SUBJECT – CHEMISTRY

GIST OF THE CHAPTER – CARBON COMPOUNDS (Unit – 2)

Chemical Properties of Carbon Compounds

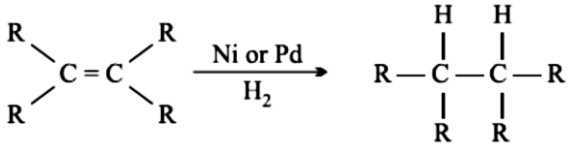
(a) Combustion:

$$CH_4 + 2O_2 \xrightarrow{\text{Combustion}} CO_2 + 2H_2O + \text{Heat} + \text{Light}$$

(b) Oxidation:

$$\underset{\text{Ethanol}}{CH_3CH_2OH} \xrightarrow[\text{Acidic } K_2Cr_2O_7]{\text{Alkaline } KMnO_4 \text{ Or}} \underset{\text{Ethanoic acid}}{CH_3COOH}$$

(c) Addition Reaction:



(d) Substitution Reaction:

$$CH_4 + Cl_2 \xrightarrow{\text{Sunlight}} CH_3Cl + HCl$$

Properties of Ethanoic acid:

$$2CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + H_2O + CO_2$$

$$CH_3COOH + NaHCO_3 \rightarrow CH_3COONa + H_2O + CO_2$$

Esterification Reaction:

$$\underset{\text{Ethanoic acid}}{CH_3\text{-}COOH} + \underset{\text{Ethanol}}{CH_3\text{-}CH_2OH} \overset{\text{Acid}}{\rightleftharpoons} CH_3\underset{\underset{O}{\|}}{C}\text{-}O\text{-}CH_2CH_3 + H_2O$$

Soaps and Detergents

- Soap is sodium or potassium salt of long chain carboxylic acid. *E.g.*,$C_{17}H_{35}COO^-Na^+$
- Soaps are effective only in soft water.
- Detergents are ammonium or sulphonate salt of long chain of carboxylic acid.
- Detergents are effective in both hard and soft water.

REVISION – SAMPLE QP 2024-25

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