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Matric No: 1910415061014

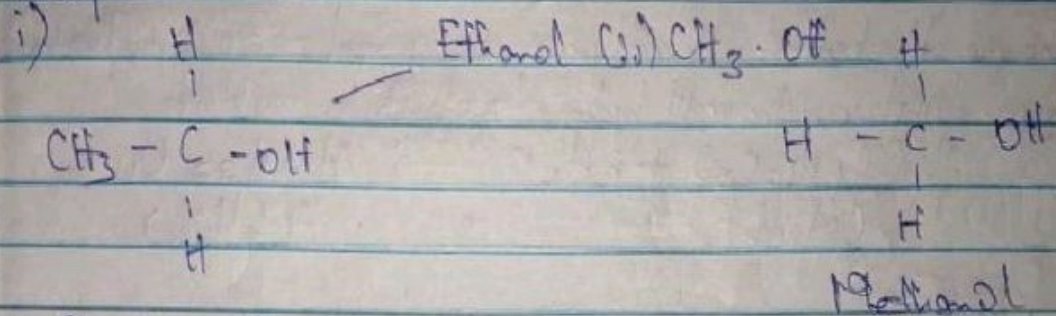
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### i) Primary Alcohol:

In a primary alcohol, the hydroxyl group is attached to a primary (terminal) carbon atom in the molecule.

It is characterized by  $-CH_2OH$ .

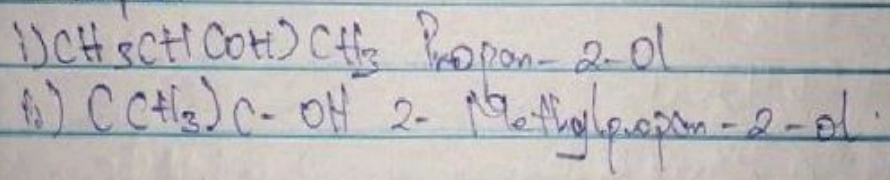
Examples



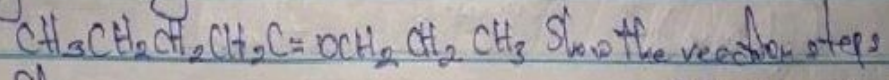
### b) Secondary Alcohol:

In a secondary alcohol the OH group is on a secondary carbon atom characterized by  $>COH$

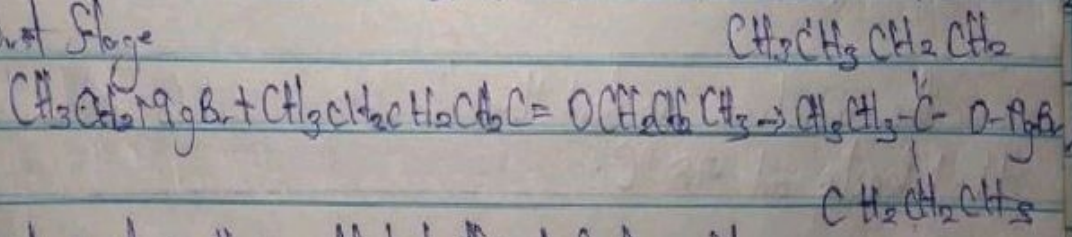
Examples:



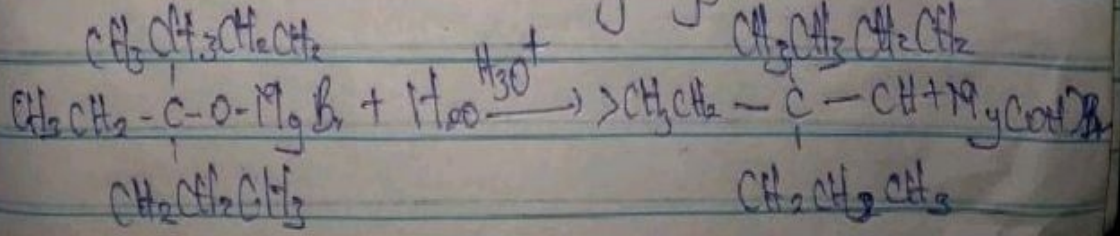
2) In the Grignard synthesis of Alcohols, react a normal Grignard reagent with



First Stage



Diacid acid is then added to this hydrolyze it -



## No 2 Continuation

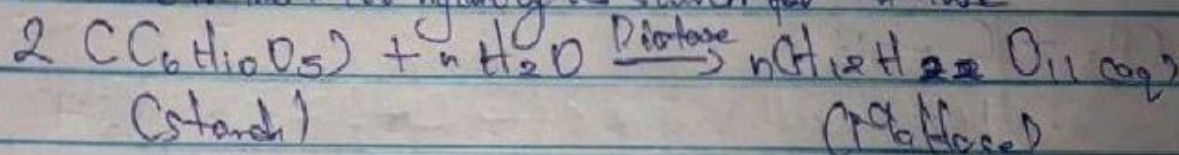
An alcohol is formed. The key use of this reagent is the ability to make complicated alcohols easily.

## No 3

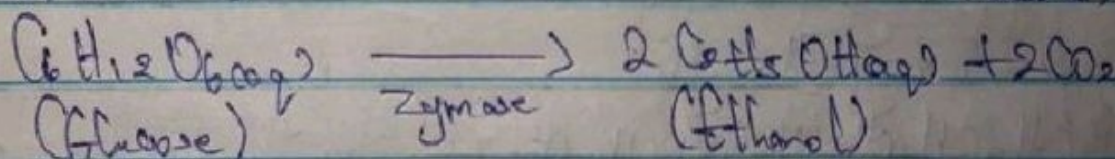
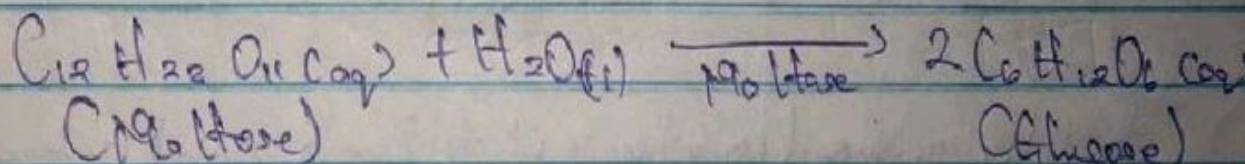
### 3) Industrial Preparation of Ethanol

a) The starch containing crop, such as cereals, is peeled, crushed and then heated at a pressure cooked to release with water to obtain a mash.

b) The mash is treated with malt, and warmed at  $50^{\circ}\text{C}$  for two hours. Enzyme diastase in the malt hydrolyses starch for maltose.



c) Yeast containing enzymes maltase and zymase is added to mixture and kept at room temperature (about  $29^{\circ}\text{C}$ ) for about three days. During this period, enzyme zymase ferments glucose to ethanol with the evolution of carbon dioxide. The reaction is exothermic.



The mixture is distilled to obtain 95% ethanol that boils at  $78^{\circ}\text{C}$ .

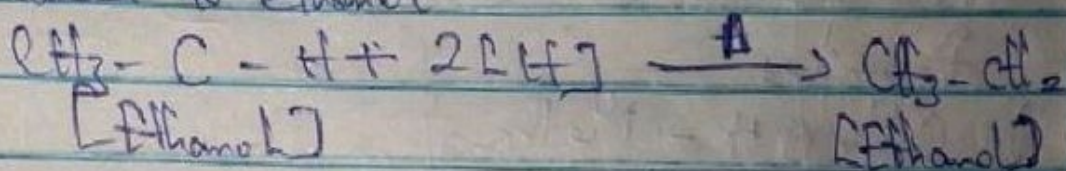
NO 4

4) Products obtained in the reduction of Alkanone and Alkanol

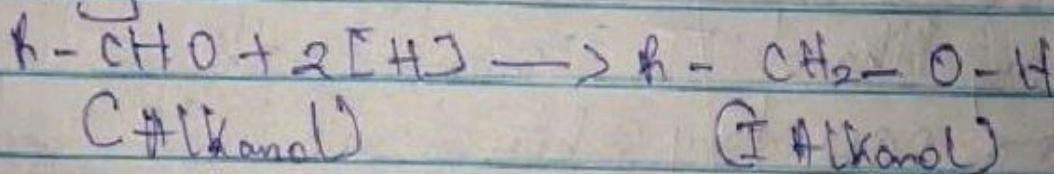
Ans

Alkanols are reduced to the corresponding primary alkanols by reducing agents such as lithium tetrahydridoaluminate ( $\text{LiAlH}_4$ ). The  $\text{LiAlH}_4$  provides the nascent hydrogen  $[\text{H}]$  which causes reduction.

a) Ethanal is reduced to ethanol



b) Generally



This reaction shows that alkanols are oxidizing agents.

Alkanones are reduced to the corresponding secondary alkanol.  $\text{LiAlH}_4$  reduced propanone  $\text{CH}_3\text{-CO-CH}_3 + 2[\text{H}] \longrightarrow \text{CH}_3\text{-CH(OH)-CH}_3$  to propan-2-ol. The reducing agent provides the nascent hydrogen atoms as  $[\text{H}]$ .