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COMPUTER ENGINEERING (19/ENG02/054)
CHM102 → Assignment
14/05/2020

- 1) There are two methods in which alcohols could be classified
- a) 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~~ tertiary alcohol e.g. CH_3OH (Methanol)
 - If one hydrogen atom is attached to the carbon atom bearing the hydroxyl group it is known as primary (1°) alcohol.
 - If two alkyl groups are attached to the carbon atom bearing the $-\text{OH}$ group, it is known as Tertiary (3°) alcohol.
- b) Based on the number of hydroxyl groups they possess:
- When there is only one hydroxyl group present in the structure, it is known as Monohydric alcohols.
 - When there are two hydroxyl groups present in the structure, it is known as Dihydric alcohols / Glycols.
 - When there are three hydroxyl groups present in the structure, it is known as Trihydric alcohols.
- Example $\text{C}_3\text{H}_7\text{OH}$ (Propanol), $\text{HOCH}_2\text{CH}_2\text{OH}$ (Ethane-1,2-diol)

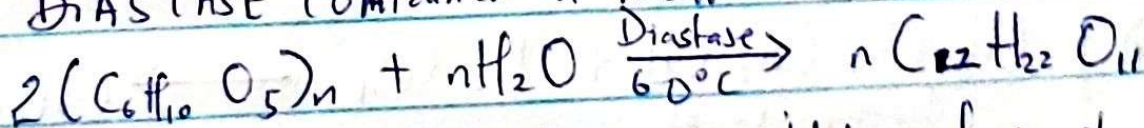
② SOLUBILITY OF ALCOHOLS

In water, lower alcohols with up to three carbon atoms in their molecules are soluble. This is because these lower alcohols can form hydrogen bond with water molecules. The water solubility of alcohols decreases with increasing relative molecular mass.

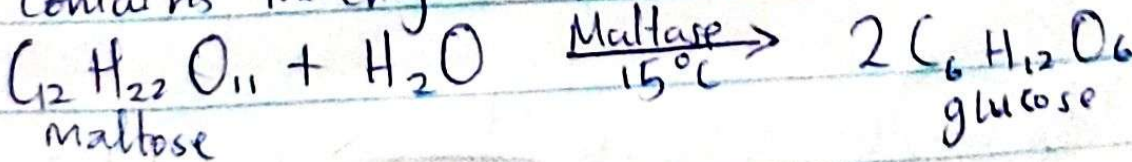
All monohydric alcohol are soluble in organic solvent. The solubility of simple alcohols and polyhydric alcohols is largely due to their ability to form hydrogen bonds with water molecules.

3 Steps in the industrial manufacture of ethanol:

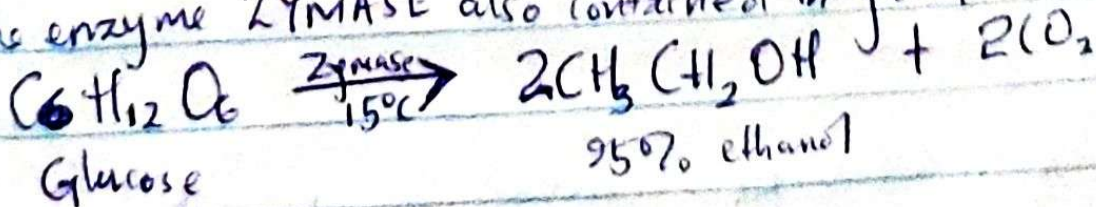
(a) The starch containing substance, on warming with salt to 60°C for a specific period of time, is converted into maltose by enzyme **DIASTASE** contained in malt.



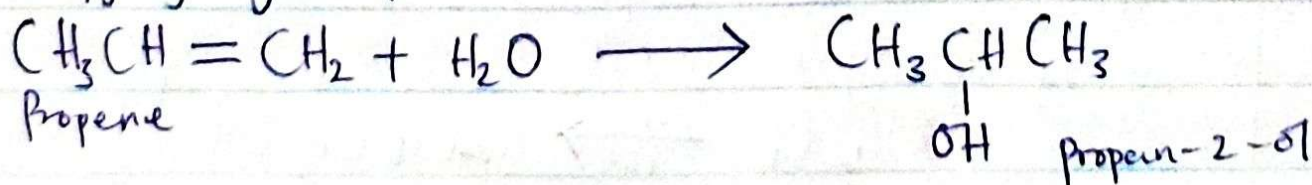
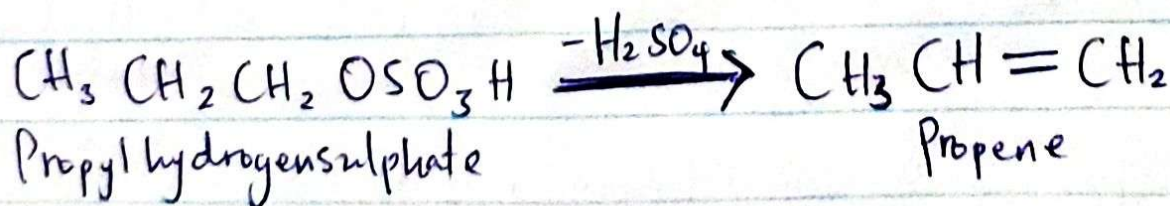
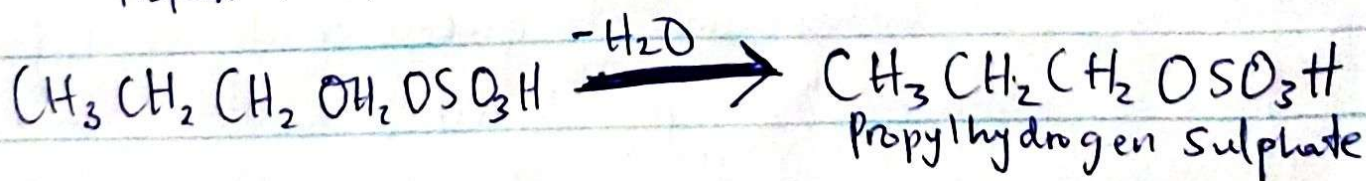
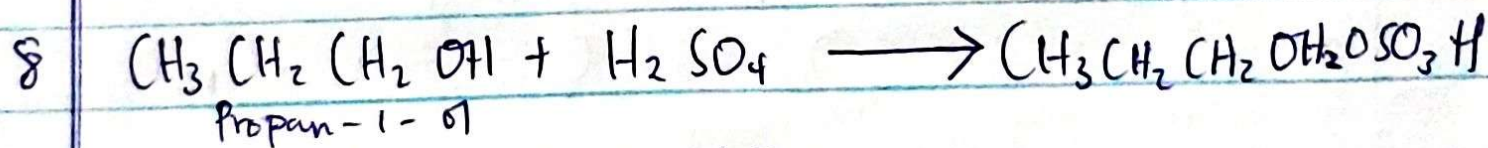
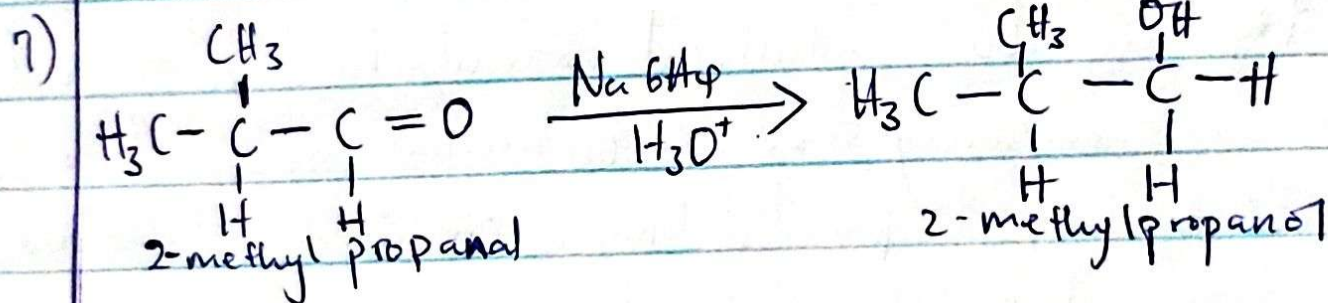
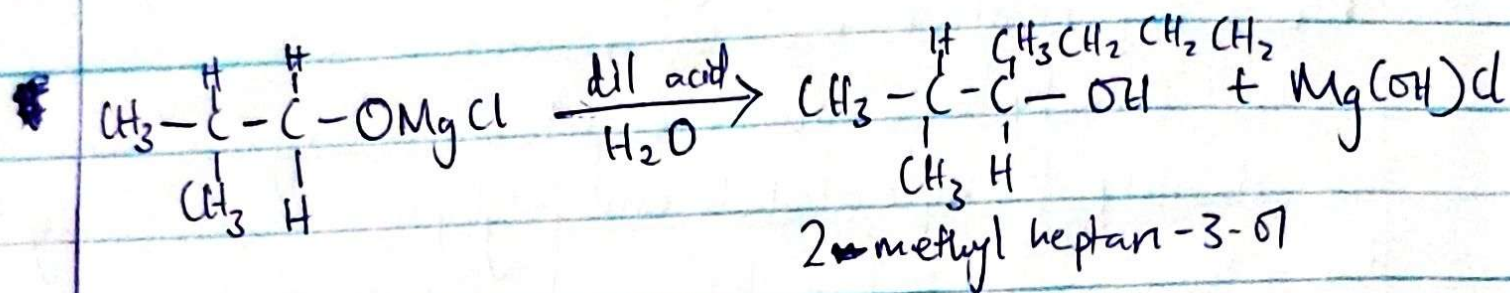
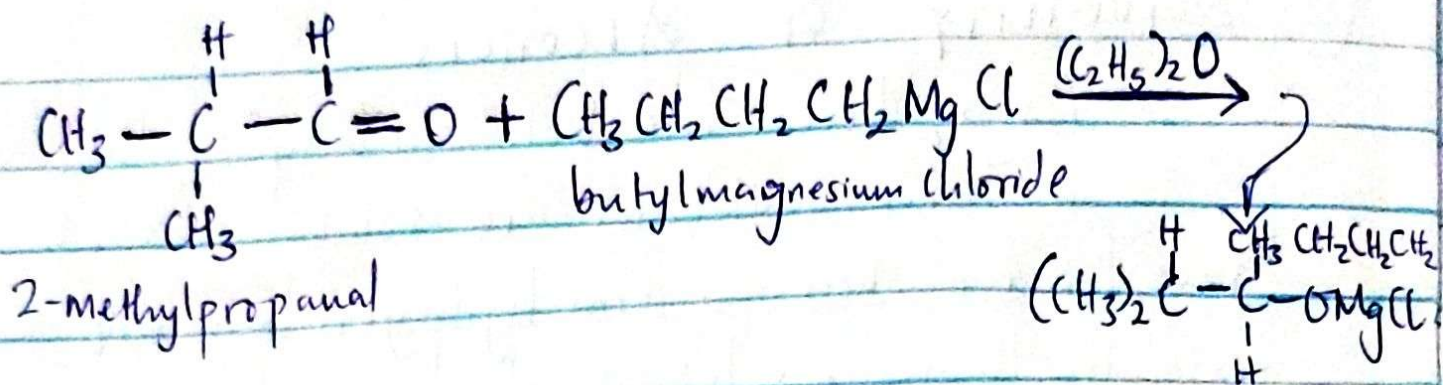
(b) The maltose is broken down into glucose on addition of yeast which contains the enzyme **MALTASE** and at temperature of 15°C



(c) The glucose at a constant temperature of 15°C is then converted into alcohol by the enzyme **ZYMASE** also contained in yeast



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* 5 and 6 were omitted as instructed by the lecturer