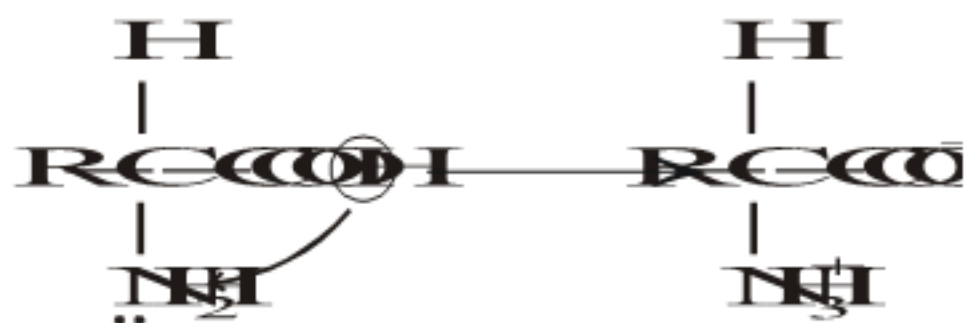
Q.9 What is peptide bond?

Ans. If carboxylic group of one amino acid and amino group of other amino acid get condensed with elimination of H_2O molecule, the resulting CO-NH-bond is called peptide bond.



Q.10 What is meant by internal salt?

Ans. Amino acids exist in the form of Zwitter ions or dipolar ion. This ion is formed by the transfer of proton from carboxylic acid to NH_2 group. This dipolar structure is called internal salt.



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