

Chemistry assignment

ABIDUN ROLAT INUMIDUN

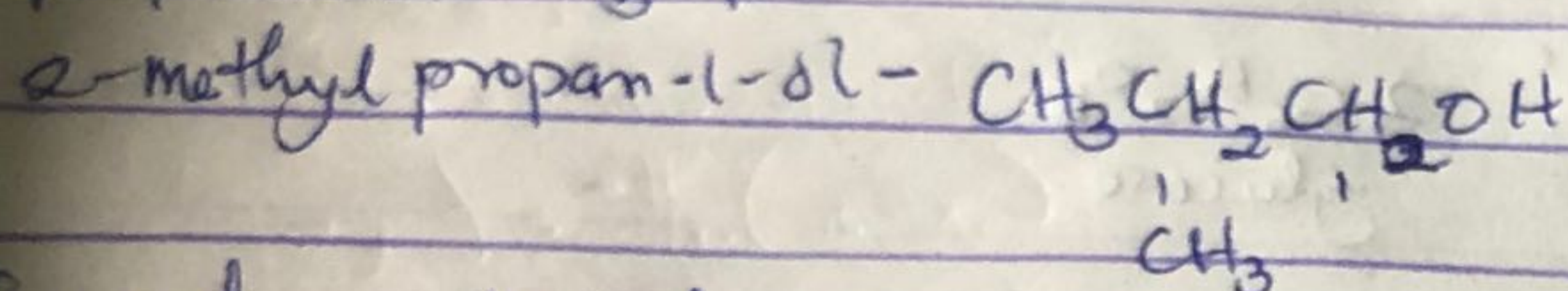
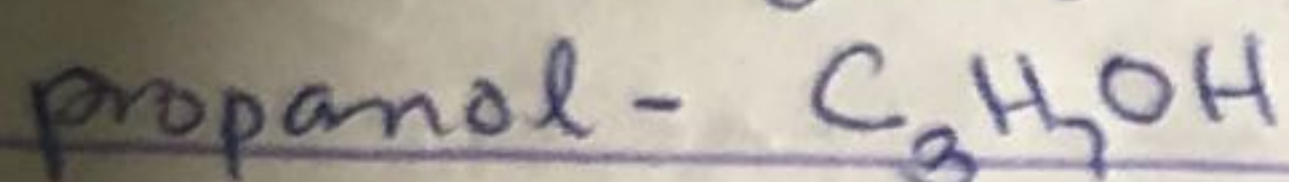
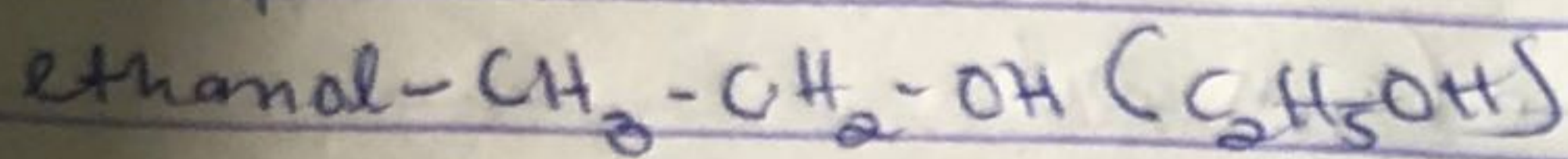
K MHS (MBS)

19/MHS01/009

1. Discuss the major classification of alkanols

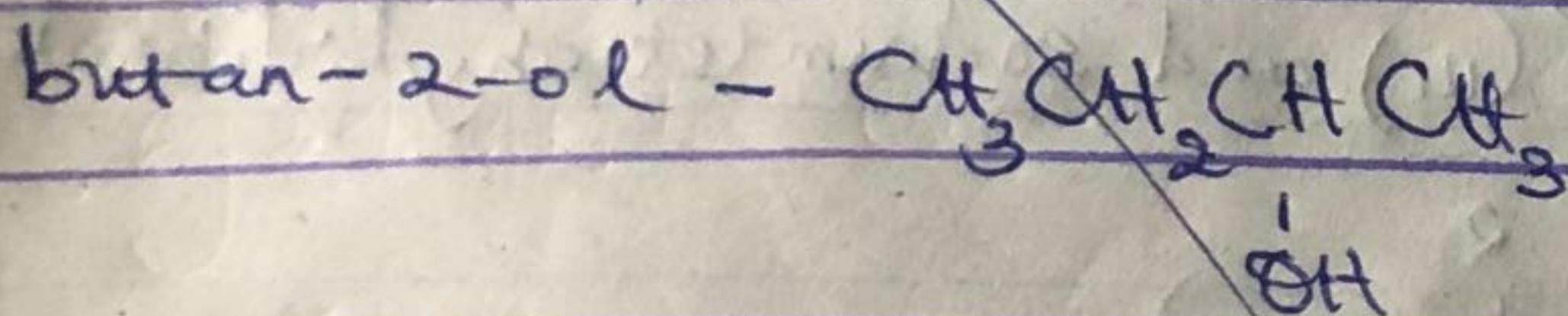
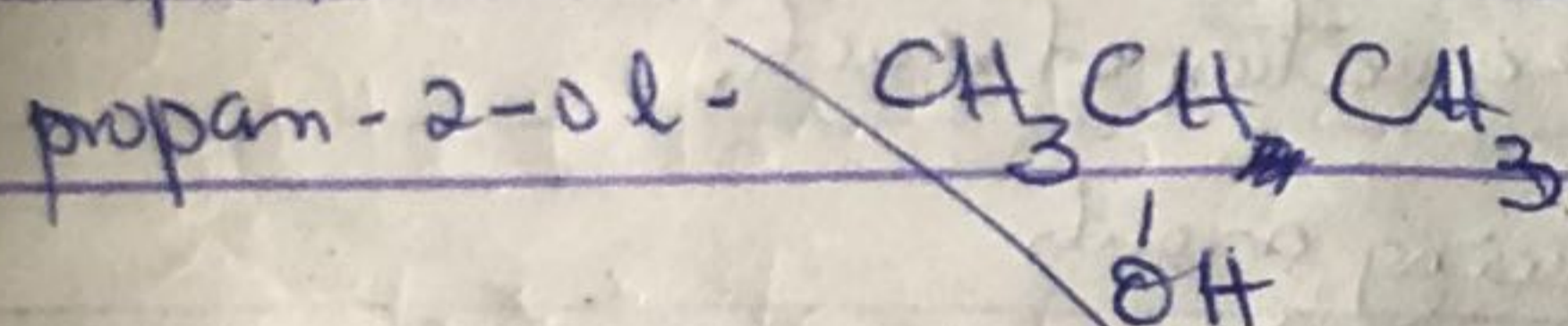
1) Primary alcohols - In a primary alcohol, the carbon which carries the -OH group is only attached to one alkyl group. In each case, there is only one linkage to an alkyl group from the CH_2 group holding the -OH group.

Examples



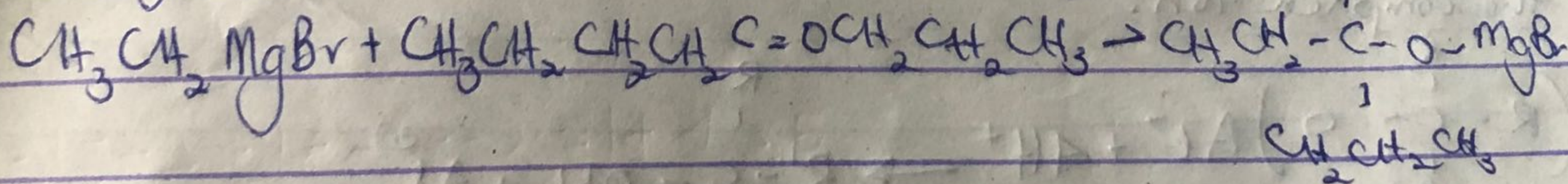
2) Secondary alcohols: The carbon atom with the -OH group attached is joined directly to two alkyl groups, which may be the same or different

Examples

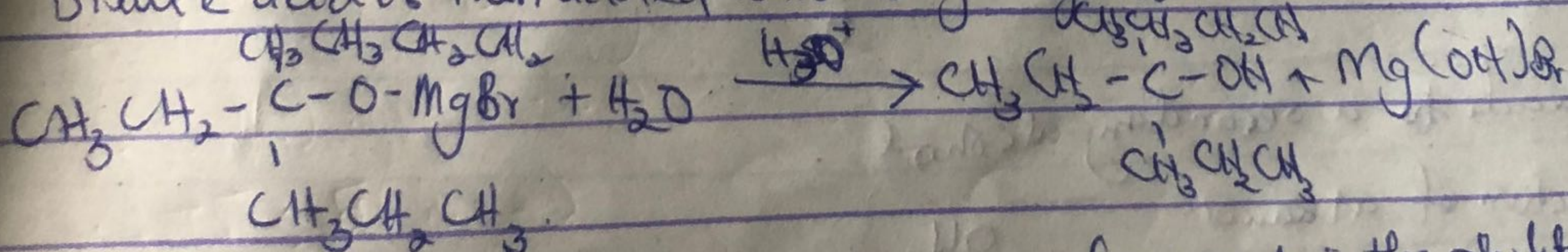


2) In the Gignard synthesis of alkanols, react a named gignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}=\text{OCH}_2\text{CH}_2\text{CH}_3$. Show the reaction steps

First stage



Dilute acid is then added to this to hydrolyse it.

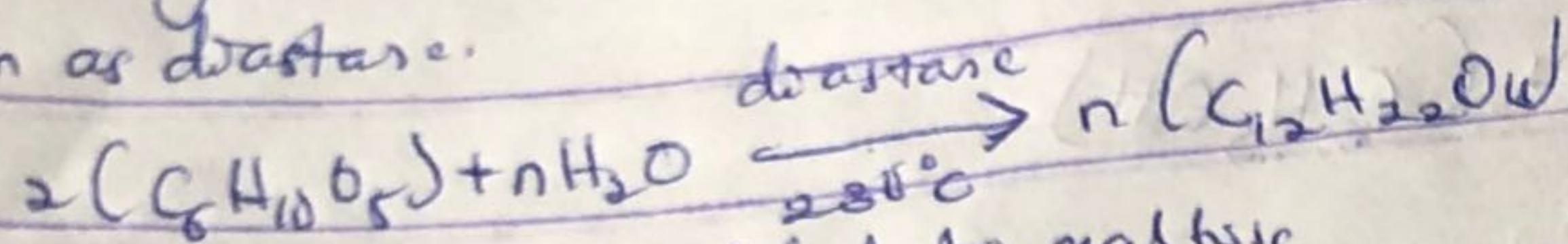


An alcohol is formed. The key use of gignard reagent is the ability to make complicated alcohols easily.

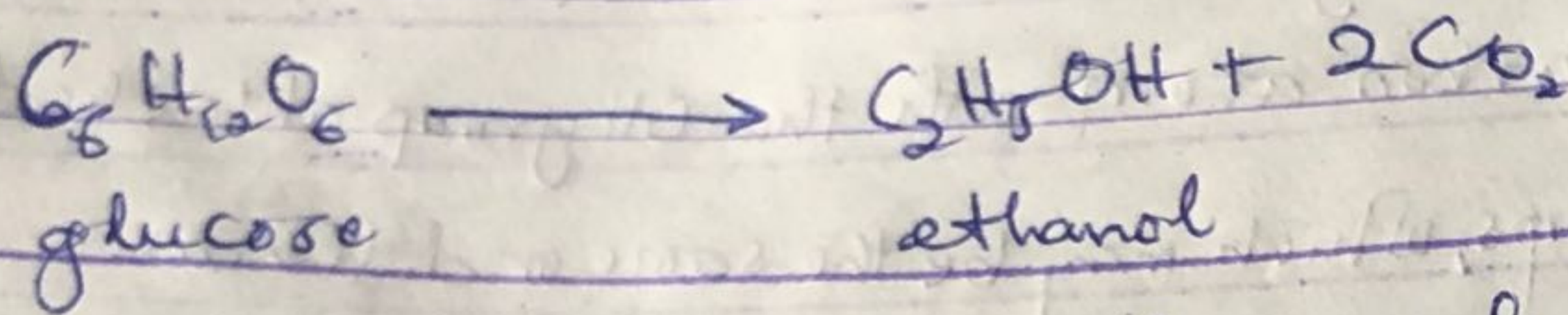
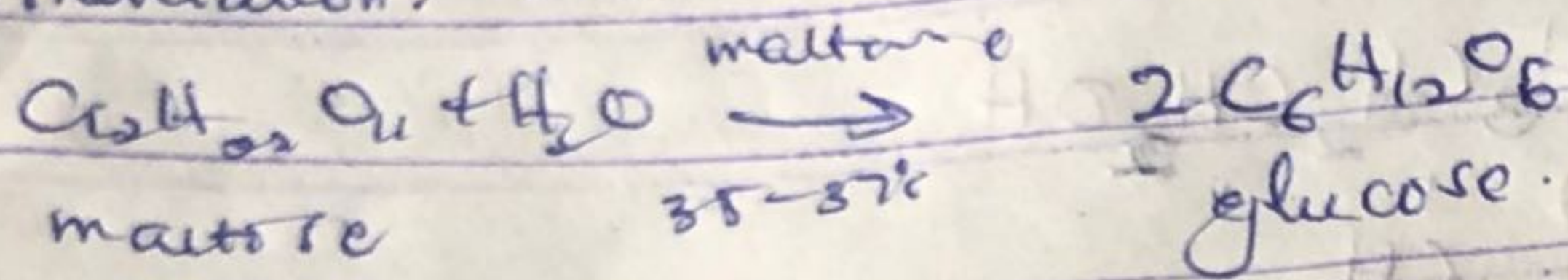
3) Industrial manufacture of ethanol showing all reactions equations and necessary enzymes and temperature of reaction.

1) The potato is crushed and steamed at $1400^{\circ}\text{C} - 1500^{\circ}\text{C}$ under pressure to prepare starch solution.

2) Hydrolysis of starch - starch is hydrolyzed to maltose by an enzyme known as diastase.



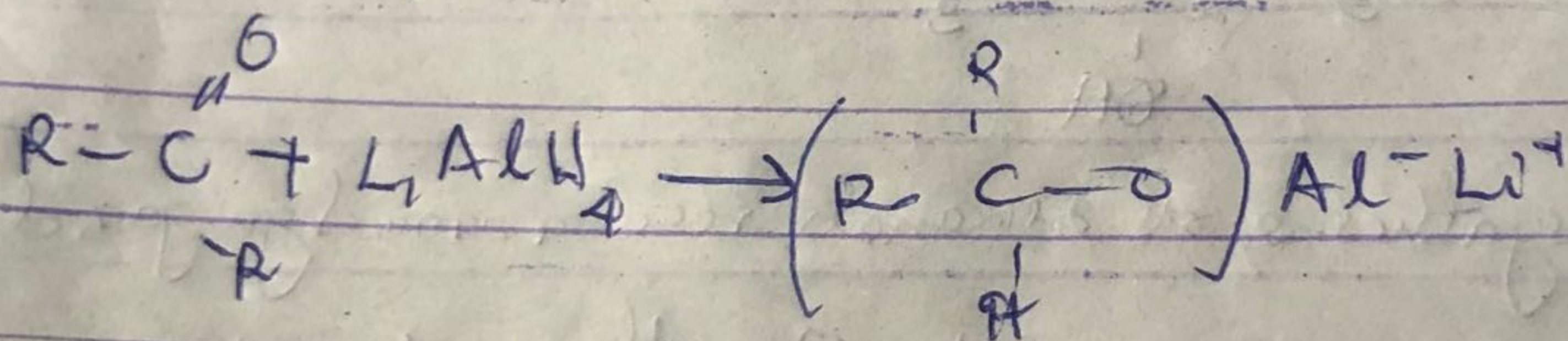
3) Fermentation: Yeast is added to maltose



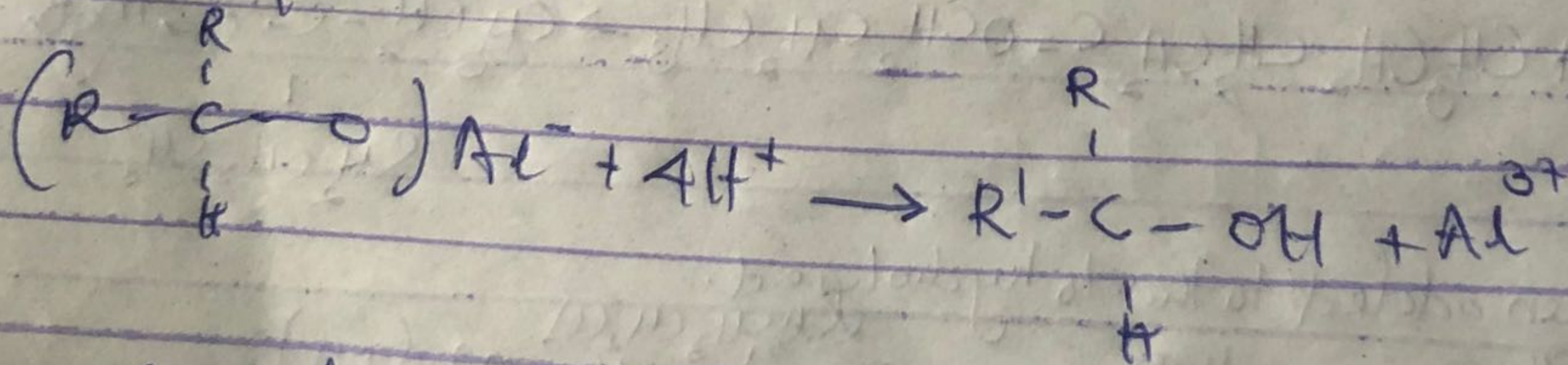
4) The product obtained in the reduction of alkanone and alkanal. Use specific example for each and show the equation of reaction.

Reduction of alkanone by using reducing agents.

- Lithium tetrahydridoaluminate (LiAlH_4) and sodium tetrahydridoborate (NaBH_4)

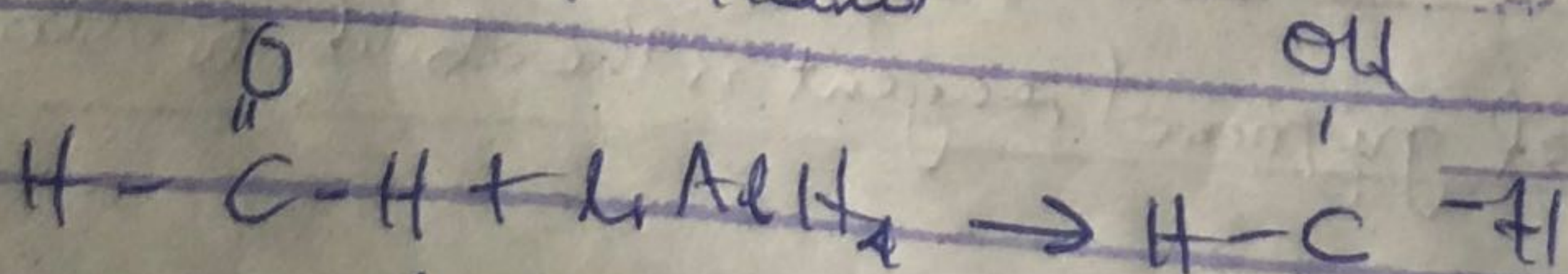


The product is then treated with dilute HCl to release the alcohol from the complex ion.



which leads to a secondary alcohol

Reduction of alkanal



which leads to give primary alcohol