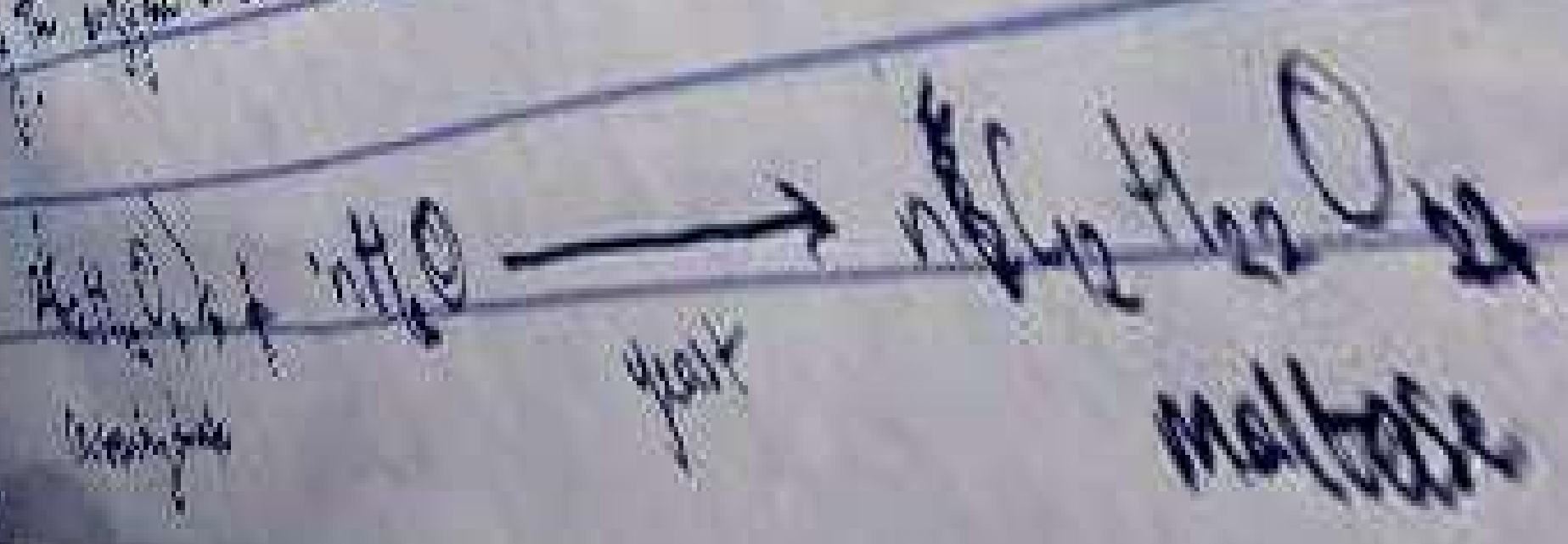


Aldehyde

→ Molecules

... of ... showing all reaction equations
... of reaction
... or more groups of natural compounds
... by the biological process of fermentation

... include maltose, potatoes, cereals, rice and on
... for a specific period of time are converted into
... starch contained in the malt.



The table below gives examples of primary, secondary and tertiary alkanol

Classification	(°)	General formula	Examples
Primary	1°	$\begin{array}{c} \text{H} \\ \\ \text{R}-\text{C}-\text{OH} \\ \\ \text{H} \end{array}$	$\begin{array}{c} \text{H} \\ \\ \text{CH}_3-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{H} \end{array}$ <p>butan-1-ol (or 1-butanol)</p> $\begin{array}{c} \text{H} \\ \\ \text{CH}_3-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{H} \end{array}$ <p>pentan-1-ol (or 1-pentanol)</p>
Secondary	2°	$\begin{array}{c} \text{H} \\ \\ \text{R}-\text{C}-\text{OH} \\ \\ \text{R}' \end{array}$	$\begin{array}{c} \text{H} \\ \\ \text{CH}_3-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{CH}_3 \end{array}$ <p>butan-2-ol (or 2-butanol)</p> $\begin{array}{c} \text{H} \\ \\ \text{CH}_3-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{CH}_2-\text{C}-\text{OH} \\ \\ \text{H} \end{array}$ <p>pentan-3-ol (or 3-pentanol)</p>
Tertiary			

② In the Grignard synthesis of Alkanols, react a named Grignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}=\text{OCH}_2\text{CH}_2\text{CH}_3$. Show the reaction steps.

Grignard synthesis of an Alkanol using $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}=\text{OCH}_2\text{CH}_2\text{CH}_3$ as a Grignard reagent

P.T.O

Name: _____
 Course: CHEM 102
 Matric No: 19/ENG021069
 Date: 05-04-2020
 Department: Computer Engineering

Assignment

1) Questions & Answers

Discuss the two major classification of Alkanol. Give two examples each for each class

Answer
 Alkanols can be classified as primary, secondary or tertiary depending on the location of the OH (hydroxyl or hydroxy) functional group.
 Chemists use ° notation to refer to primary, secondary and tertiary alkanols:

- Primary alkanol \equiv 1° alkanol
 -OH on a terminal (end of chain) C atom
- Secondary alkanol \equiv 2° alkanol
 -OH on a C atom bonded to 2 C atoms
- Tertiary alkanol \equiv 3° alkanol
 -OH on a C atom bonded to 3 C atoms

The general structure of primary, secondary and tertiary alkanols is summarised in the table below: (Note that R, R', R'' represent alkyl, C_nH_{2n+1}, chains)

Classification	(°)	General formula	Location of -OH group
Primary	1°	$\begin{array}{c} \text{H} \\ \\ \text{R}-\text{C}-\text{OH} \\ \\ \text{H} \end{array}$	-OH on terminal end carbon atom
Secondary	2°	$\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{R}-\text{C}-\text{OH} \\ \\ \text{R}' \end{array}$	-OH on carbon atom is bonded with 2 other carbon atoms
Tertiary	3°	$\begin{array}{c} \text{R}'' \\ \\ \text{R}-\text{C}-\text{OH} \\ \\ \text{R}' \end{array}$	-OH on carbon atom is bonded with 3 other carbon atoms