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Collage: M.H.S

DEPARTMENT: NURSING

MATRIC NO: 19/ MHS 02 /111

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 to carbon atom bearing the hydroxyl group are 3 or 2, it is called a primary alcohol (1). But if it is one hydrogen atom, it is called secondary alcohol (2) and if no hydrogen atom is attached the carbon atom bearing the hydrogen group; it is called a tertiary alcohol (3).

e. g $(CH_3)_3$ C-OH-2 methylpropan-2ol (3)

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

e.g CH_3 CH_2 CH_2 OH propannol (monohydric alcohol

2) DISCUSS THE SOLUBILITY OF ALCOHOLS IN WATER, ORGANIC SOLVENTS

Lower alcohols with up to three carbon atoms in their molecules are soluble in water because these lower alcohols can form hydrogen bond with water molecules. The water solubility of alcohols decreases with increasing relative molecular mass. All monohydric alcohols are soluble in organic solvents. The solubility of simple alcohols and polyhydric alcohols is largely due to their ability to form hydrogen bonds with molecules.

3) SHOW THE THREE STEPS IN THE INDUSTRIAL MANUFACTURE OF ETHANOL. EQUATIONS OF REACTION ARE MANDATORY.

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)

$2(C_6H_{10}O_5)n + nH_2O$ ----------→ $nC_{12}H_{22}O_{11}$

(carbohydrate) 60 c/Diastase **(maltose)**

Step:2 it is the break down of maltose:

$C_{12}H_{22}O_{11} + H_2O$----------→ $2C_6H_{12}O_6$

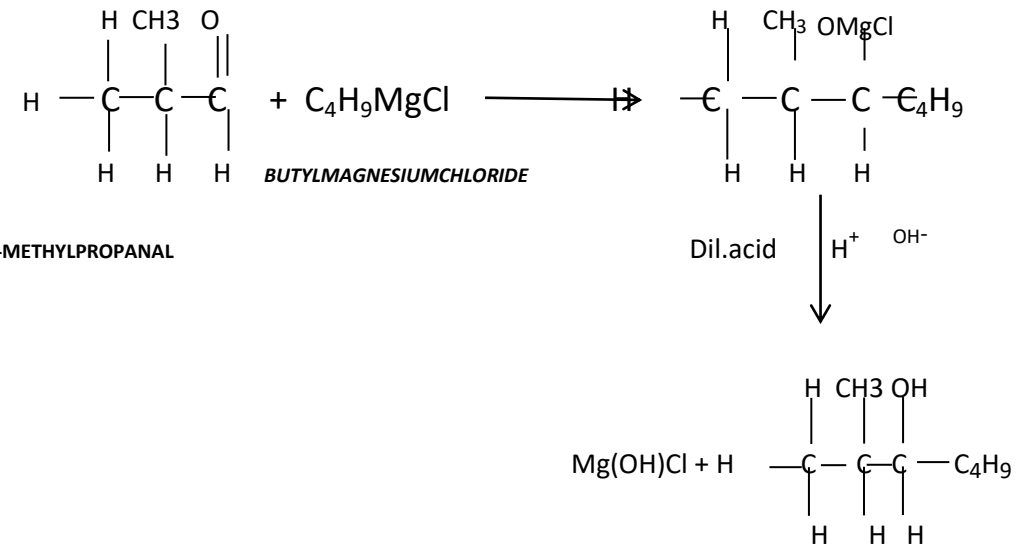
(maltose) **15 C/maltase** **(glucose)**

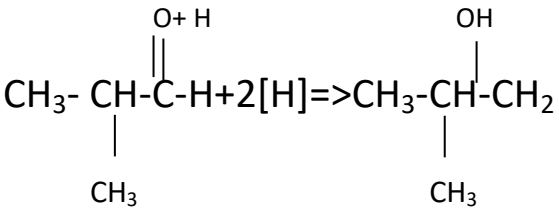
Step:3 Converting glucose to ethanol:

$C_6H_{12}O_6$----------→$2CH_3CH_2OH + 2CO_2$

(Glucose) **15 C/ zymaze (Ethanol)**

NO4



7) 

8) $CH_3CH_2CH\ OH + H_2SO4 \rightarrow CH_3CH\ CH_2 + H_2O \rightarrow CH_3CH\ OH\ CH_3$

PROPAN-1-OL PROPENE WATER PROPAN-2-OL