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DEPT: MEDICINE AND SURGERY

MATRIC NO: 19/MHSO1/028

COURSE: CHM102

ASSIGNMENT

1i) **This is based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group:** If the number of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two, it is called a primary alcohol {10}, if it is one hydrogen atom, it is called a secondary alcohol alcohol {20} and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is called a tertiary alcohol {30}. Examples include CH3OH Methanol {10}, CH3CH(OH)CH3Propan-2-ol (20).

ii)  **This is based on the number of hydroxyl groups they possess:** Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohols are also called Glycols and they have two hydroxyl groups present in the alcohol structure while trihydric alcohols or triols have three hydroxyl groups present in the structure of the alcohol. Polyhydric alcohols or polyols have more than three hydroxyl groups. Examples are CH3CH2CH2OH Propanol(Monohydric alcohol), Pentaol(Polyhydric alcohol).

2)CH3MgCl+CH3CH2CH2CH2C=OCH2CH2CH3--------CH3CH3CH2CH2CH2C=OCH2CH2CH2CH3+MgCl

3) **INDUSTRIAL PREPARATION OF ETHANOL**

Extraction of Starch: The crushed potato is steamed at 1400C to 1500C under pressure to prepare starch solution known as MASH.

Germination: before hydrolysis, starch first undergoes germination at 100c to 130c for few days. This germinated starch is called malt.

Hydrolysis of Starch: Starch is hydrolyzed to maltose by an enzyme known as diastase.

2(C6H10O5) + nH20 n(C12H22011)

Starch maltose

Fermentation: Finally yeast is added to maltose. Yeast secretes two enzymes:

i)Maltase: converts maltose into glucose.

ii)Zymase: converts glucose into ethanol.

C12H22O11 + H2O 2C6H12O6

C6H12O6 C2H50H + 2CO2

Ethanol

4) Reduction of Alkanal and Alkanone: the reduction of Alkanal and alkanone leads to the production of a primary alcohol and secondary alcohol respectively. Example:

O

CH3CH2C LIALH4 H2O CH3CH2CH2OH

H

O OH

(Cyclohexanol)