

H₂O.

3-2-2012 WBC 2CH₂CH₃+

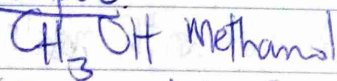
Sandy, Okuyakabasi Ugyime

19/MHS01/395

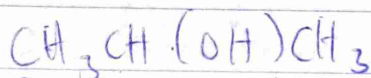
MBBS

1) alcohol ~~to~~ could be classified ~~as~~ based on
i) number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the numbers of hydrogen atoms ~~are~~ attached to the carbon bearing the hydroxyl group are three or two; it is a primary alcohol; if it is one hydrogen atom, it is a secondary alcohol and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is a ~~ter~~tertiary alcohol.

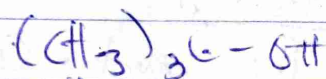
example



(Primary alcohol)

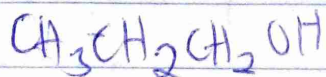


Propan-2-ol (2°)



2-Methylpropan-2-ol (3°)

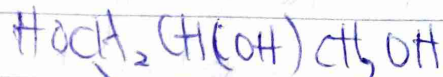
ii) Alcohols are also classified as Monohydric alcohols (those containing ~~one~~ hydroxyl group), dihydric alcohol (those containing two hydroxyl groups), trihydric (those containing three hydroxyl group), polyhydric Alcohols or polyols (those containing more than three hydroxyl group)



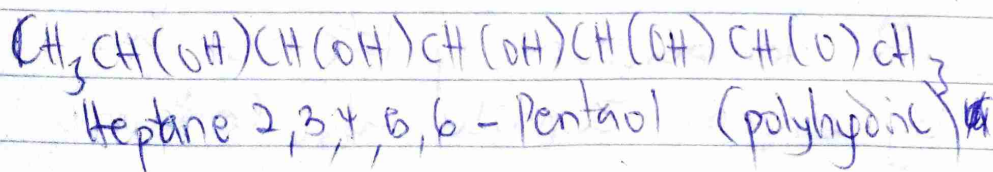
Propanol (Monohydric)



Ethane-1,2-diol (Dihydric)



Propane-1,2,3-tri (Trihydric al. ho)



2) alcohols with up to three carbon atoms in their molecules are soluble in water because lower alcohols can form hydrogen bonds with water molecules. The water solubility of alcohols decreases as their molecular mass increases. Solubility in water of ^{some} alcohol is in this order

$$CH_3OH > CH_3CH_2OH > CH_3CH_2CH_2OH > CH_3CH_2CH_2CH_2OH$$

decreasing order of solubility in water.

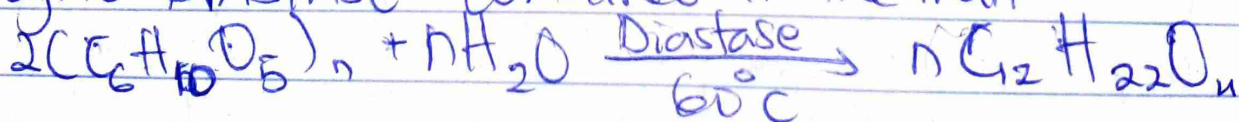
All monohydroxy alcohols are soluble in organic solvents. Addition of OH (hydroxyl) without increasing the number of carbon atoms increases the solubility in water and decreases the solubility in organic solvents (ethers & esters).

3) Industrial manufacture of ethanol

ethanol can be yielded by fermentation of carbohydrate. The common catalyst used is yeast. It gives a yield of 95% pure ethanol.

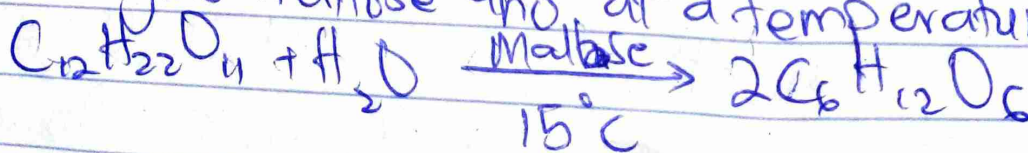
First step

The starch-containing material is warmed with malt to 60°C for a specific period of time and converted into maltose by enzyme **DIASTASE** contained in the malt.



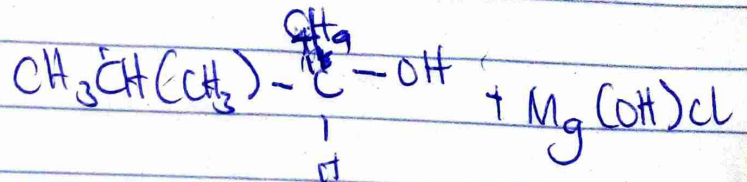
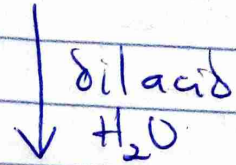
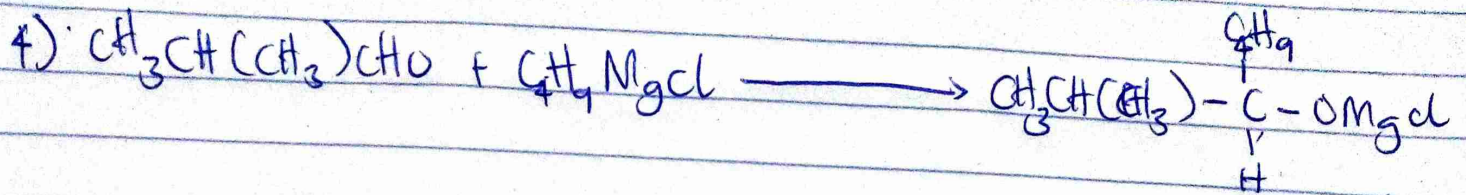
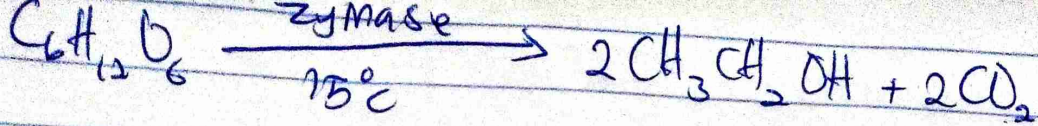
Second step

The maltose is broken down into glucose on addition of yeast which contains the enzyme **Maltase** and at a temperature of 15°C.



Third step

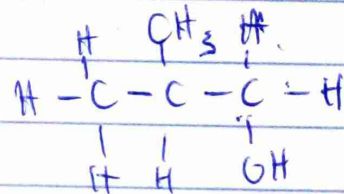
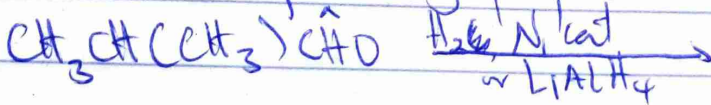
The glucose at constant temperature of 15°C is then fermented into alcohol by enzyme **Zymase** also contained in the yeast.



5) ~~No A~~ Invalid question

6) Invalid question

7) Reduction of 2-methyl propanal



2-methyl propanal

2-methyl propan-1-ol

