NAME: ADAKOLE JEMIMAH ANYAME
DEPT: PHARMACY
MATRIC NO: 19/MHS11/005
COURSE: CHM 102

ASSIGNMENT.

1. They are classes of organic compound characterized by one or more hydroxyl (OH) groups that are attached to a carbon atom of an alkyl group.

· PRIMARY ALCOHOL: CH_3-CH_2-CH_2-OH (Propan-1-ol)

· SECONDARY ALCOHOL: CH_3-CH_2-CH(OH)-CH_2-CH_3 (Pentan-3-ol)

· TERTIARY ALCOHOL: CH_3-CH_2-C(CH_3)(OH)-CH_3 (2-Methylbutan-2-ol)

2. Solubility of alcohols in water, Organic solvents: They are soluble in water as a result of the hydroxyl group in the alcohol which are able to form hydrogen bonds with the molecules of water. Alcohols that have smaller hydrocarbon chains are very soluble. And as the length of of the hydrocarbons increases, the solubility in water decreases.

3. Three steps in the industrial manufacture of ethanol: The process begins with photosynthesis, and plants are changed to sugar. The steps involves fermentation, distillation and dehydration.

a) $2(C_6H_{10}O_5)n + n\ H_2O \xrightarrow{60^0C/diastase} n\ C_6H_{22}O$

Carbohydrate → maltose

The starch containing materials like grains, potatoes, rice and when heated with malt at 60^0C for some time changes into maltose by the enzyme contained in the malt (diastase).

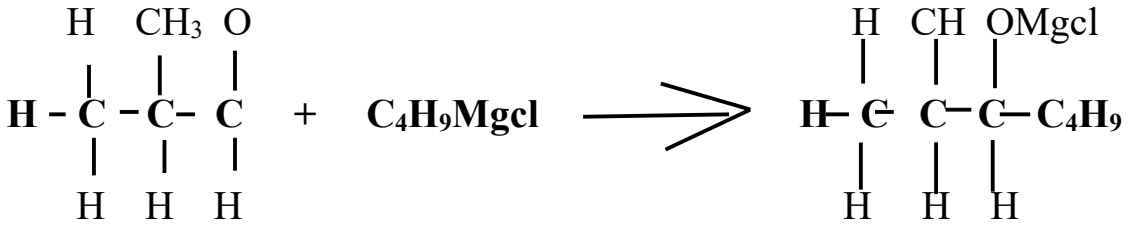
b) $C_{12}H_{22}O_{11} + H_2O \xrightarrow{15^0C\ /maltase} 2\ C_6H_{12}O_6$

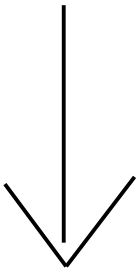
maltose → glucose

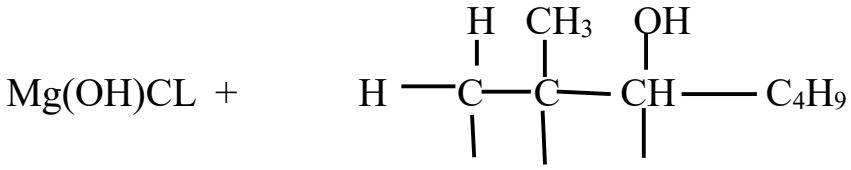
The maltose is then broken down into glucose when yeast is added which contains the enzyme maltase at a temperature of 15^0C.

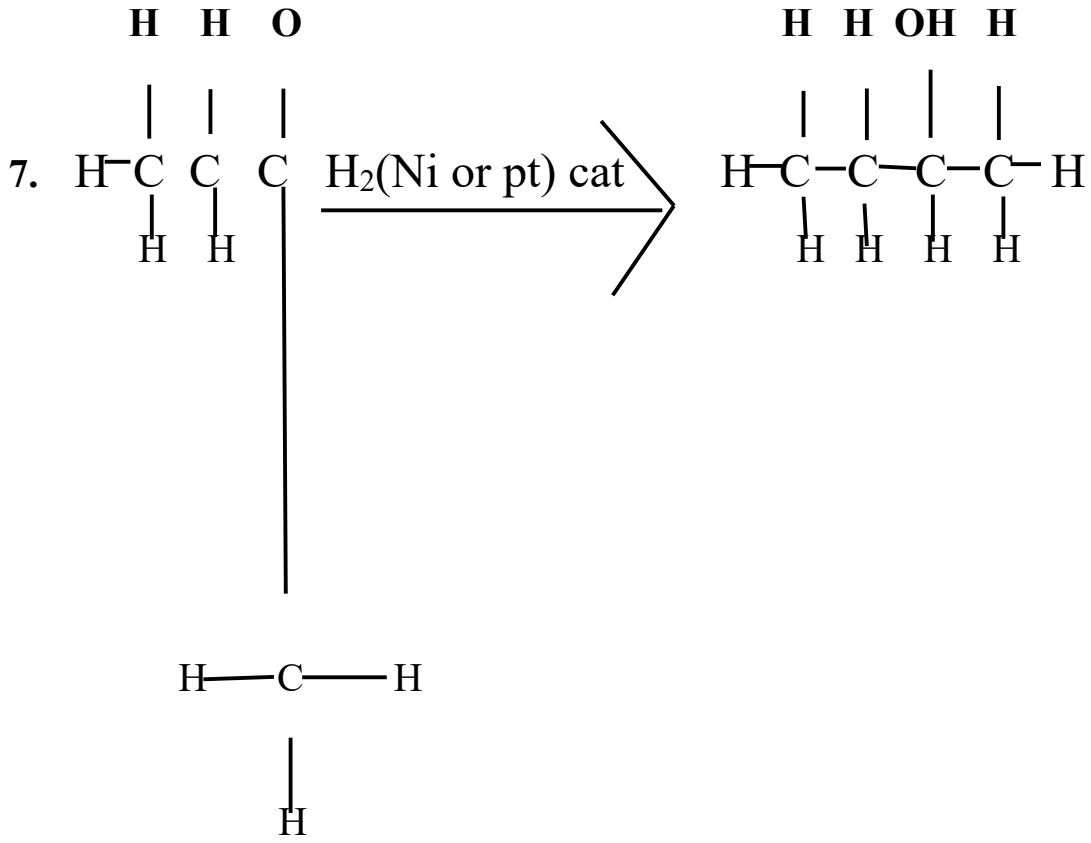
C) $C_6H_{12}O_6 \xrightarrow{15^0C\ /zymase} 2\ CH_3CH_2OH + 2CO_2$

glucose → ethanol

4. 





7. 

2-METHYLPROPANAL

8. $CH_3CH_2CH_2OH \xrightarrow[375^0C]{Al_2O_3} CH_2{=}CHCH_3$

PROPAN-1-OL PROPENE

$CH_2{=}CHCH_3 + H_2SO_4 \rightarrow CH_3CH(OSO_3H)CH_3$

TETROXOSULPHATE(VI) ACID

$H_2SO_4 + CH_3CH(OH)CH_3$

PROPAN-2-OL