

B.Sc. Part I, Chemistry (Hons.)
Paper: 1C (Org. Chemistry)

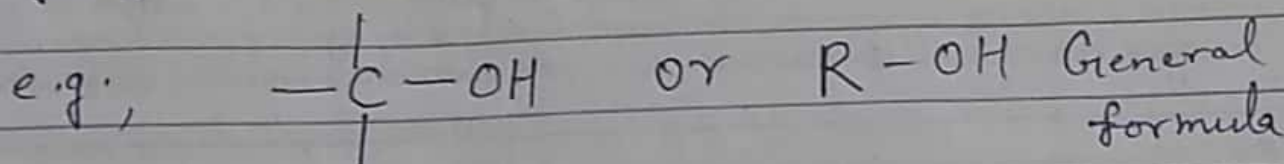
Gr. B.

1. Alcohol:

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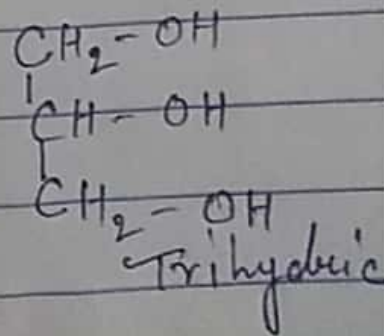
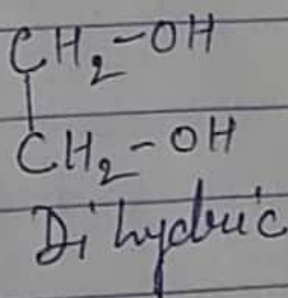
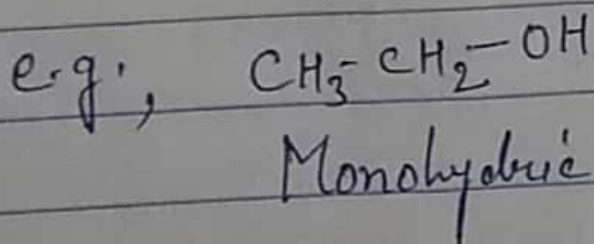
Introduction:

Alcohols are compounds in which a hydroxyl ($-OH$) group is attached to saturated carbon atom.



Alcohols containing one hydroxyl group are called Monohydric Alcohols.

Alcohols with two, three or more hydroxyl groups are known as Dihydric alcohols, Trihydric Alcohols and Polyhydric alcohols respectively.

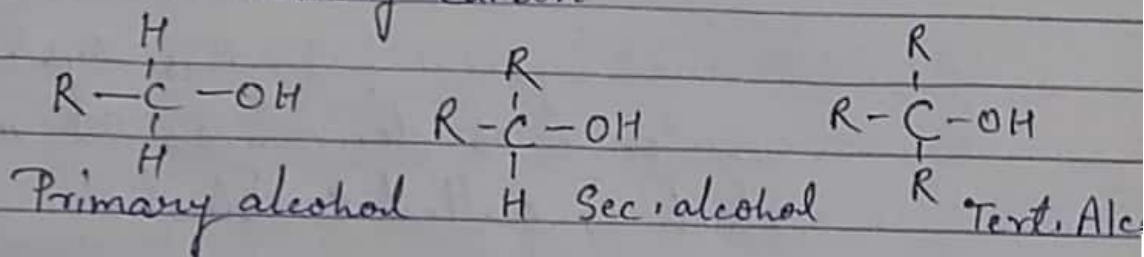


Monohydric Alcohols : Monohydric alcohols contain one $-OH$ group attached to a saturated carbon.

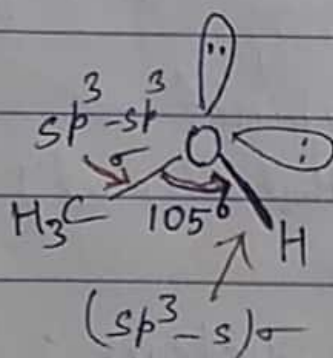
e.g., $R-OH$, carbon atom has sp^3 hybridization in alkyl group. Monohydric alcohols are isomers of ethers.

Classification of Monohydric alcohols :

It is classified as Primary (1°), Secondary (2°) Tertiary (3°), depending upon whether the $-OH$ group is attached to a Primary, a Secondary or a Tertiary carbon.



Structure :



Methyl alcohol :

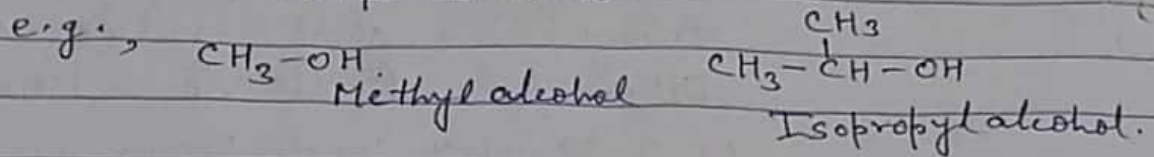
Both Carbon and Oxygen are sp^3 hybridized. The bond is formed by overlap of an sp^3 orbital of carbon and s orbital of hydrogen.

The bond angle C-O-H is 105° . It is less than the normal tetrahedral angle, because the two completely filled sp^3 orbitals of oxygen repel each other. This results in a reduction of the bond angle.

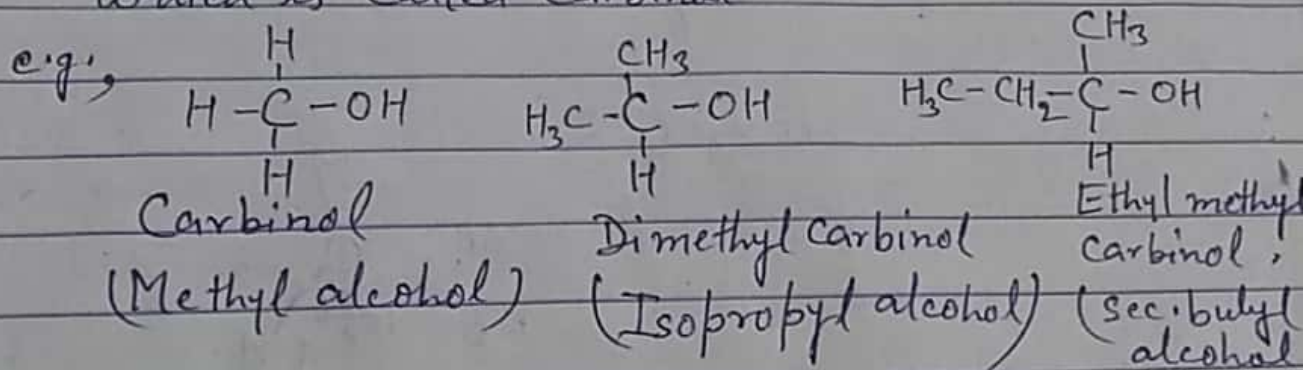
Nomenclature:

Alcohols are named by three systems:

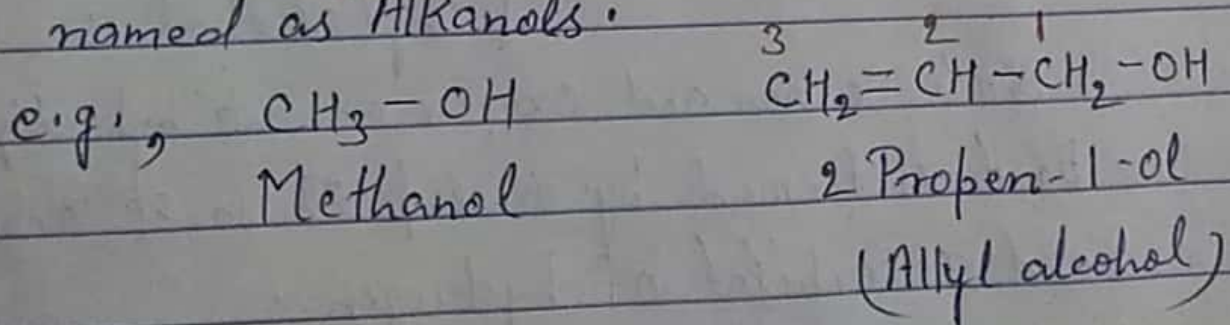
1. Common System: In this system alcohols are named as Alkyl alcohols.



2. Carbinol System: In this system alcohols are considered as derivatives of methyl alcohol which is called Carbinol.



3. IUPAC System: In this system alcohols are named as Alkanols.



To be continued