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Assignment: of assignment on carboxylic acid

Q. Give the IUPAC Name of the following compounds.

(i) $\text{HCOOH} \rightarrow$ methanoic acid

(ii) $\text{HCOOCH}_2\text{CH}_2\text{CH}_2\text{COOH} \rightarrow$ butanoic acid pentan-15, dioic acid

(iii) $\text{CH}_3(\text{CH}_2)_4\text{COOH} \rightarrow$ hexanoic acid

(iv) $\text{HO}_2\text{C}-\text{CO}_2\text{H} \rightarrow$ ethanoic acid

(v) $\text{CH}_3(\text{CH}_2)_5\text{COOH} \rightarrow$ Hexanoic acid

(vi) $\text{CH}_3\text{CH}=\text{CHCH}_2\text{COOH} \rightarrow$ hex-4-enoic acid

2) Discuss briefly the physical properties of carboxylic acid under the following headings

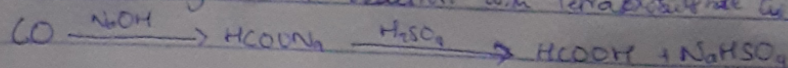
(i) Physical Appearance: All simple aliphatic carboxylic acids upto C_{10} are liquids at room temperature. Most others are solids, and anhydrous carboxylic acid freezes to an ice-like solid below room temperature.

(ii) Boiling Point: Boiling points increase with increasing relative molecular mass. Aromatic carboxylic acids are crystalline so they have higher melting point than their aliphatic counterparts with relative molecular mass.

(iii) Solubility: Lower molecular mass carboxylic acids with up to 4 carbon atoms in their molecules and are soluble in water.

3) Write 2 industrial preparation of carboxylic acid

Methanoic acid is manufactured by adding carbon (ii) oxide under pressure to hot aqueous solution of sodium hydroxide. The free carboxylic acid is liberated by oxalyl reaction with tetraoxosulphate (vi) acid (H_2SO_4)



2) from ethanol: Ethanoic acid is obtained by the liquid phase air oxidation of 5% solution of ethanol to ethanoic acid using manganese (ii) ethanoate catalyst. Ethanal itself is obtained from ethylene

