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Dept: MBBS

Date: 13/05/2020

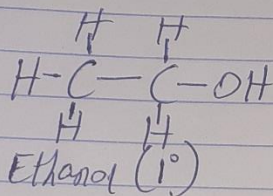
### ASSIGNMENT

#### ① CLASSIFICATION OF ALCOHOLS

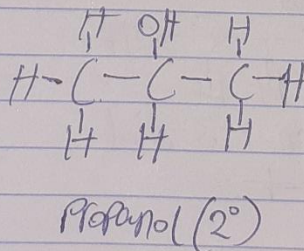
- Based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group:  
If there are three or two hydrogen atoms attached to the carbon atom carrying the OH group, it is a PRIMARY ALCOHOL ( $1^\circ$ ). If it is one hydrogen atom, it is a SECONDARY ALCOHOL ( $2^\circ$ ). If ~~it is~~ there are no hydrogen atoms, it is a TERTIARY ALCOHOL.

#### Examples

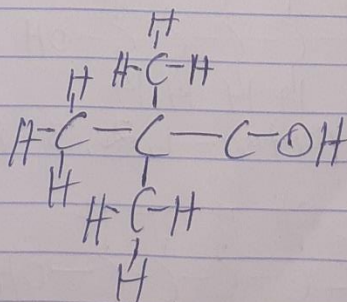
① Primary alcohol



② Secondary alcohol



③ Tertiary alcohol



2-Methylpropan-3-ol ( $3^\circ$ )

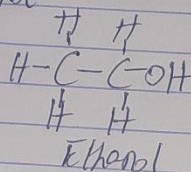
## Cont'd (1)

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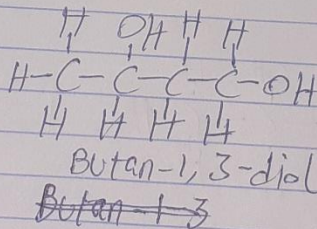
- Based on the number of OH groups they possess.
  - ① Monohydric alcohols have one OH group present in the alcohol structure.
  - ② Dihydric alcohols have two OH group present in the ~~etc~~ alcohol structure.
  - ③ Trihydric alcohols or triols have three OH group present in their alcohol structure.
  - ④ Polyhydric alcohols or polyols have more than three OH group present in their alcohol structure.

### Examples

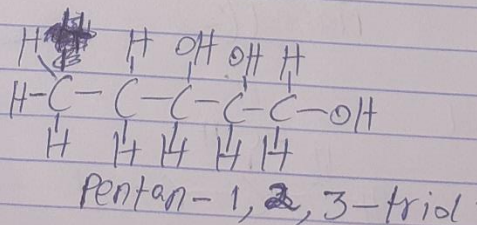
- Monohydric alcohol



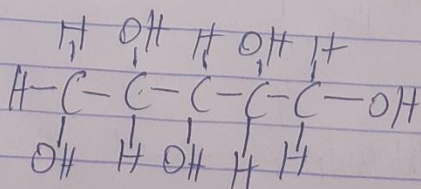
- Dihydric alcohol



- Triols



- Polyols



Pentan-1,2,3,4,5-Polyols



2) Solubility of alcohols in water and in organic solvent with water;

Lower alcohols with carbon atom up to three in their molecules are soluble in water because these lower alcohols can form hydrogen bond with water molecules. And the water solubility of alcohols decreases with increase in relative molecular mass.

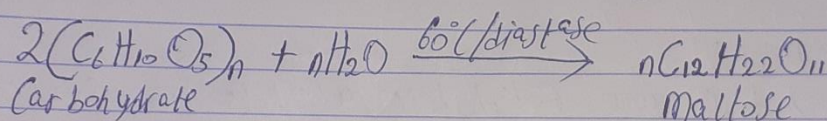
• Organic solvent;

All monohydric and polyhydric alcohols are soluble in organic solvent. This is largely due to their ability to form hydrogen bonds with ~~the~~ water molecules.

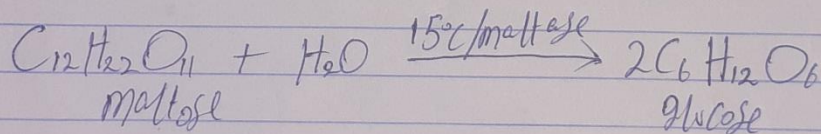
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③ THE STEPS TO MANUFACTURING ETHANOL

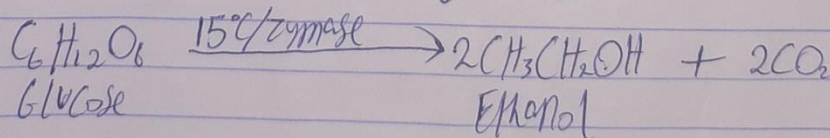
- The biological catalysts, enzymes found in yeast break down the carbohydrate molecules into ethanol to give a yield of 95%. The starch containing materials are molasses, cereals, rice, etc. and on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme (diastase) contained in the malt.



Maltose is broken down into glucose on addition of yeast which contains maltase at 15°C.

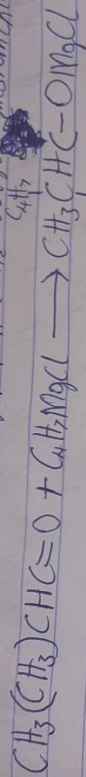


The glucose at temperature of 15°C is then converted into alcohol by the enzyme (zymase) in yeast.

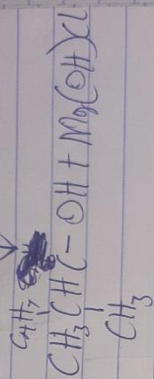


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④ Reaction between 2-methylpropanal and butylmagnesiumchloride



$\text{H}^+$  / hydrolysis

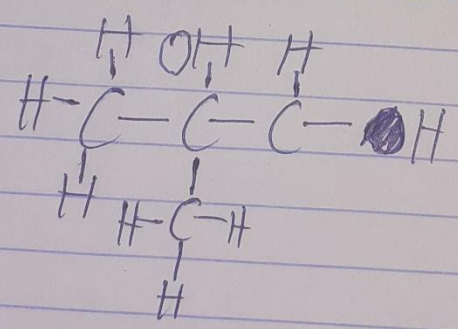
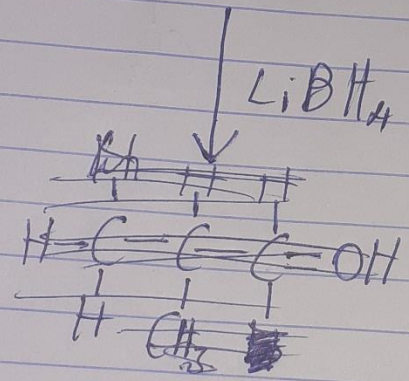
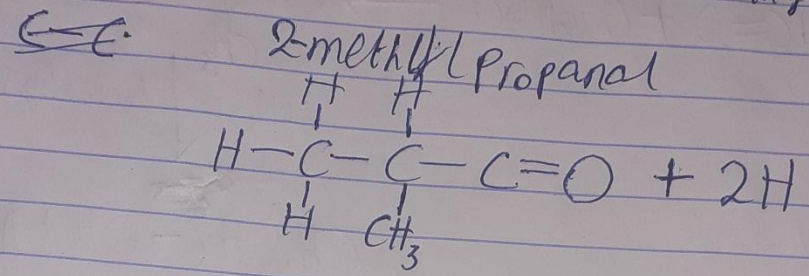




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⑦ Show the reduction reaction of 2-methylpropanal



2-methylpropan-2-ol

