OBASEKI PRECIOUS OYINDAMOLA
CHM 102 ASSIGNMENT
NURSING SCIENCE.
19/MHS02/082.

1. Major classifications of Alkanol with examples each.
- Primary Alcohol (1°)
- Secondary Alcohol (2°)

- Primary Alcohols: are those alcohols where the Carbon atom of the hydroxyl group (OH) is attached to only One single Alkyl group.
Examples are;
Methanol (1°) CH_3OH
Ethanol (1°) CH_3CH_2OH

- Secondary Alcohol -: Is a Compound in which a hydroxy group, —OH is attached to a Saturated Carbon atom which has two Other Carbon atoms attached to it.
Examples;
$CH_3CH(OH)CH_3$ - Propan-2-ol (2°)
1, 1, 1, 3, 3, 3 — hexafluoropropan-2-ol (2°)

(NO. 2)

$CH_3CH_2CH_2CH_2\overset{5A}{C}=\overset{\delta-}{O}CH_2CH_2CH_3 + CH_3CH_2CH_2^{\delta-}Mg^{\delta+}Br$
· Propyl magnesium Bromide.

$CH_3CH_2CH_2CH_2\overset{1}{C}_{\delta+}(CH_2CH_2CH_3) + \overset{\delta-}{O}MgBr$

Hydrolysis $OH^- H^-$

$CH_3CH_2CH_2CH_2\overset{1}{C}(CH_2CH_2CH_3)(CH_2CH_2CH_3)-OH + Mg[OH]Br$

4 propyl Octan-4-ol

NO. 3

Industrial manufacture of ethanol showing all reaction equations and necessary enzymes and temperature reaction.

- Carbohydrate is converted into maltose at a temperature of 60°C and by the enzyme diastase contained in malt.

$$2(C_6H_{10}O_5)_n + nH_2O \xrightarrow[60°C/\text{diastase}]{} n\,C_{12}H_{22}O_{11}$$

maltose.

- The breakdown of maltose - is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C

$$C_{12}H_{22}O_{11} + H_2O \xrightarrow[15°C/\text{maltase}]{} 2\,C_6H_{12}O_6$$

glucose

- The glucose at constant temperature of 15°C is then converted into alcohol by the enzyme zymase contained also in yeast

$$C_6H_{12}O_6 \xrightarrow[15°C/\text{zymase}]{} 2CH_3CH_2OH + 2CO_2$$

Ethanol

(NO. 4)

Determine the product obtained in the reduction of Alkanone & Alkanal. Use a specific example for each and show the equation or reaction.

Soln-

Reduction of Alkanone-

When Alkanone is reduced it gives a secondary Alcohol

$$RR'C=O \xrightarrow[LiAlH_4/(C_2H_5)_2O]{} RR'CHOH$$

ketone — secondary alcohol

$$CH_3\underset{\underset{CH_2CH_3}{|}}{C}=O \xrightarrow[LiAlH_4/(C_2H_5)_2O]{[H_2]} CH_3\underset{\underset{CH_2CH_3}{|}}{C}HOH$$

Butan-2-one — Butan-2-ol

Reduction of Alkanal.

When Alkanal (Aldehyde) is reduced it gives a primary Alcohol

$$RCHO \xrightarrow[LiAlH_4/[C_2H_5]_2O]{[H_2]} RCH_2OH$$

Alkanal — primary alcohol.

$$CH_3CH_2CH_2CHO \xrightarrow[LiAlH_4/(C_2H_5)_2O]{[H_2]} CH_3CH_2CH_2CH_2OH$$

Butanal — Butanol.