

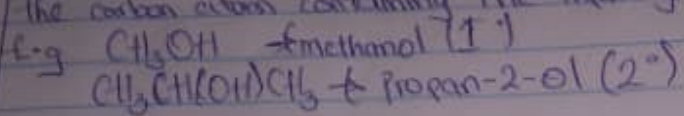
MATTHEW - CHIMBEZIE OMMANICHI VALLA

19/MILSO/241

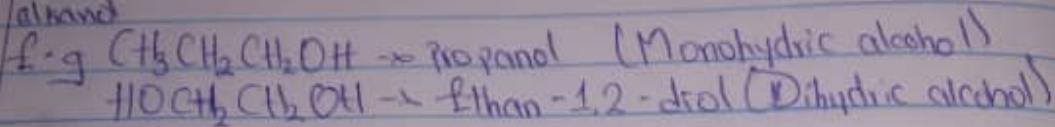
CHM 102 quarantine assignment.

1) Discuss the two major classifications of alcohols - Give two examples each for each class.

a) Classification based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group

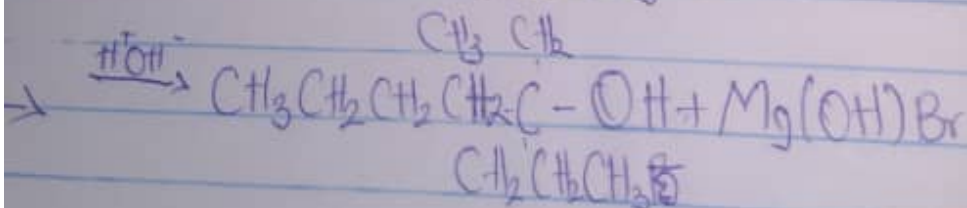
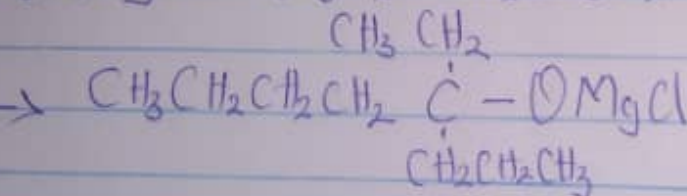
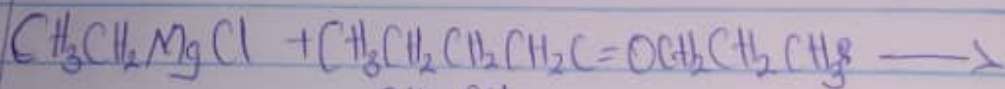


b) Classification based on the number of hydroxyl groups present in the alcohol



2) In the Grignard synthesis of alcohols, react a named Grignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}=\text{OCH}_2\text{CH}_2\text{CH}_3$.

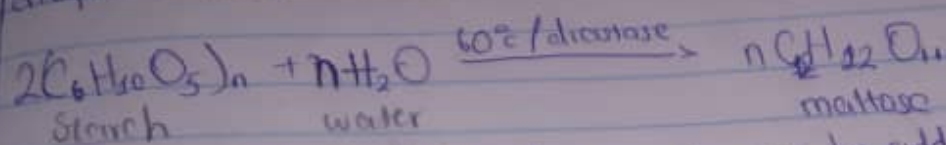
Grignard reagent = $\text{CH}_3\text{CH}_2\text{MgCl}$ (ethyl magnesium chloride)



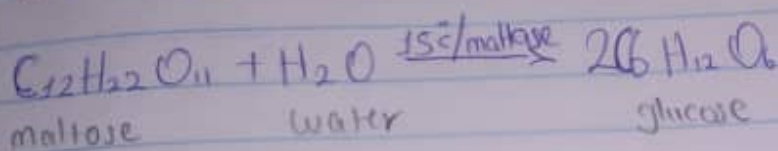
Describe the industrial manufacture of ethanol showing all reactions, equations and necessary original and temperature of reaction.

Starch are a major group of naturally occurring compounds that yield ethanol on fermentation. The biological catalysts break down the carbohydrate into ethanol to give 95% yield.

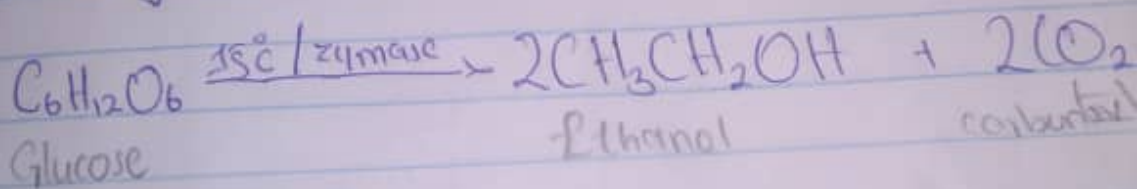
Starch containing materials like cereal are warmed with malt to 60°C for a specific period of time. It is then converted to maltose by the enzyme diastase contained in malt.



The maltose is then broken down to glucose by adding yeast which contains enzyme maltase. It is done at a temperature of 15°C.



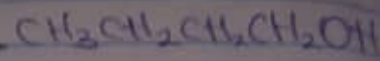
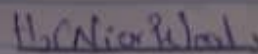
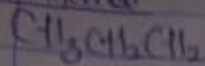
Glucose is then converted to alcohol at a constant temperature of 15°C by an enzyme called zymase which is contained in yeast.



Determine the product obtained in the reduction of alkenols and alkanols. Use a specific example for each and show the equation of reaction.

Using Markovnikov's reaction

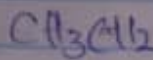
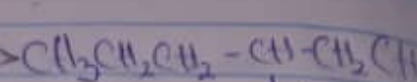
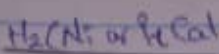
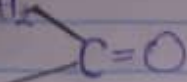
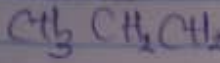
Alkylal



Butanal

Butanol

Alkylone



hexan-3-one

hexan-3-ol