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Mechatronics Engineering  
19/EN405/052  
CHEM 102

## 1 Classifications of Alcohols

(i) Classification based on the number of hydrogen atoms attached to the carbon atom bearing the hydroxyl group. 2 or 3 hydrogen atoms are called primary alcohols, one hydrogen atom is secondary alcohol and no hydrogen atom is called tertiary alcohols.  
e.g.  $\text{C}_2\text{H}_5\text{OH}$  ( $1^\circ$ ) primary alcohols  $\text{C}_2\text{H}_5\text{OH}$  ( $2^\circ$ ) secondary alcohols  $\text{C}_2\text{H}_5\text{OH}$  ( $3^\circ$ ) tertiary alcohols.

(ii) Classification based on the numbers of hydroxyl groups they possess. The hydroxyl group is monohydric alcohol, 2-hydroxyl group is dihydric alcohol also known as glycol, trihydric or triol, here are 3-hydroxyl groups, polyhydric or polyol.  $\text{C}_2\text{H}_4(\text{OH})_2$  - ethanediol monohydric  $\text{C}_3\text{H}_7(\text{OH})_3$  - trihydric

## 2 Solubility of Alcohol

(i) In water: Lower alcohols with up to 3 carbon atoms in their molecules are soluble in water because their lower alcohols can form hydrogen bonds with water molecules. The water solubility of alcohols because with an increase in relation molecules

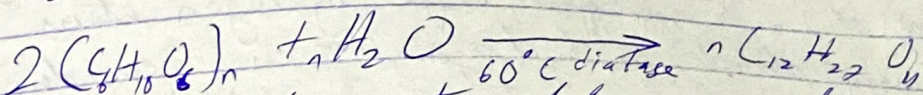
(ii) Inorganic solvent: All monohydric alcohols are



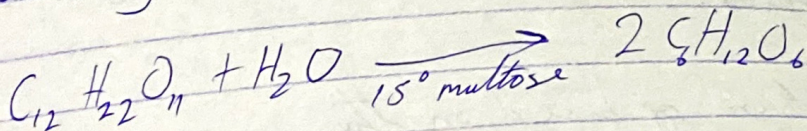
inorganic solvent.

Solubility of alcohols is dependent on their ability to form hydrogen bonds with water molecules

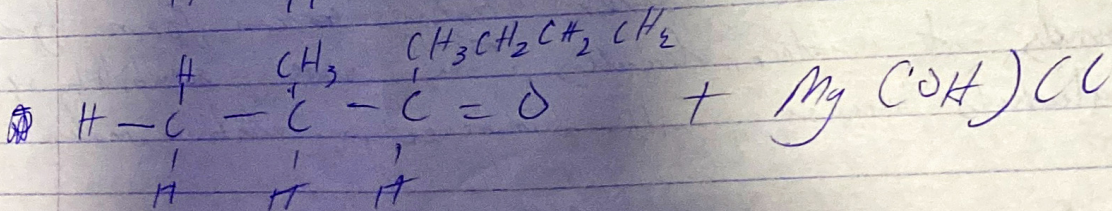
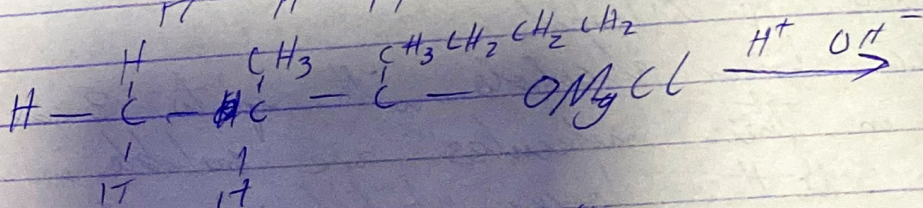
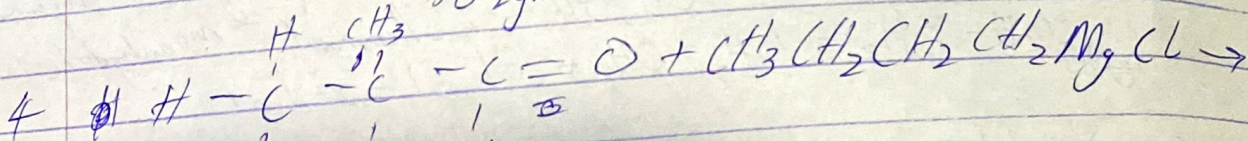
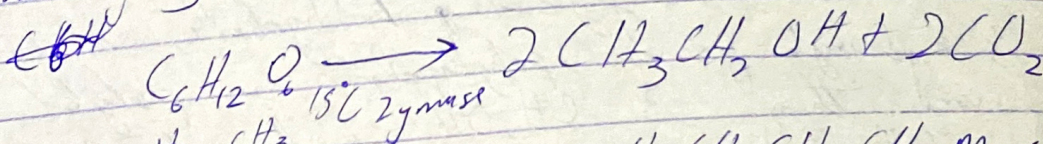
3. starch containing molecules are washed with water to 60°C and are converted to maltose by the enzyme diastase.



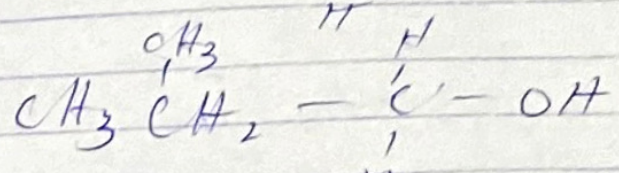
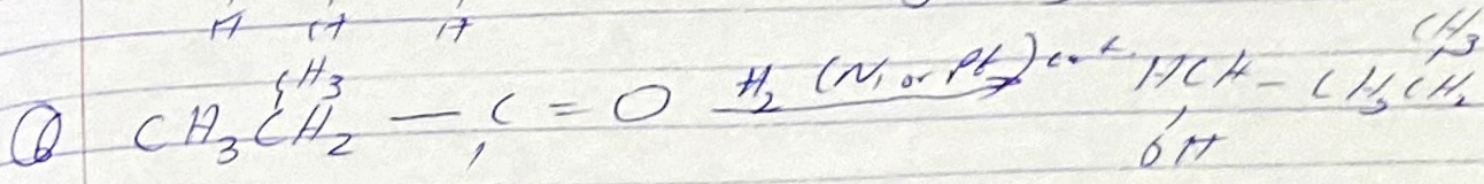
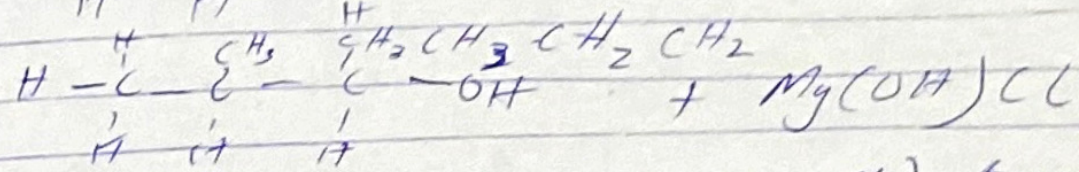
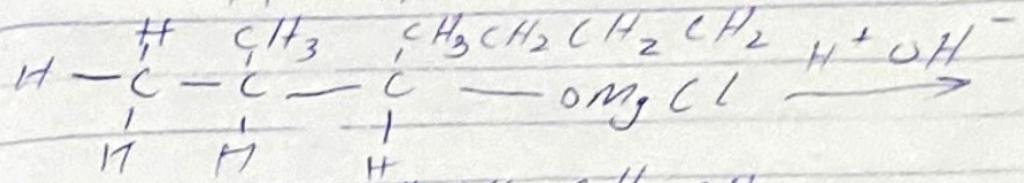
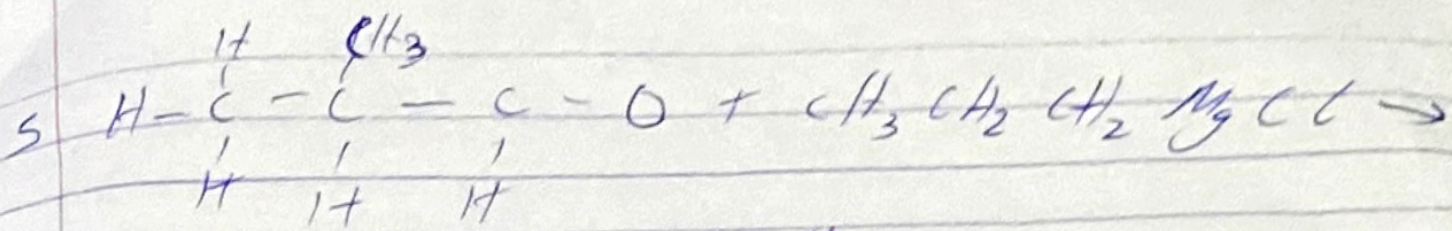
ii maltose is broken into glucose on addition of yeast containing the enzyme maltase at temp. 15°C



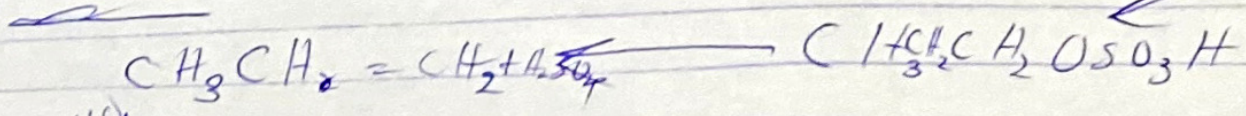
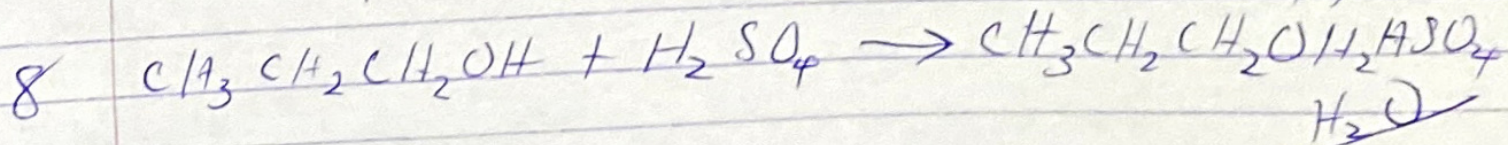
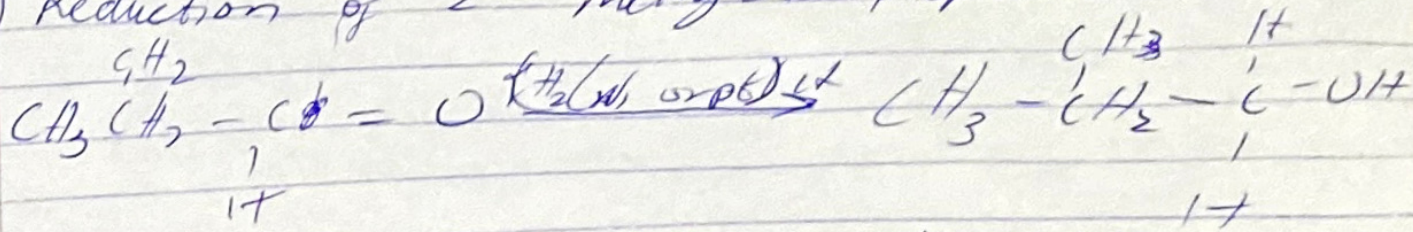
iii Glucose at constant temp 15°C is then converted into ether by zymase, enzyme also contained in yeast.







7 Reduction of 2-methyl-propanal



$\xrightarrow{\text{H}_2\text{O}}$

