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1) CLASSIFICATION OF ALKOHOLS.

There are two types of classification of alcohols.

- Classification based on the number of hydrogen atoms attached.

[Primary, Secondary, Tertiary]

- Classification based on the number of OH groups [Monohydric, Dihydric, Polyhydric]

-> BASED ON NUMBER OF HYDROGEN ATOMS

- Primary => It is a primary alcohol if there are three or two hydrogen atoms ~~are~~ attached to the carbon atom bearing ^{the} OH group [e.g: Methanol]

- Secondary => It is a secondary alcohol if there is only one hydrogen atom attached to the carbon bearing ^{the} OH group [e.g Propan-2-ol]

- Tertiary => This is the type of alcohol in which there is no hydrogen atom attached to the carbon [e.g 2-methyl propan-2-ol].

-> BASED ON NUMBER OF HYDROXYL GROUPS POSSESSED

- Monohydric => There is one hydroxyl group present in the alcoholic structure. [e.g Propanol].

- Dihydric => Also known as glycols. There are two hydroxyl groups present. [e.g Hexane 2,4, diol].

Trihydric => Also known as triols. Have three hydroxyl groups [Propane ^(e.glycerol) 1,2,3, triol]

Polyhydric: Also known as polyols. Have more than three OH groups [e.g. Hexane 2,3,4,5,6 pentaol]

2) Water

Lower alcohols with up to 3 carbon atoms in their molecules are soluble in water because these lower alcohols can form hydrogen bond with water molecules. Water solubility decreases with increasing relative molecular mass.

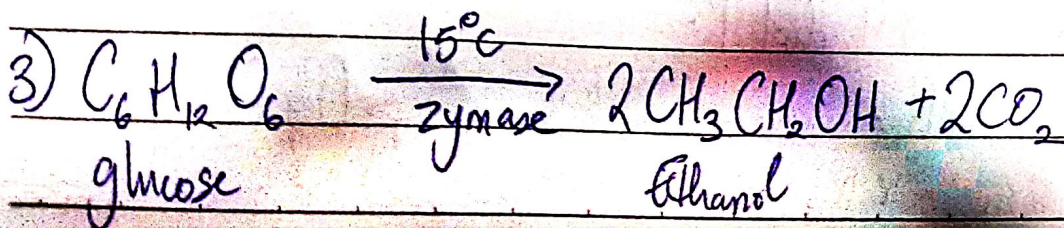
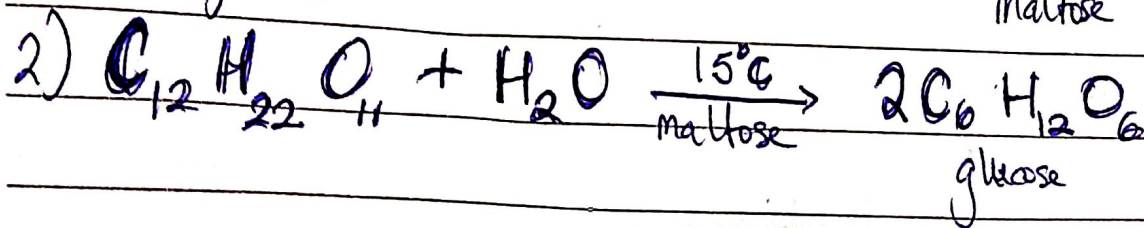
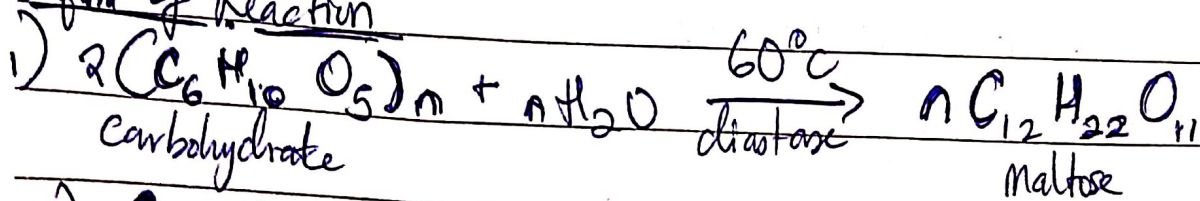
Organic solvents

All monohydric alcohols are soluble in organic solvents. The solubility of simple alcohols & polyhydric alcohols is largely due to their ability to form hydrogen bonds with water molecules.

3) INDUSTRIAL MANUFACTURE OF ETHANOL

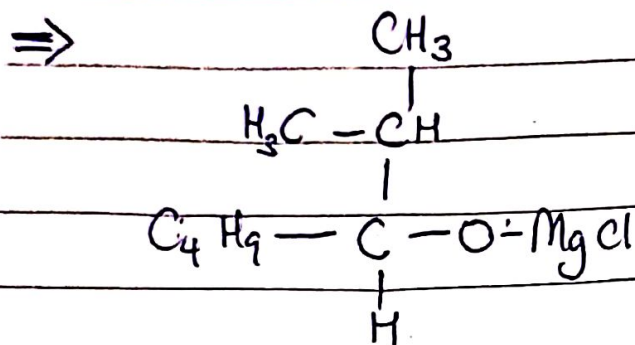
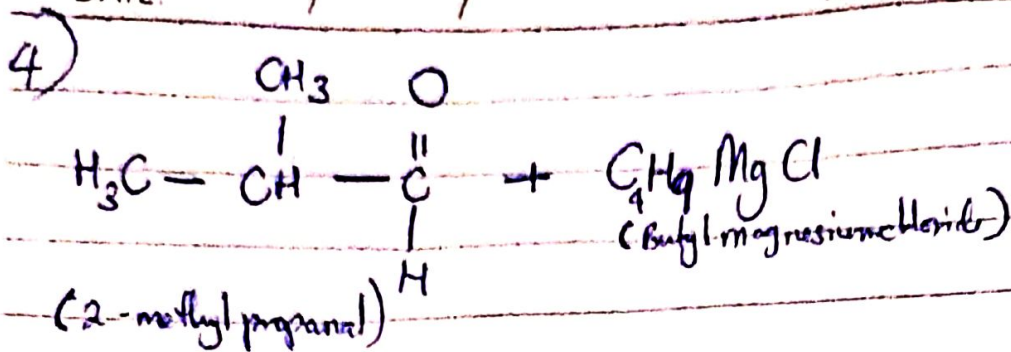
Starch is converted to Ethanol through a process called fermentation. Firstly the starch is warmed with malt at a temp of 60°C at which it is converted to maltose by an enzyme called diastase, the maltose is converted to glucose by addition of yeast to maltose, the enzyme maltase contained in yeast converts maltose to glucose at a temp of 15°C . glucose is then converted to ethanol by the action of zymase contained in yeast at 15°C .

Eqm of Reaction

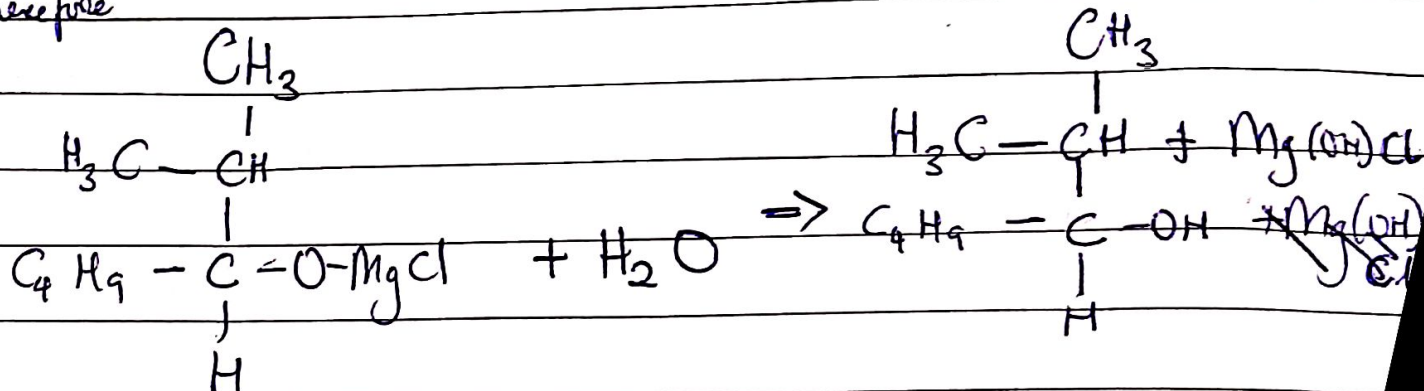


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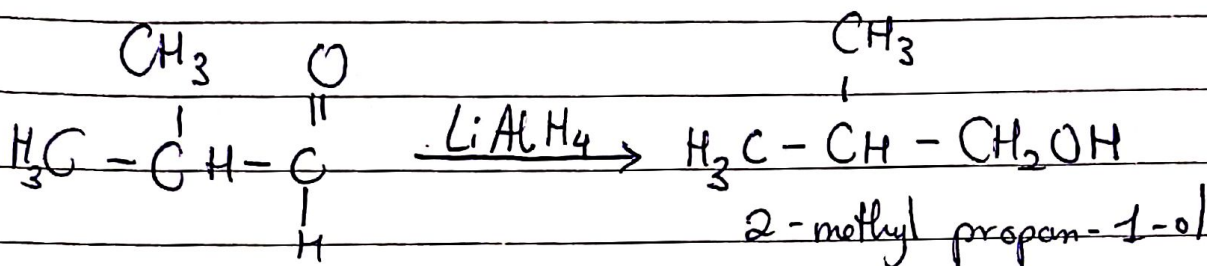
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5)

6) FORFEITED (NO ANSWER)

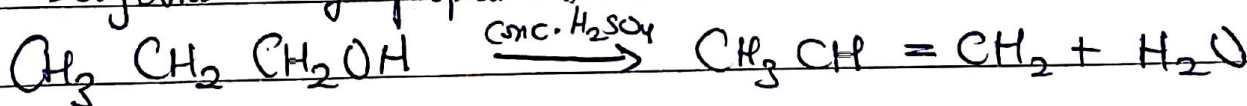
7) Reduction of 2-methyl propanal



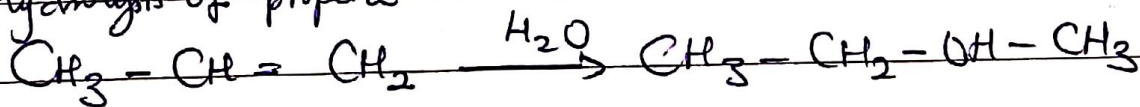
~~8) Dehydration~~

8) For the conversion of propan-1-ol to propan-2-ol

⇒ Dehydration of propan-1-ol



⇒ Hydrolysis of propene



Propene is hydrolyzed to propan-2-ol (Markovnikov's addition).

Markovnikov's addition states that in an unsymmetrical reagent, the negative part of the reagent gets attached to the carbon atom of the alkene which has less number of hydrogen atom.