

NATASH ODEWALE DEBORAH AYODELE

DEPARTMENT: M. B. B. S.

Roll No: 19/CMB/01/977

ASSIGNMENT TITLE: Assignment

COURSE TITLE: GENERAL CHEMISTRY II

COURSE CODE: CHM 102

QUESTION

1) Discuss the two major classification of Alkanols. Give two examples each for each class.

Answer

i) CLASSIFICATION BASED ON THE NUMBER OF HYDROGEN ATOMS

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°). If it is one hydrogen atom, it is called a secondary alcohol (2°) and if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group, it is called a tertiary alcohol (3°).

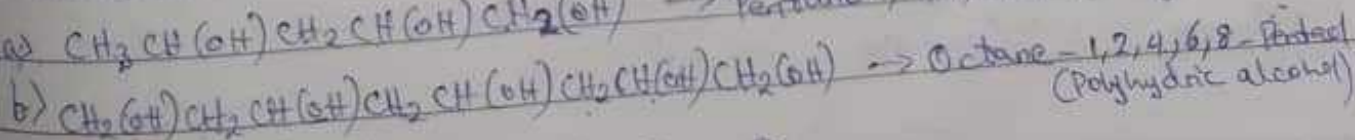
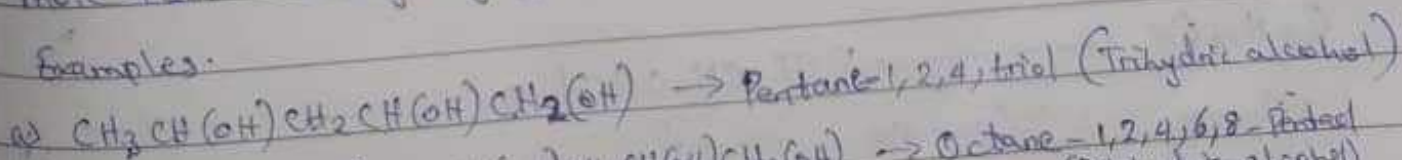
Examples:



ii) CLASSIFICATION BASED ON THE NUMBER OF HYDROXYL GROUPS THEY POSSESS

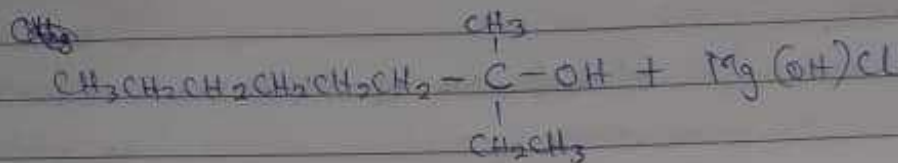
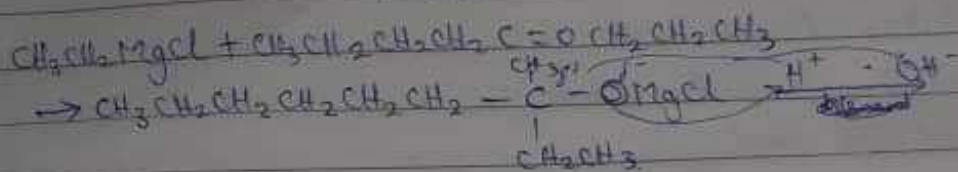
This is based on the number of hydroxyl groups they possess. Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohols are also called Glycols, they have two hydroxyl groups present in their alcohol structure while trihydric alcohols or triols have three hydroxyl groups present in the structure of their alcohol. Polyhydric alcohols or polyols have more than three hydroxyl groups.

Examples:



② In the Grignard synthesis of Alcohols, 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.

Answer



3 methyl. nonan-3-ol.

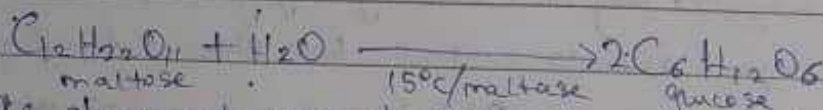
③ Discuss the industrial manufacture of ethanol showing all reaction equations and necessary enzymes, and temperature of reaction.

Answer

Carbohydrates such as starch are major group of natural compounds that can be made to yield ethanol by the biological process of fermentation. The biological catalysts, enzymes found in yeast break down the carbohydrate molecules into ethanol to give a yield of 95%. The starch containing materials include molasses, potatoes, cereals, rice and on warming with malt to 60°C for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.



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



The glucose at constant temperature of 15°C is then converted into alcohol by the enzyme zymase contained also in yeast.

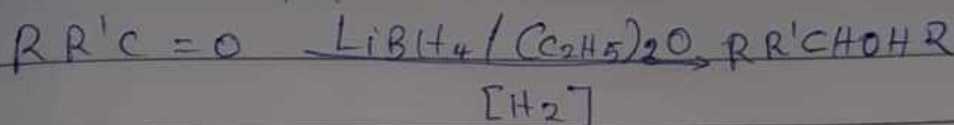


Glucose Ethanol

Q4) Determine the product obtained in the reduction of Alkane and Alkanal. Use a specific example for each and show the equation of reaction.

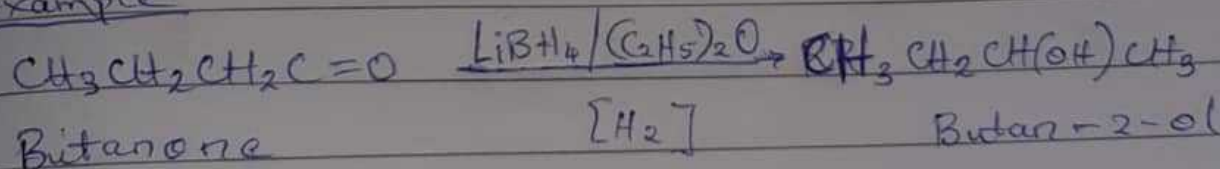
Answer

i) Reduction of Alkane

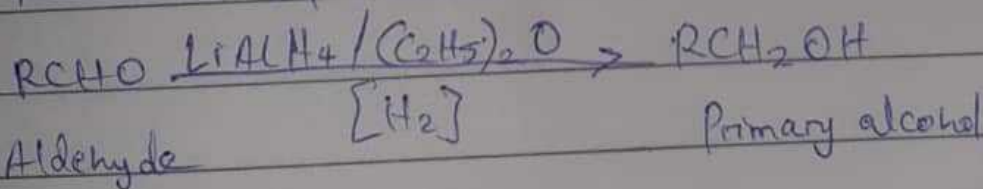


or

Example



ii) Reduction of Alkanal



Example

