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Electrical / Electronics Engineering

19/ENG 04/030

1) HCOOH - methanoic acid

$\text{HOOCCH}_2\text{CH}_2\text{COOH}$ - pentan - 1,5 - dioic acid

$\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ - Butanoic acid

$\text{HO}_2\text{C} - \text{CO}_2\text{H}$ - Ethanedioic acid.

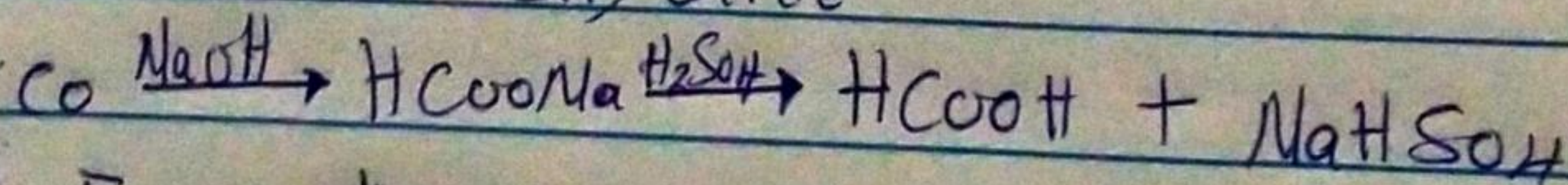
$\text{CH}_3(\text{CH}_2)_4\text{COOH}$ - Hexanoic acid.

2i) Physical appearance: All simple carboxylic acids up to C_{10} are liquid at room temperature, while others are solid.

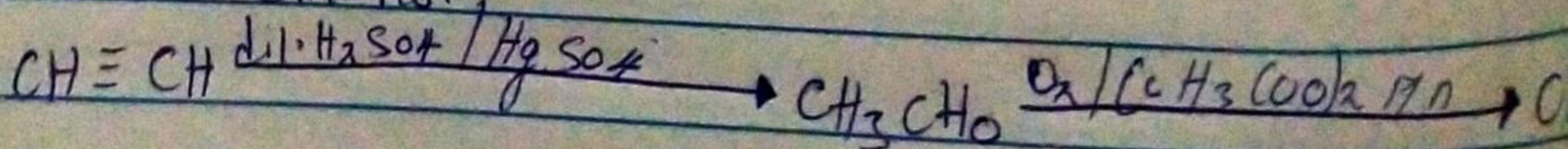
ii) Boiling point: Boiling point increases with increasing relative molecular mass.

iii) Solubility: The water solubility of the acids decreases as the relative molecular mass increases, but carboxylic acids are soluble in organic solvents.

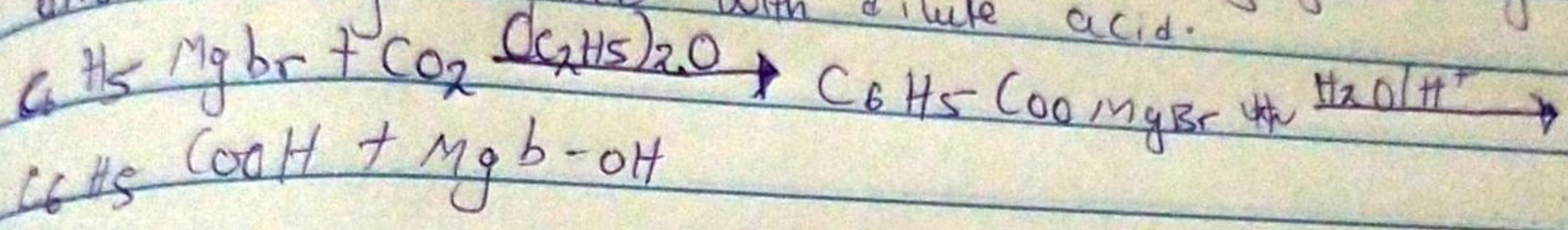
3i) From carbon (II) oxide



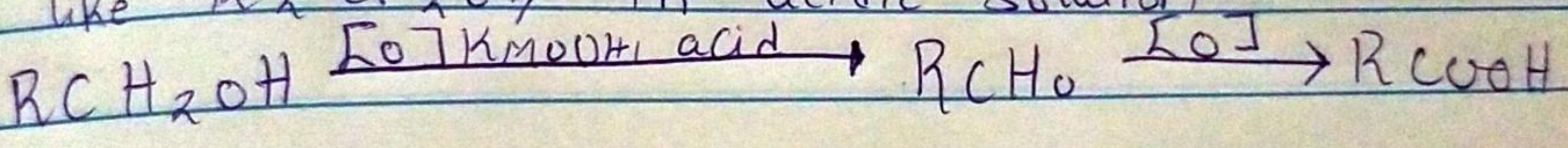
ii) From ethanal



ii) Carboxylation of Grignard reagent: Aliphatic carboxylic acids are obtained by bubbling CO_2 into the Grignard reagent and then hydrolyzed with dilute acid.



iii) Oxidation of primary alcohols and aldehydes: They can be used to prepare carboxylic acids using oxidizing agents like $\text{K}_2\text{Cr}_2\text{O}_7$ in acidic solution.



iii) Hydrolysis of nitriles (cyanides) or esters

