

Lecture...

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### Assignment

1. Discuss two major classification of alcohols. Give two examples each for each class.

Ans:

i. This is based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the number of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two, it is called a primary alcohol ( $1^\circ$ ). If it is one hydrogen atom it is called secondary alcohol ( $2^\circ$ ) and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is called a tertiary alcohol ( $3^\circ$ ). Examples are - methanol ethanol

ii. This is based on the number of hydroxyl groups they possess. Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohols are also called Glycols have two hydroxyl groups present in the alcohol structure. Trihydric alcohols or triols have three hydroxyl groups present in the structure of the alcohol. Polyhydric alcohols or polyols have more than three hydroxyl groups. Examples - Propanol, ethane-1,2-diol.

e. In the enyne reaction of alkenes react a terminal enyne reagent with  $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{C}(\text{O})\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2$ . Show the mechanism steps.



$\text{H}^+ \text{OH}^-$

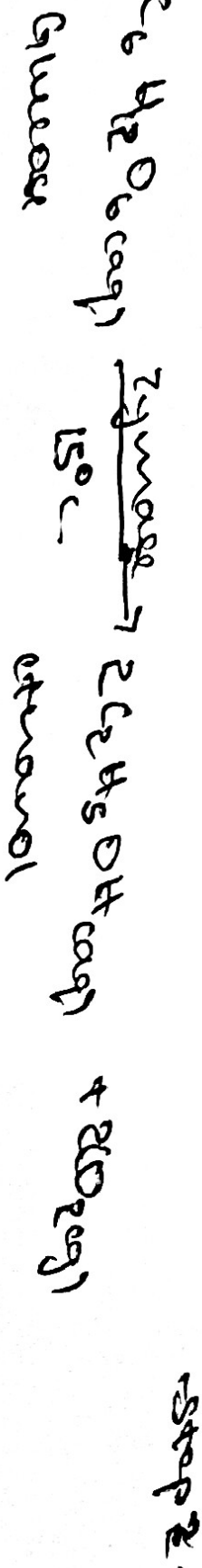
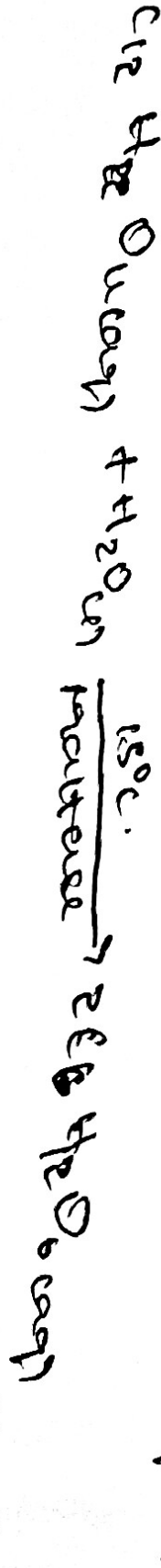
5-propyl Octan-5-ol

Hydroxyl  
Magnesium  
Bromide

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

Production of ethanol.

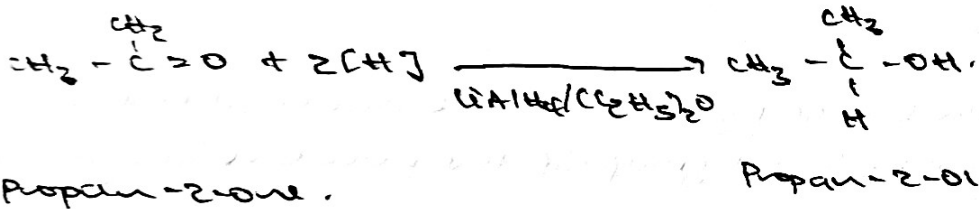
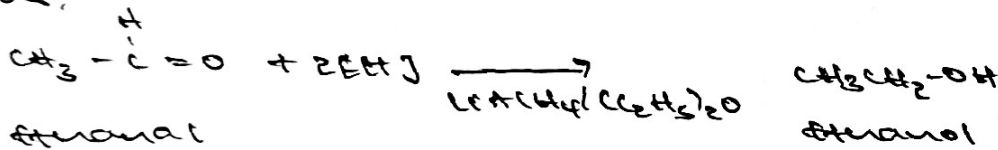
Carbohydrates such as starch are major group of natural compounds to yield ethanol by the biological process of fermentation. The biological molecules into ethanol to give a yield of 95%. The starch containing materials include molasses (potatoes, cereals etc), and on remaining water must to 60% for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.



This reaction is called fermentation reaction.

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

Ans:



Propan-2-one.