

ALCOHOLS PHENOLS AND ETHERS

28-07-2020

Lecture -1

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CHEMISTRY, CLASS-XII, UNIT-11

- * Hydroxy derivative of alkane is called Alcohol.
- * General formula of alcohol = $(C_nH_{2n+1})OH$
- * Alcohol :- Functional group :- $-OH$
- * When Hydrogen atom in aromatic hydrocarbon is replaced by $-OH$ group, then it is known as phenol.
- * The substitution of a hydrogen atom in a hydrocarbon by an alkoxy or aryloxy group ($R-O/Ar-O$) yields another class of compounds known as 'ethers'.

CLASSIFICATION OF ALCOHOL

On the basis of no. of hydroxyl group ($-OH$) alcohols are classified as :-

Monohydric Alcohol

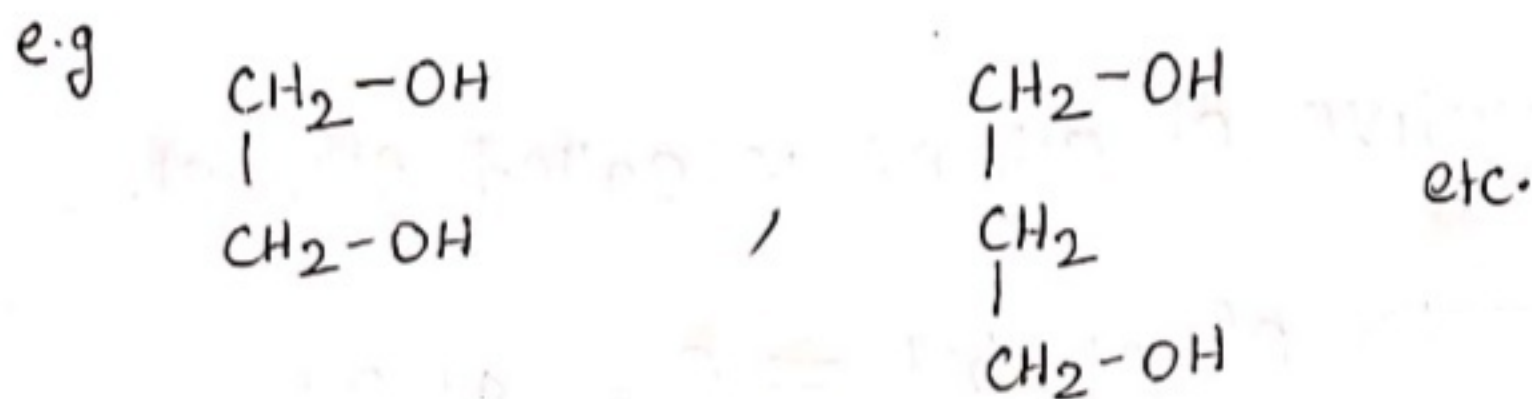
When only one $-OH$ group is present in compounds.

eg; CH_3OH , $\text{CH}_3\text{CH}_2\text{OH}$, $\text{CH}_3-\underset{\text{OH}}{\text{CH}}-\text{CH}_3$, etc.

2.

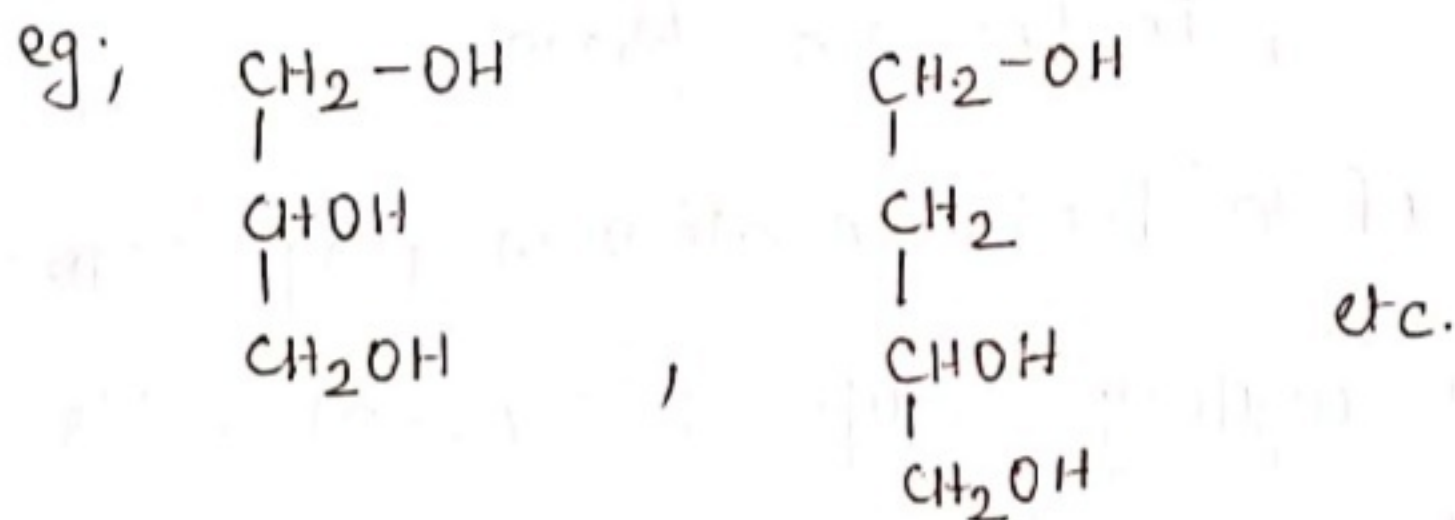
Dihydric Alcohol

When two (-OH) groups are present in compound.



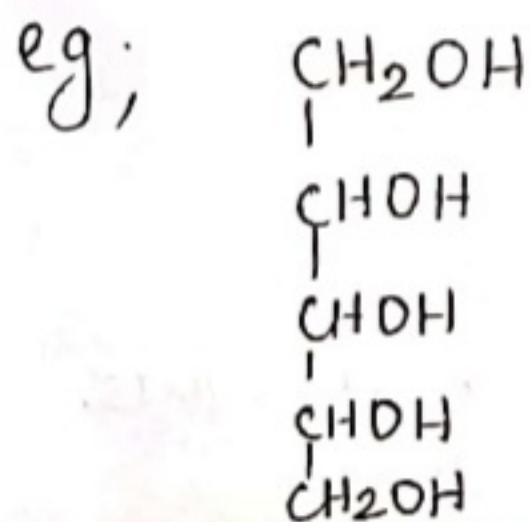
Trihydric Alcohol

When three hydroxyl group (-OH) are present in compounds.



Polyhydric Alcohol

When more than three hydroxyl group (-OH) are present in compound.



- * Monohydric alcohols may be further classified according to the hybridisation of the carbon atom to which the hydroxyl group is attached.

Compound containing C-OH bond sp³

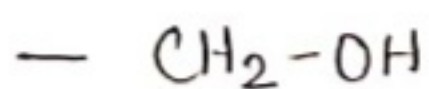
Alkyl alcohol

In this class of alcohols, the -OH group is attached to an sp³ hybridised carbon atom of an alkyl group.

- * Alkyl alcohol is further classified as follows: ---

Primary Alcohol

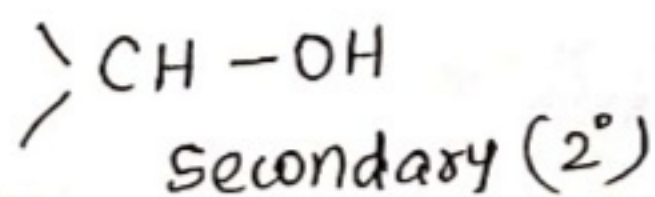
In this alcohol, the -OH group is attached to primary carbon atom.



Primary (1°)

Secondary Alcohol

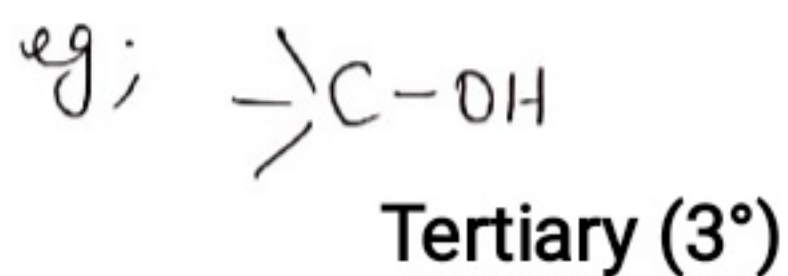
In this alcohol, the -OH group is attached to secondary carbon atom.



Secondary (2°)

Tertiary Alcohol

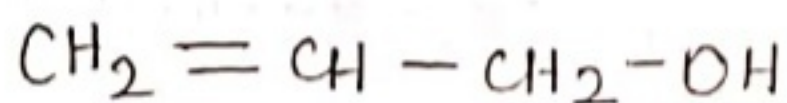
In this alcohol, the $-OH$ group is attached to tertiary carbon atom.



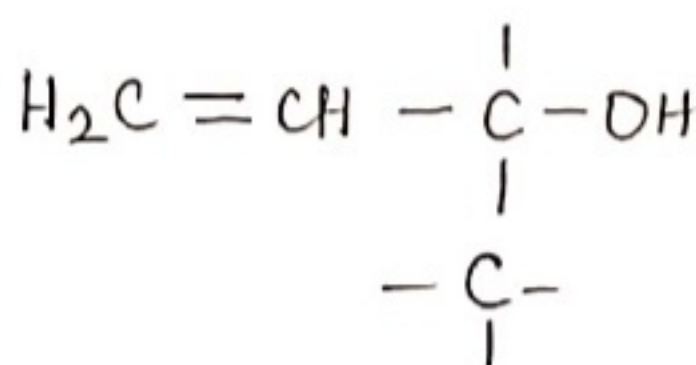
Allylic Alcohols

In these alcohols, the $-OH$ group is attached to a sp^3 hybridised carbon adjacent to the carbon-carbon double bond, that is to an allylic carbon.

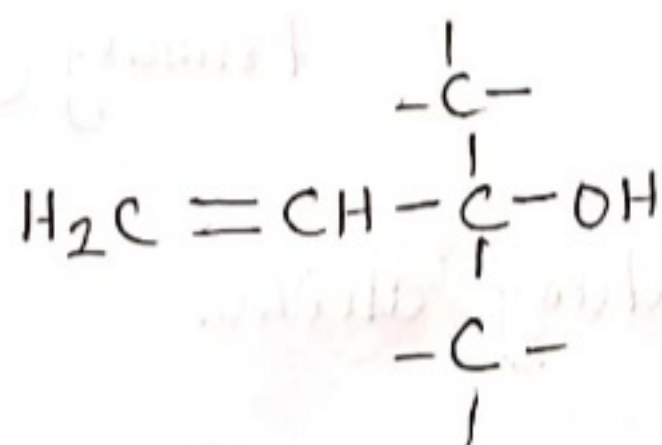
For example;



Primary (1°)



Secondary (2°)



Tertiary (3°)

To be continued in next lecture...