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ifeanyi

Chemistry assignment

04/2020

CHEMISTRY 102 ASSIGNMENT

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DEPARTMENT:

DENTISTRY

STUDENT NO:

19/MH/509/1017

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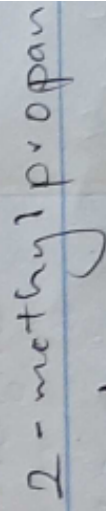
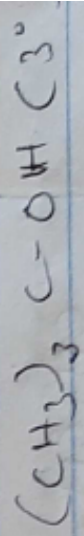
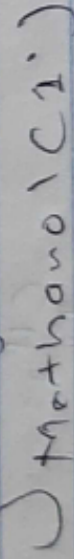
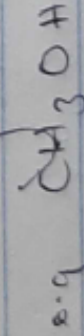
Discuss the major classifications of Alkanols
Give two examples each for each class.

Answer:

Based on the number of hydrogen atoms attached to the carbon atoms of the hydroxyl group. If three or two hydrogen atoms, it is called a primary (1°) alcohol,

If one of hydrogen atom, it is called a secondary (2°) alcohol, and

If zero/no hydrogen atom, it is called a tertiary (3°) alcohol.



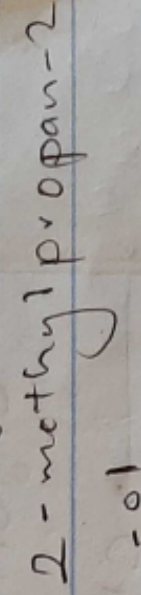
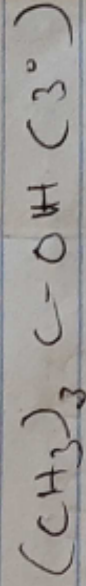
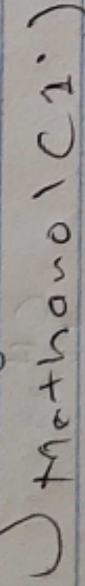
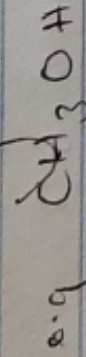
Based on the number of hydroxyl groups they possess.

If one hydroxyl group, it is called a monohydric alcohol.

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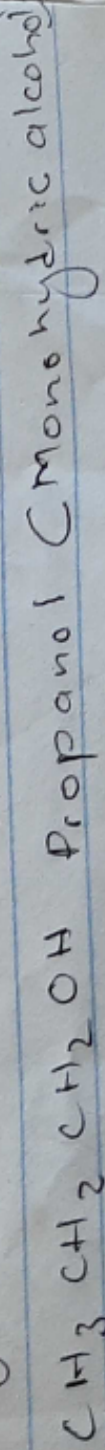
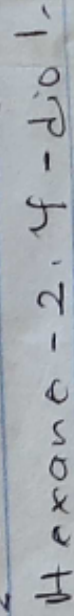
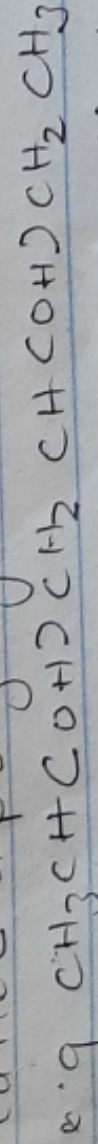
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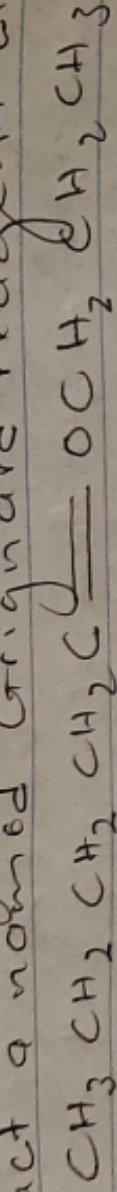
If two hydroxyl groups, it is called a Dihydric alcohol (Glycol)

If three hydroxyl groups, it is called a trihydric alcohol (triol) and

If more than three hydroxyl groups, it is called a polyhydric alcohol (polyol).



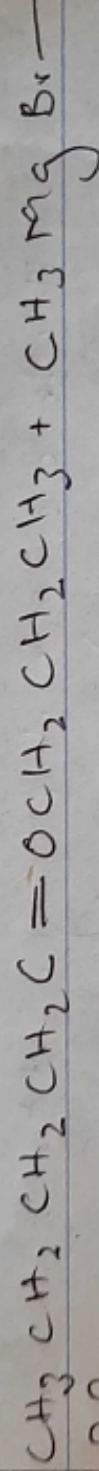
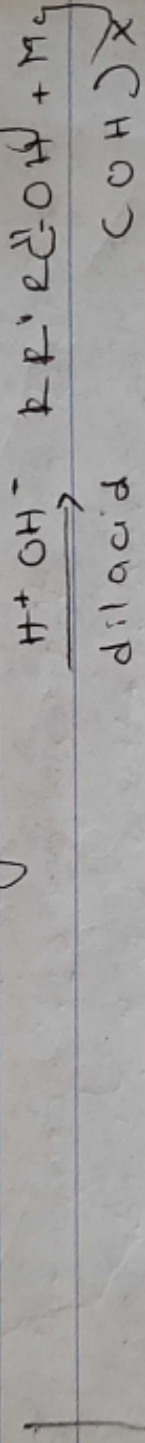
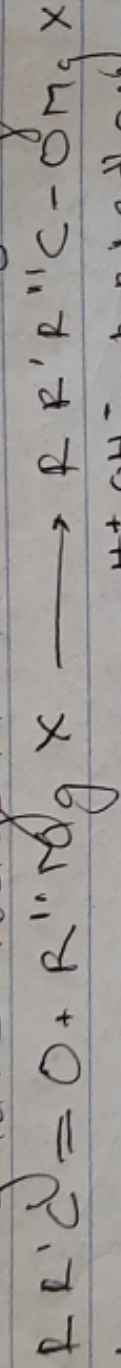
2 In the Grignard synthesis of alcohols, react a named Grignard reagent with



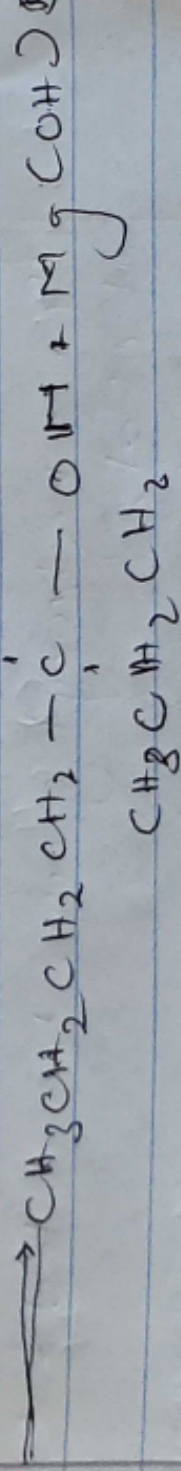
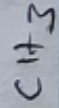
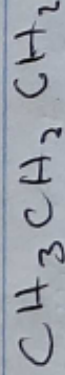
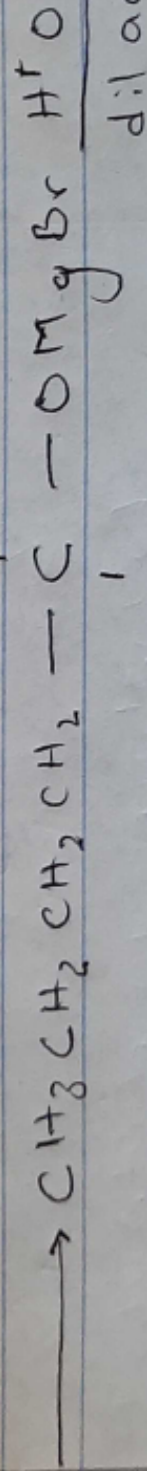
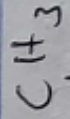
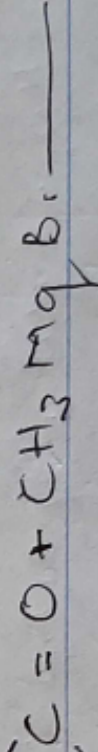
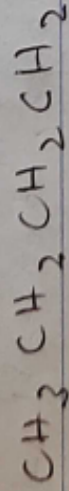
Show the reaction steps

Ans!

Grignard reagent in use: CH_3MgBr



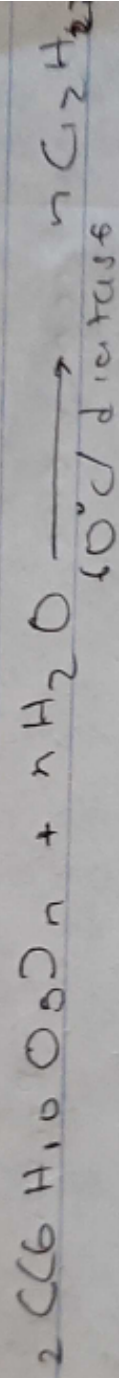
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3 Discuss the industrial manufacture of ethanol, showing all reaction equations and necessary enzymes and temperature of reaction.

Answer:

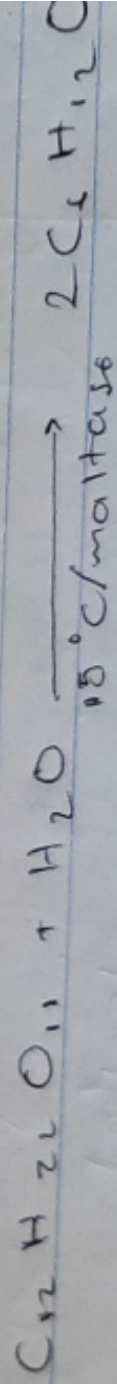
Firstly, carbohydrates such as starch containing materials, on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme diastase contained in malt.



Carbohydrate

Maltose

Secondly, maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C.



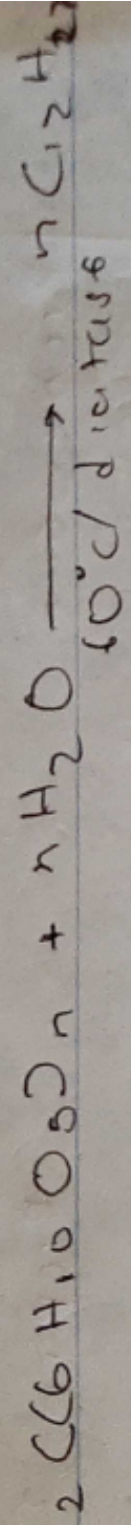
Glucose

Lastly, at a constant temperature of 18°C glucose is then converted in alcohol by the enzyme zymase contained as follows by yeast.



Answer:

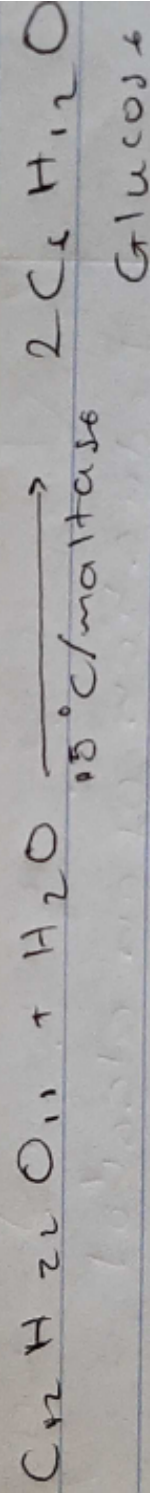
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Carbohydrate

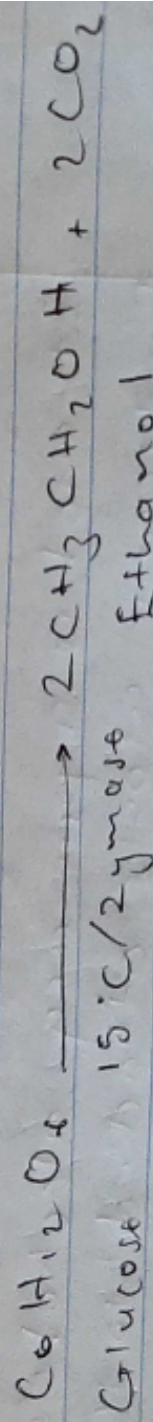
Maltose

Secondly, maltose is broken down into glucose on addition of yeast which contains the enzyme maltase and at a temperature of 15°C.



Glucose

Lastly, at a constant temperature of 18°C glucose is then converted in alcohol by the enzyme zymase contained as follows in yeast.



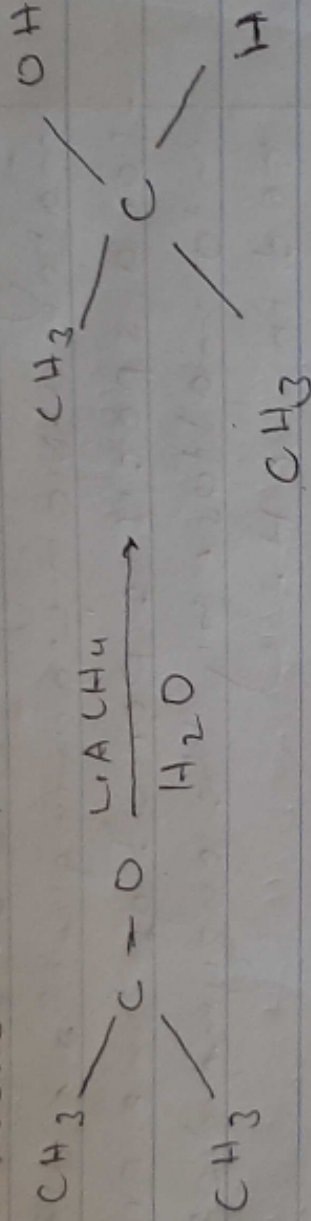
Glucose

Ethanol

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

Answer

Reduction of an Alkanone

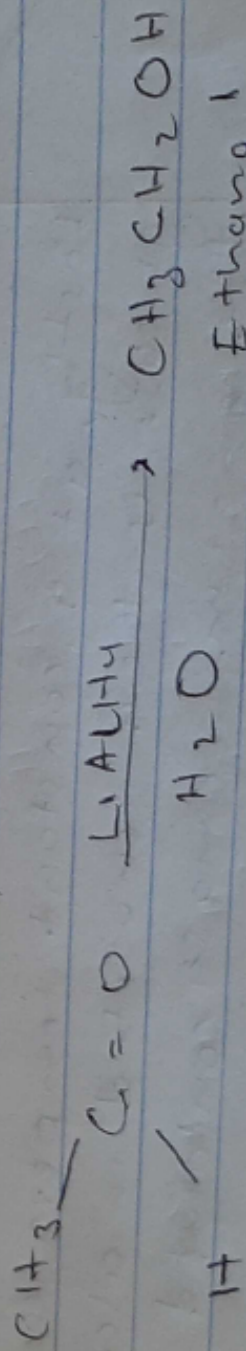


Propanone

Propan-2-ol

Propan-2-ol is a secondary alcohol as it only has only one hydrogen atom attached to the carbon atom of the hydroxyl group. Hence, when alkanones are reduced, they produce secondary alcohols.

Reduction of an alcohol



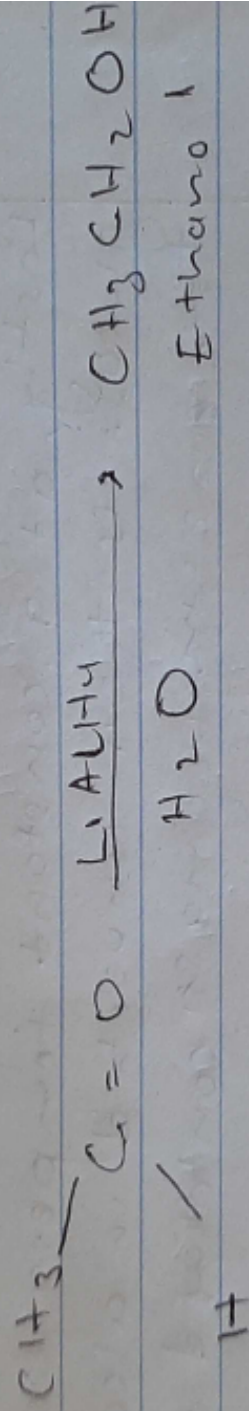
Ethanol is a primary alcohol as it has two hydrogen atoms attached to the carbon atom.

Propanone

Propan-2-ol

Propan-2-ol is a secondary alcohol as it has only one hydrogen atom attached to the carbon atom of the hydroxyl group. Hence, when alkanones are reduced they produce secondary alcohols.

Reduction of an alcohol



Ethanol is a primary alcohol as it has two hydrogen atoms attached to the carbon atom of the hydroxyl group. Hence, when alkanones are reduced, they produce primary alcohols.