

NAME: IDUMUFININE POWEIDE EMMA

DEPARTMENT: NURSING.

MATRIC NUMBER: 19/MHS02/063

COURSE CODE: CHEM 102.

ASSIGNMENT: ASSIGNMENT 1.

1) CLASSIFICATION OF ALCOHOL:

A).Based on the number of hydrogen atom attached to the carbon atom containing the **hydrogen Group**: if the number of hydrogen atom attached to carbon atom bearing the hydroxyl group are 2 or 3, it is called a **primary alcohol**.

(1).but if it is one hydrogen, it is called **secondary alcohol**.

(2). And if no hydrogen atom is attached,the carbon atom carring the hydrogen group,it is called **the tertiary alcohol**

e.g $\text{CH}_3 \text{CH}_2 \text{OH}$ ethanol, $(\text{CH}_3)_3 \text{C-OH}$ methylpropan-2ol.

b).Based on the number of hydroxyl group they possess: Monohydric alcohol have one hydroxyl group present in the alcohol structure. Dihydric alcohol are are called glycols.

They have two hydroxyl group present in the alcohol structure while **trihydric** alcohol or triols have three hydroxyl group present in the structure of the alcohol. **Polyhydric**

alcohols or polyols have more than three dydroxyl groups. E.g $\text{CH}_3 \text{CH}_2 \text{OH}$

propanol(monohydric alcohol), $\text{OH CH}_2 (\text{OH}) \text{CH}_2 \text{OH}$ PROPANE-1,2,3 TRIOL(TRIOL ALCOHOL).

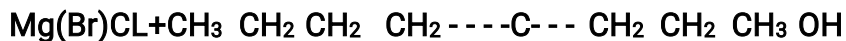
2) $\text{CH}_3 \text{CH}_2 \text{CH}_2 \text{CH}_2 \text{C}=\text{OH}_2 \text{CH}_2 \text{CH}_3$ react a grignard reagent with the reaction:



(Grignard reagent)

(octan-4-ene)

CH₃



(Tertiary alkanol)

3) The industrial manufacture of ethanol showing all reaction equation and necessary enzymes and temperature of reaction:

Production of ethanol: It is the biological process called **fermentation**. It uses biological catalyst or enzymes.

STEP 1: It is the break down of carbohydrate:

Diastase(malt)



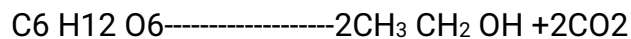
(carbohydrate) 60c/Diastase (maltose)

STEP 2: Break down of maltose:



(maltose) 15c/maltase (glucose)

STEP 3: Converting glucose to ethanol:



(Glucose) 15C/zymase (Ethanol) OH

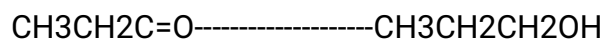
4) Alkanones and alkanals can be reduced using LiAlH₄ or (C₂H₅)₂O

ALKANONES: The reduction process of propanone to propanol.



LiAlH₄/(C₂H₅)₂O

ALKANALS: The reduction process of propanal to propanol.



LiAlH₄/(C₂H₅)₂O