

Adarsha Kameshwar Adyants

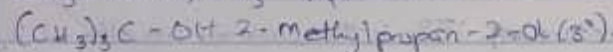
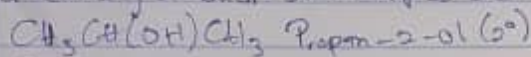
19/MHS 11/006

Chem 102

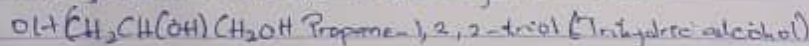
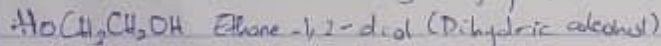
Pharmacy

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

a) The classification based on the number of hydrogen atoms attached to the carbon atom containing the OH functional group. If the number of hydrogen atoms attached to the carbon atom bearing the OH group is two, it is called primary alcohol ( $1^\circ$ ). If it is one hydrogen atom, it is called a secondary alcohol ( $2^\circ$ ) and if no hydrogen atom is attached to the carbon atom bearing the OH group, it is called a tertiary alcohol ( $3^\circ$ ). Examples are:

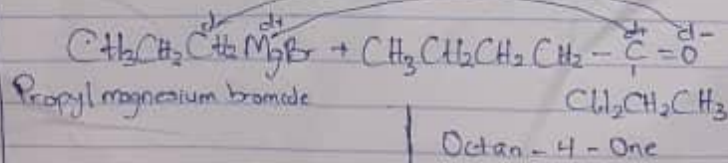


b) Classification based on the number of OH functional group present in the structure of the alcohol. Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric alcohols have two hydroxyl groups present in the alcohol structure. Trihydric alcohols have three hydroxyl groups present in the alcohol structure. Polyhydric alcohols have more than three hydroxyl groups. Examples are:

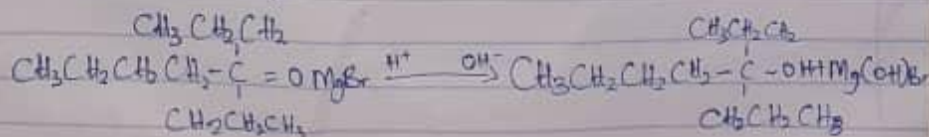


2) In the Grignard synthesis of Alcohols, react a named Grignard reagent with  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}-\text{OH} \text{CH}_2\text{CH}_3$ . Show the reaction steps.

Let Grignard reagent be:  $\text{CH}_3\text{CH}_2\text{CH}_2\text{MgBr}$  (Propyl magnesium bromide)



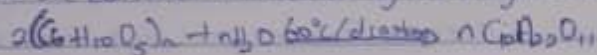
↓  
Octan-4-one



5) Discuss the industrial manufacture of ethanol showing all reaction equation and necessary enzymes and temperature of reaction

### STEP I

The 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 the malt.

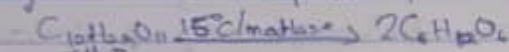


Carbohydrate

Maltose

### STEP II

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

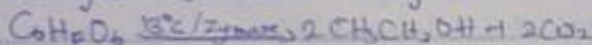


Maltose

Glucose

### STEP III

The glucose at constant temperature of 15°C is then converted into ethanol by the enzyme Zymase. Contains also in yeast.



Glucose

Ethanol

4)