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COURSE CODE: CHM 102

ASSIGNMENT SOLUTION

1) IUPAC of the following:

$\text{HCOOH} = \text{Methanoic acid}$

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

$\text{CH}_2(\text{CH}_2)_4\text{COOH} = \text{Caproic acid}$

$\text{HOOCCH}_2\text{CH}_2\text{CH}_2\text{COOH} =$

$\text{HO}_2\text{C}-\text{CO}_2\text{H} = \text{Oxalic acid}$

$\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}_2\text{COOH} = \text{Valeric acid}$

2) Physical appearance:-

- ① They are colorless liquids with high boiling points
- ② They have one to four carbon atoms that are completely miscible with water.
- ③ Their solubility decreases with molar mass.

Boiling points:

- ① They have high boiling points due to the number of carbon atoms present.

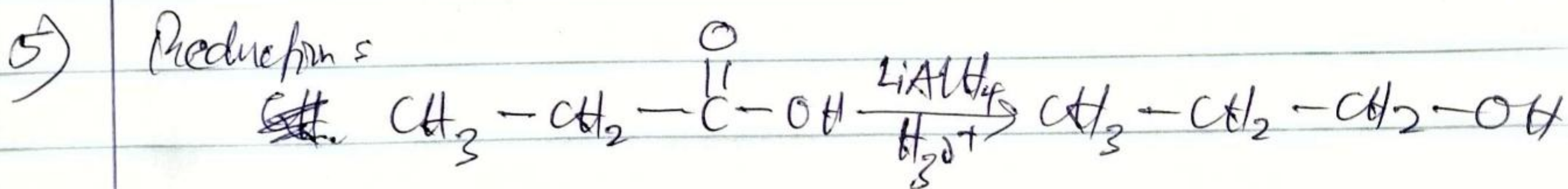
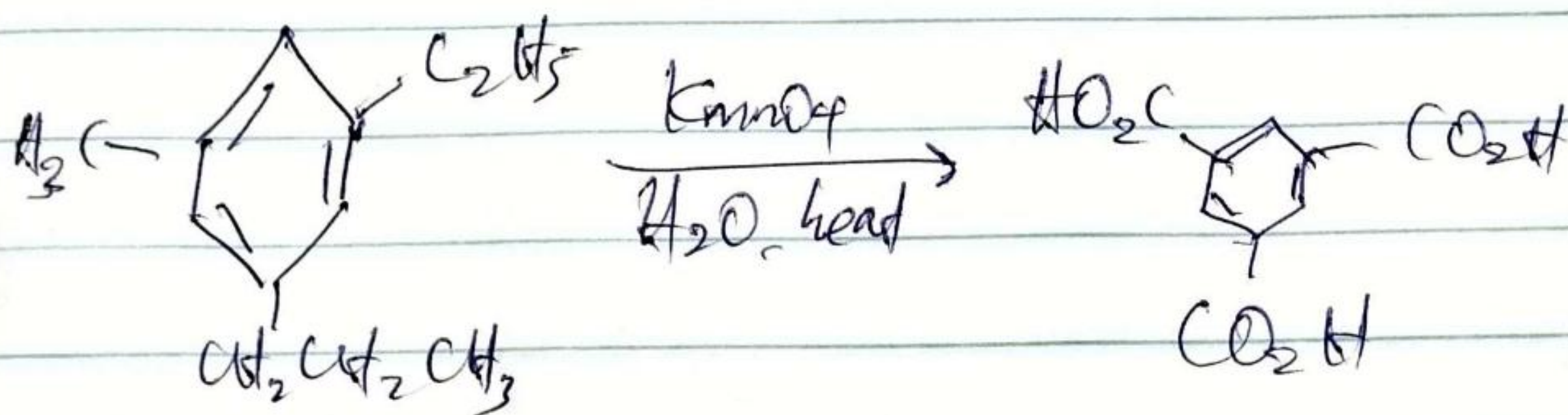
Solubility:

- ① Their solubility decreases with molar mass

3) Industrial preparation of Carboxylic acids:

- ① Preparation from Grignard Reagents
- ② Preparation by oxidation of Methyl ketone

4) The carbon atom of a carboxyl group has a high oxidation state. It is not surprising, therefore, that many of the chemical reactions used for their preparation are oxidations.



Decarboxylation:



Esterification:

