

1. Discuss the two major classification of Alkanols

Give two examples of each class

a) Monohydric alkanols.

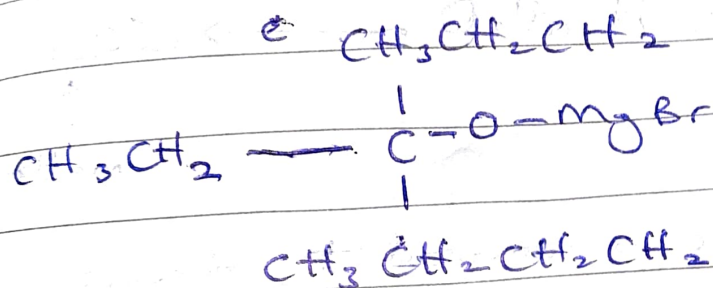
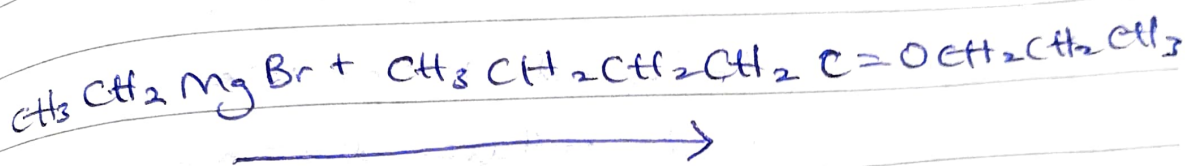
This is an alcohol with only one alcohol functional group. Monohydric alkanols are sometimes called alkyl alkanols due to the presence of the alkyl group present in them. ~~The~~ Example is Ethanol ($\text{C}_2\text{H}_5\text{OH}$).

b) Polyhydric alkanol.

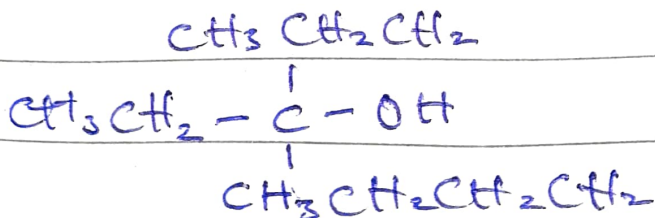
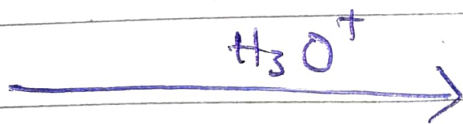
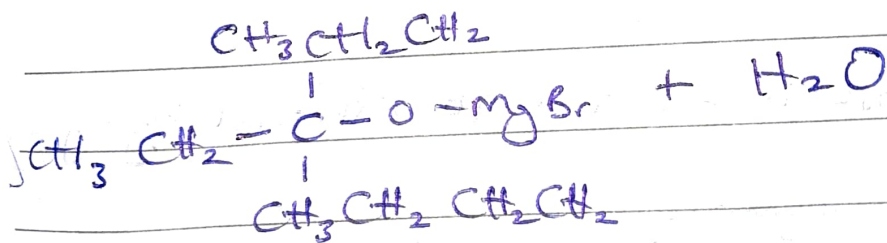
These are alkanols with more than 1 hydroxy ($-\text{OH}$) group in them. A compound alkanol having two hydroxyl ~~group~~ groups is a dihydric alkanol, when it has three it is a trihydric alkanol e.g Ethane-1,2 diol ($\text{C}_2\text{H}_4\text{OH}_2$).

2 In the Grignard synthesis of alkanols
 react a named Grignard 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.

Ans! Since a Grignard reagent has a formula
 RMgX where X is a halogen.



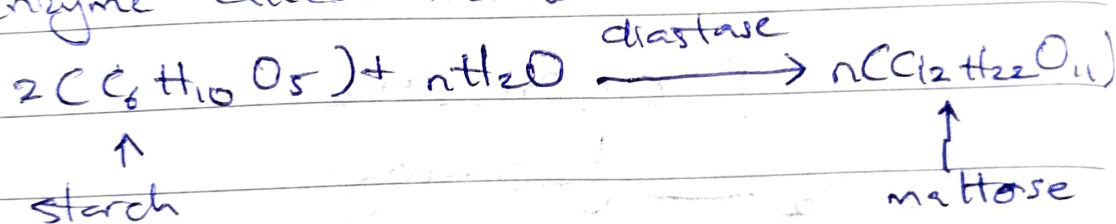
Dilute acid is added to hydrolyze it.



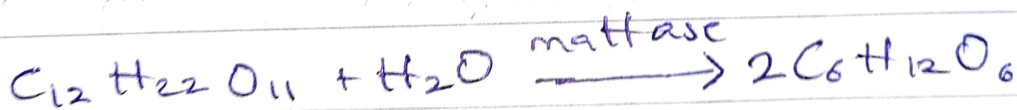
3. Discuss the industrial manufacture of ethanol showing all reaction equations and necessary enzymes and temperature of reaction.

Starch is utilized in the preparation of ethanol industrially. Starch is extracted from the starch-rich food like potato.

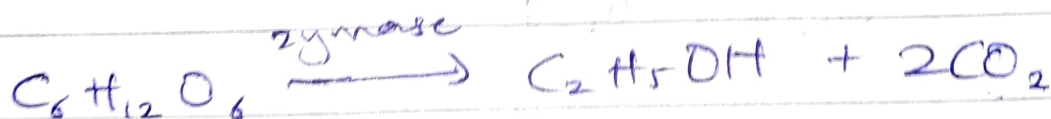
Starch is hydrolysed to maltose by an enzyme called maltase. diastase.



The maltose is converted to glucose by maltase.



The glucose is converted to ethanol by zymase

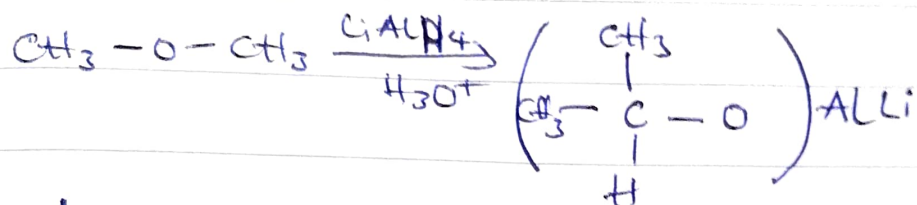


4. Determine the product obtained in reduction of Alkanone and Alkanal.

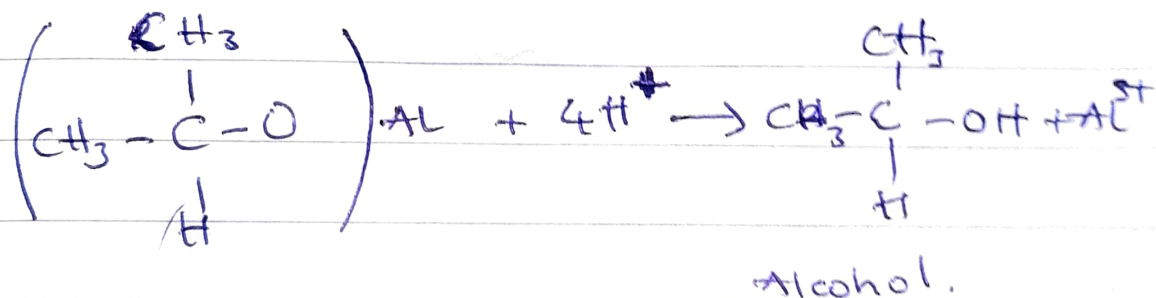
Use specific example each and show equation of reaction.

Alkanone.

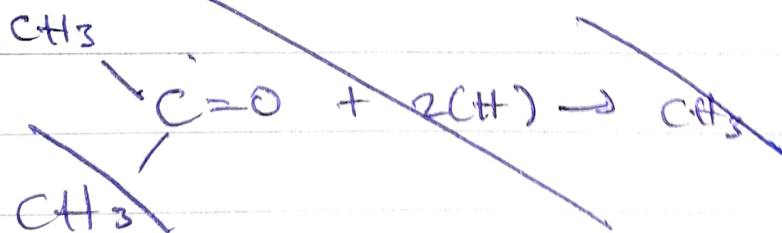
Reduction of Acetone.

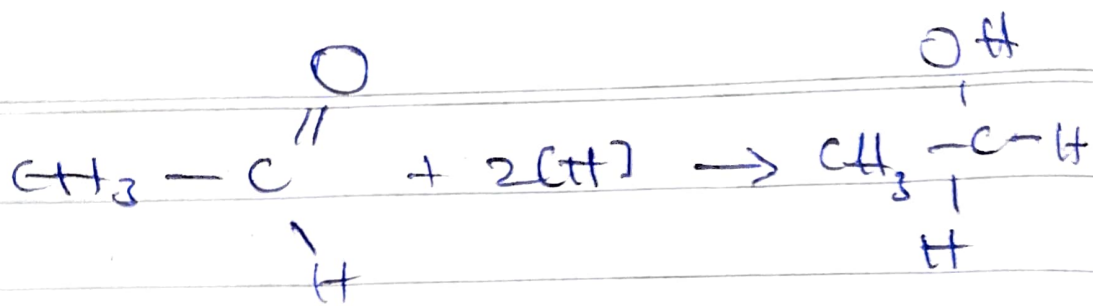


It is then treated with dilute acid.



~~Alkanal~~





ethanal

ethanol