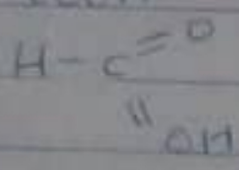
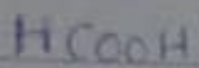
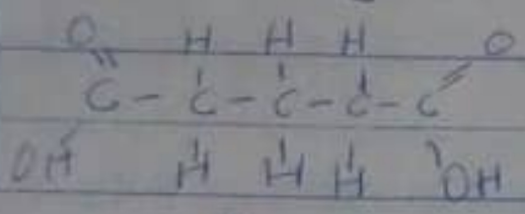
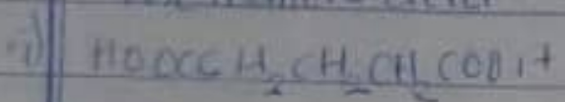


Assignment on Carboxylic acid.

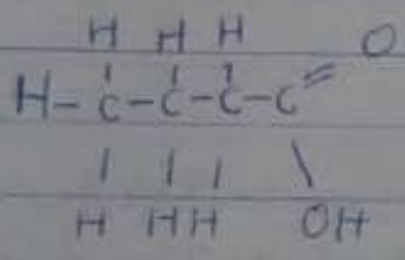
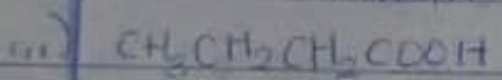
1) Give the IUPAC names of the following compounds



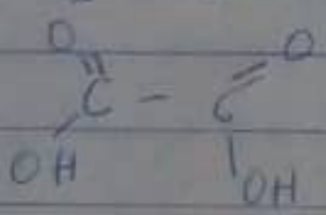
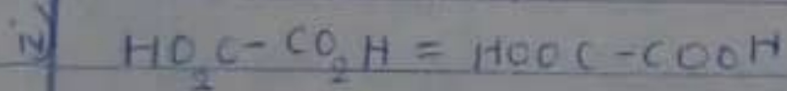
methanoic acid



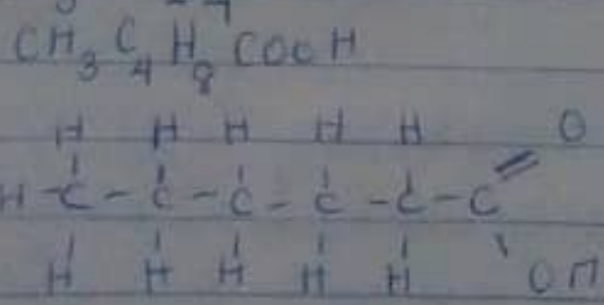
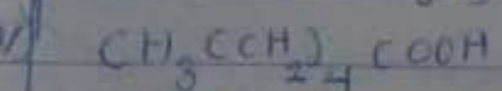
Pentan-1,5-dioic Acid



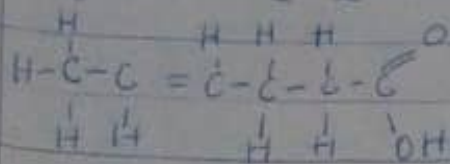
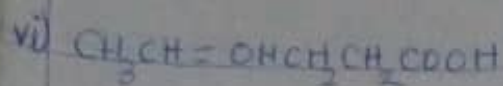
Butanoic acid



Ethan-1,2-dioic acid or Ethanedioic acid



Hexanoic acid



Hex-4-enoic acid

2) Physical Properties of carboxylic acids under -

i) Physical appearance

All simple aliphatic carboxylic acids up to  $\text{C}_{10}$  are liquids at room temperature. Most other carboxylic acids are solid at room temperature although anhydrous carboxylic acid (acetic acid) also known as glacial ethanoic acid freezes to an ice-like solid below the room temperature.

ii) Boiling point: Boiling point of carboxylic acid increases as the relative molecular mass increases. While aromatic carboxylic acids which are usually crystalline solids have higher melting point as the relative molecular mass increases.

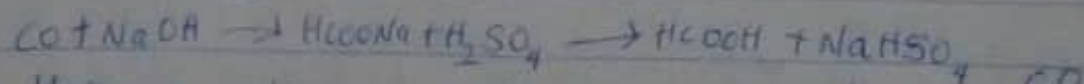
iii) Solubility:

a) Lower molecular mass of carboxylic acids with up to 4 carbon atoms are soluble in water. This is due to their ability to form hydrogen bond with water molecules.

b) Water solubility of acids decreases as the relative molecular mass increases because the structure becomes more hydrocarbon in nature and hence covalent. All carboxylic acids are soluble in organic solvents.

3) Write two industrial preparations of carboxylic acids.

i) From Carbon(II) oxide



Methanoic acid (formic acid) is formed by adding ~~of sodium hydroxide~~ <sup>CO</sup> under pressure to a hot aqueous solution of sodium hydroxide. The free carboxylic acid is liberated by careful reaction with ~~decolor~~





ii) Esterification

