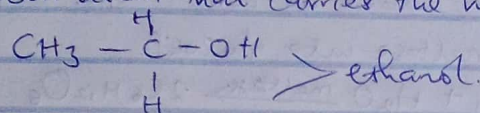


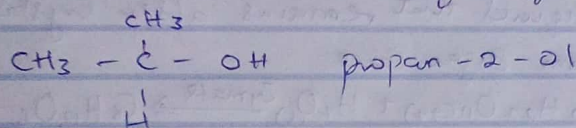
Name: Ugonna David Ebere  
Department: Medicine & Surgery  
Matric No: 19/MTS01/139

1) Classification of alcohols is based on the number of alkyl group. The general formula is  $R-OH$  where  $R$  is the alkyl group. There are three types of alcohols based on their classification.

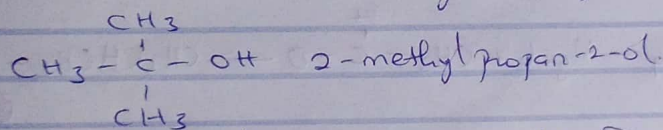
a) Primary alcohols! It has only one alkyl group attached to the carbon atom that carries the hydroxyl group eg.



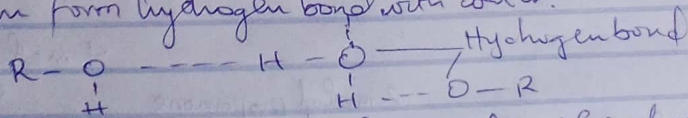
b) Secondary alcohols! It has two alkyl groups attached to the carbon atom that carries the hydroxyl group. eg.



c) Tertiary alcohols! It has three alkyl groups attached to the carbon atom that carries the hydroxyl group eg.



2) Generally hydrocarbons are not soluble in water but alkanol are soluble because the hydroxyl groups in their molecules can form hydrogen bond with water.

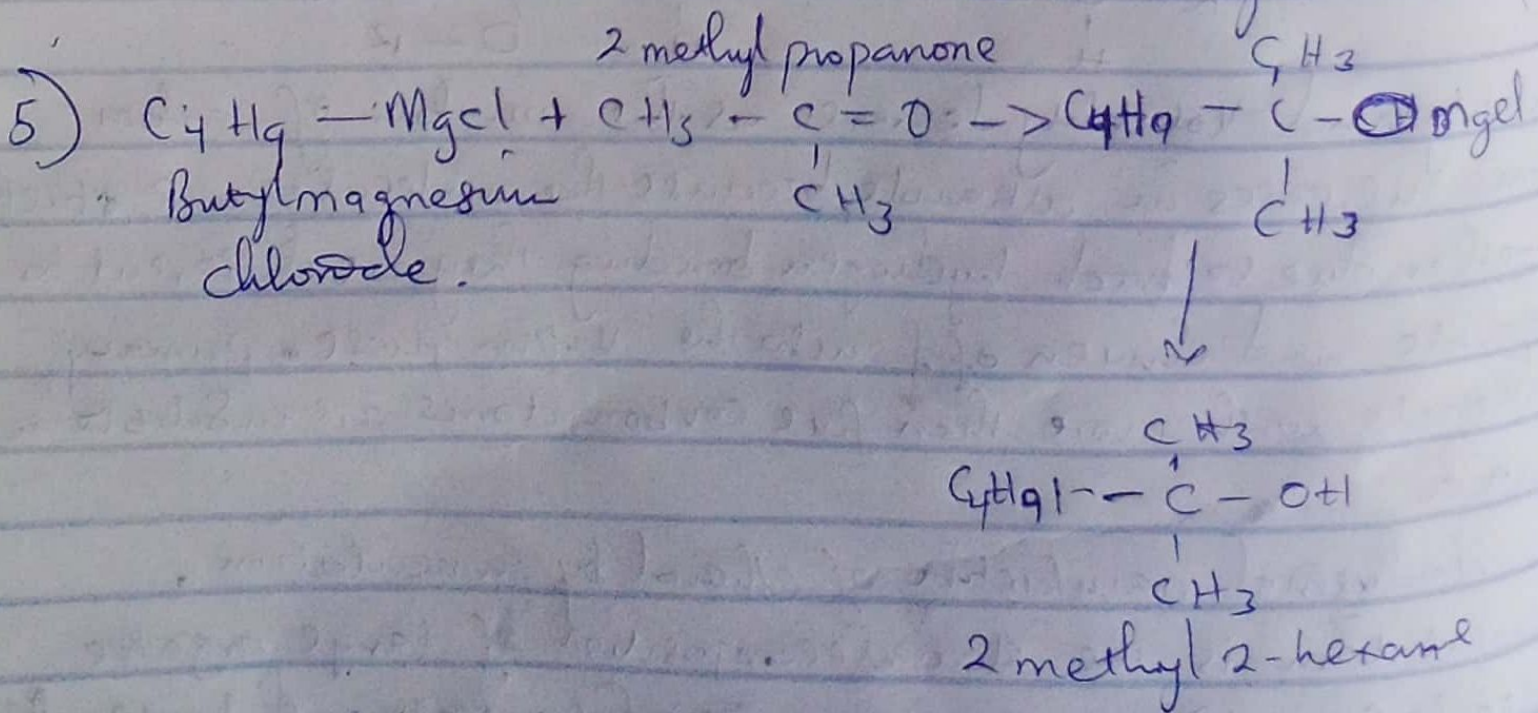
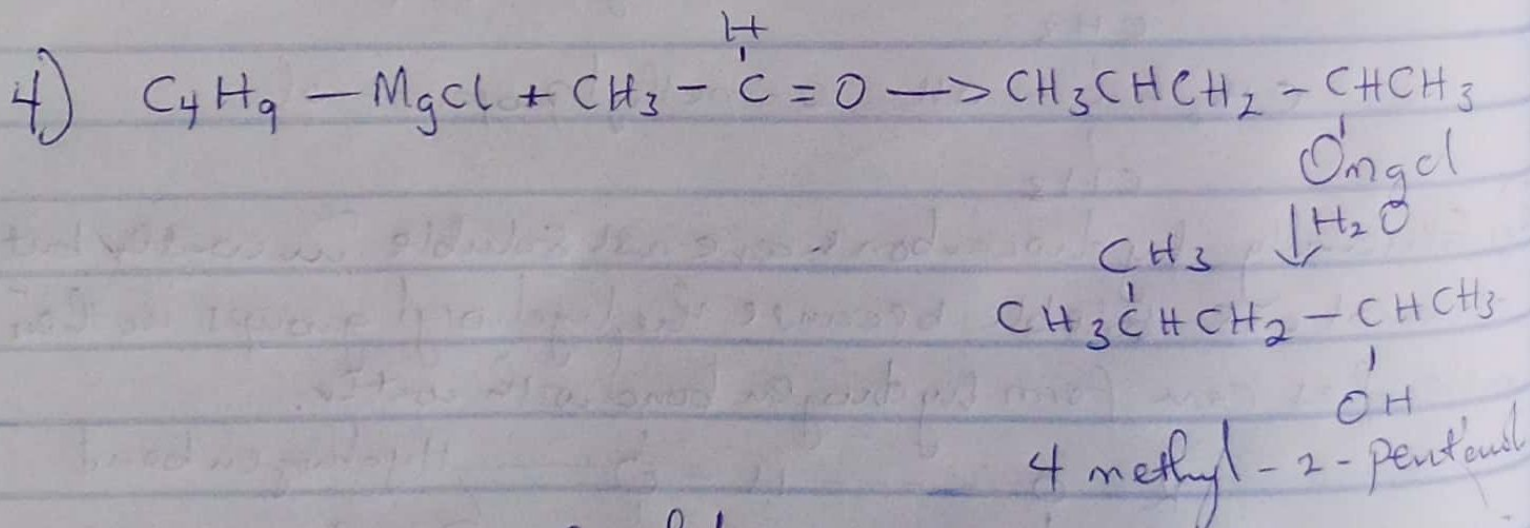
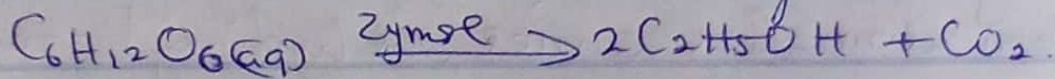
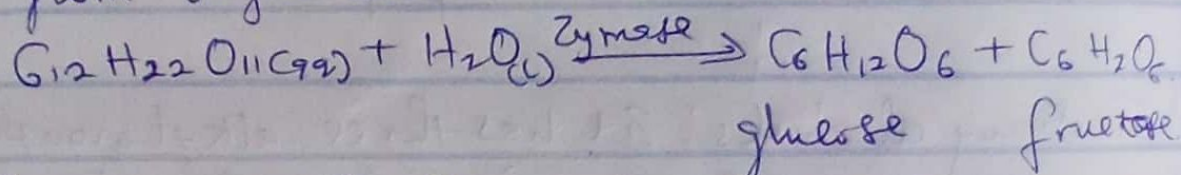


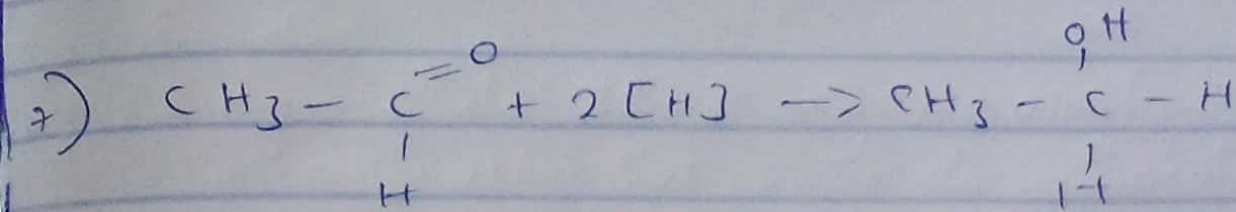
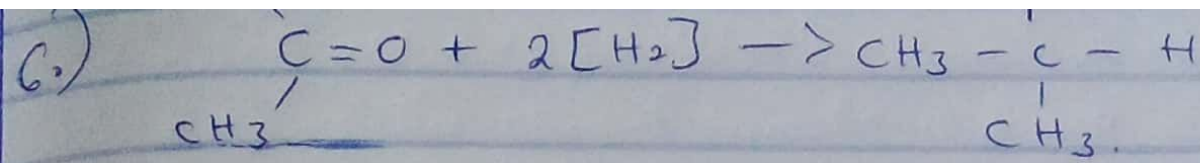
Solubility and volatility decrease as the number of carbon atoms increases in alkanol, because the molecules are stuck together due to such hydrogen bonding they are difficult to separate and driven off into the vapour phase. Primary alkanols with more than five carbon atoms are insoluble in water.

2) Industrial manufacture of ethanol by fermentation. Fermentation is the slow decomposition of large organic molecule (Starch) by micro organism (eg yeast and bacteria) into smaller molecules (Ethanol). In fermentation process, enzymes which are secreted by these microorganisms act as catalyst for the break down of super molecules.



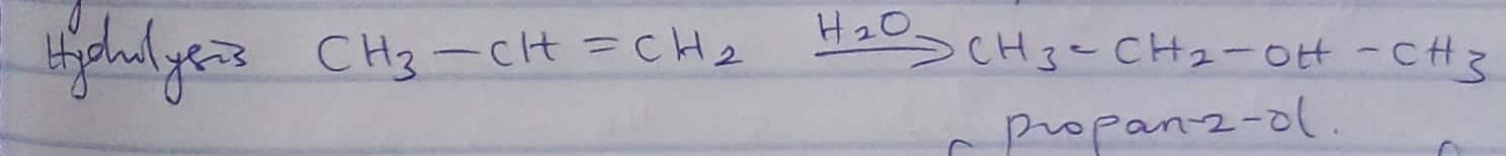
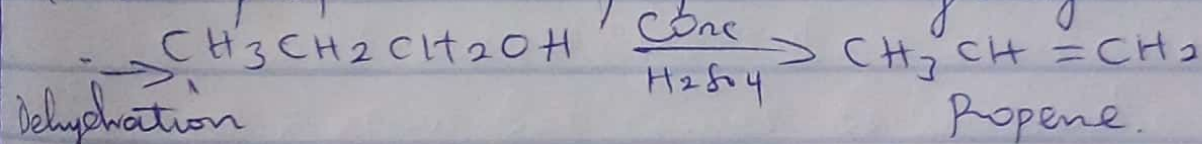
b) from sugarcane, the part of sugarcane used is called molasses a liquid that remains after crystallization of sugar from sugarcane.





8) The conversion of propan-1-ol to propan-2-ol involves dehydration and hydration.

The propan-1-ol is dehydrated using conc.  $\text{H}_2\text{SO}_4$  to form propene. The propene is hydrated to propan-2-ol.



The mechanism is called Markovnikov's addition.