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COMPUTER ENGINEERING

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Alcohols are organic compounds which are characterized by the presence of two or more hydroxyl group(-OH) that are attached to the carbon atom in an alkyl group or hydrocarbon chain.

ALCOHOLS ARE CLASSIFIED IN TWO WAYS;

- a. BASED on the number of hydrogen that is attached to the carbon carrying the -OH group.

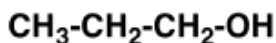
Under this way of classification, we have

I. PRIMARY ALCOHOL:

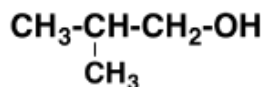
In a primary (1°) alcohol, the carbon atom that carries the -OH group is only attached to one alkyl group. Some examples of primary alcohols are shown below:



ethanol



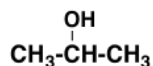
propan-1-ol



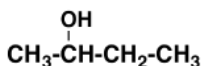
2-methylpropan-1-ol

ii. Secondary Alcohol

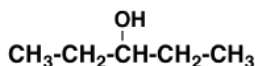
In a secondary (2°) alcohol, the carbon atom with the -OH group attached is joined directly to two alkyl groups, which may be the same or different. Examples include the following:



propan-2-ol



butan-2-ol



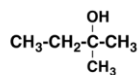
pent-3-ol

ii. Tertiary Alcohol:

In a tertiary (3°) alcohol, the carbon atom holding the -OH group is attached directly to three alkyl groups, which may be any combination of the same or different groups. Examples of tertiary alcohols are given below:



2-methylpropan-2-ol



2-methylbutan-2-ol

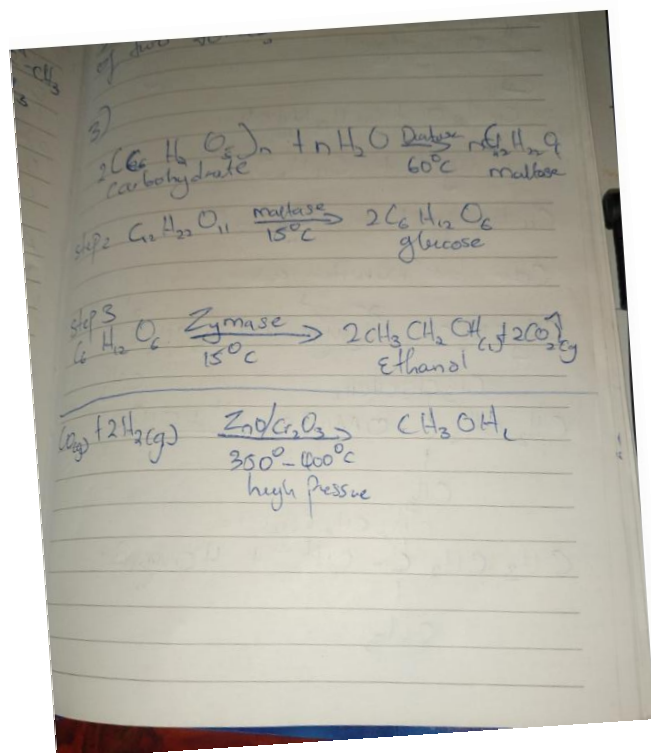
2. Solubility Of alcohols In water and organic solvent;

Alcohols contain two groups of different polarities. The alkyl group is a chain of one or more carbon atoms and some hydrogen atoms--this is a non-polar group of atoms. The other group is an -OH, which is the polar end of the molecules.

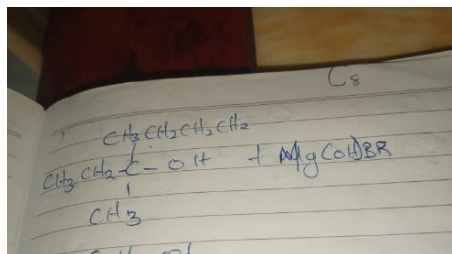
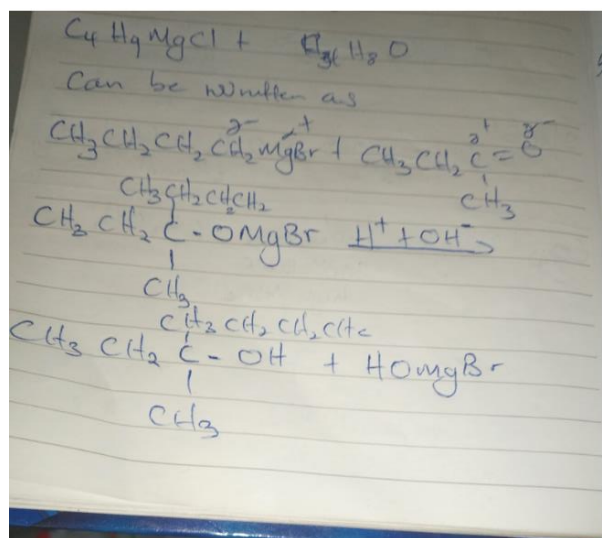
The non-polar alkyl group enables alcohols to interact with non-polar organic molecules. The polar group interacts with polar water molecules, and can also hydrogen bond with water.

As the size of the alkyl group gets larger, alcohols become less soluble in water. Alcohols with 2 (ethanol) or 3 (n-propanol and iso-propanol) carbon atoms are miscible with water and are react solvents for non-polar organic compounds.

3. THREE STEPS IN THE INDUSTRIAL PREPEARATION OF ETHANOL



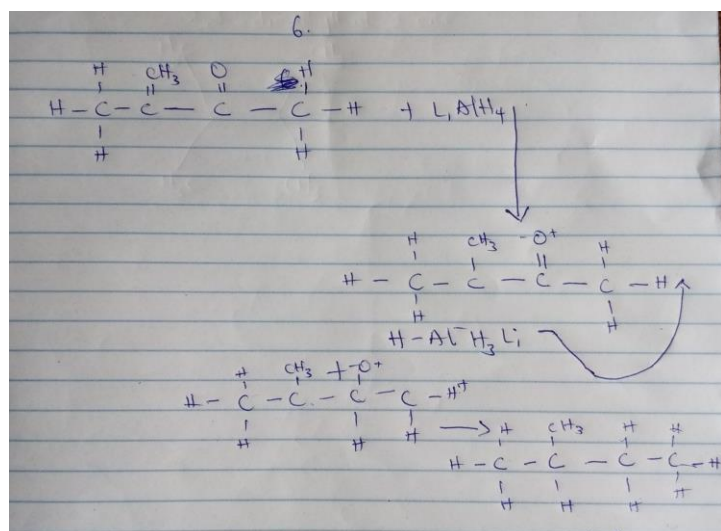
4. REACTION OF 2-METHYLPROPANAL AND BUTYLMAGNESIUM CHLORIDE;



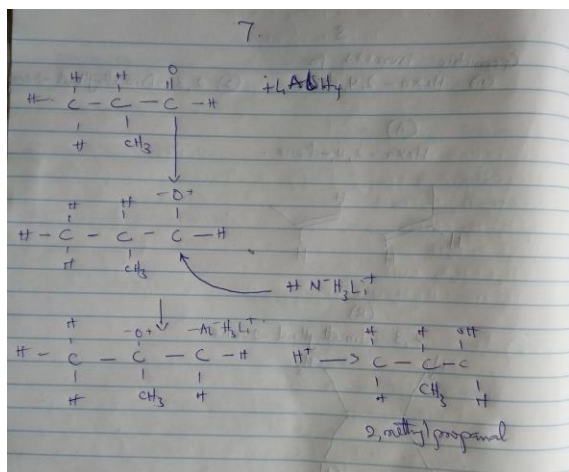
5. Show the reaction between 2-methyl propanone and butyl magnesium chloride Hint: Grignard synthesis. Note: show all structures

It is highly impossible, I have tried.

6. REDUCTION OF 2-METHYLPROPANONE



7. REDUCTION OF 2-METHYLPROPANAL



8. CONVERSION OF PROPAN-1-OL TO PROPAN-2-OL

