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COURSE: CHM 102

MATRIC No: 19/ENGE07/019

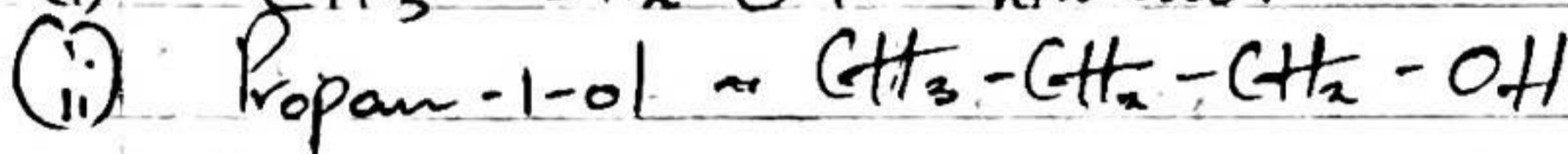
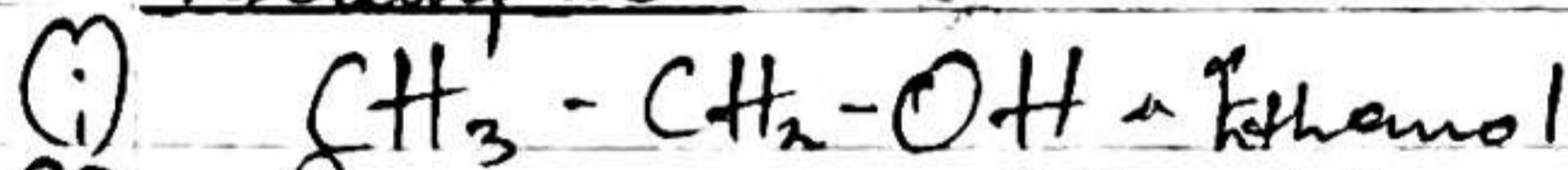
DATE SUBMITTED: 13-04-2020

DEPARTMENT: PETROLEUM ENGINEERING

1. Discuss the two major classifications of alcohols. Give 2 examples for each class.

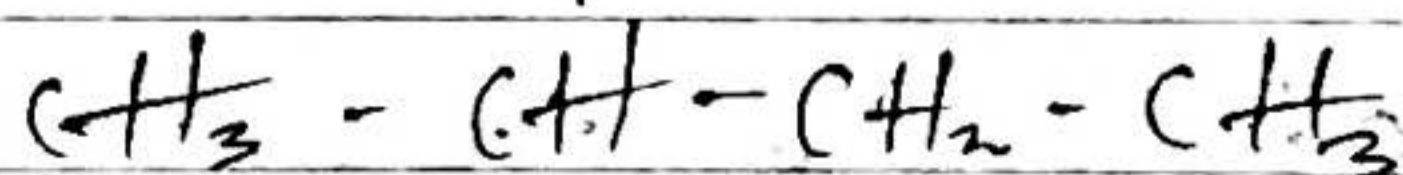
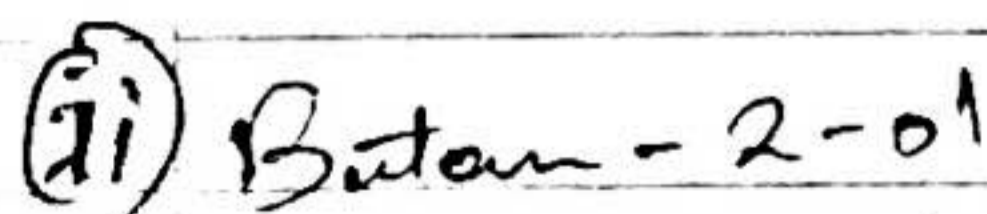
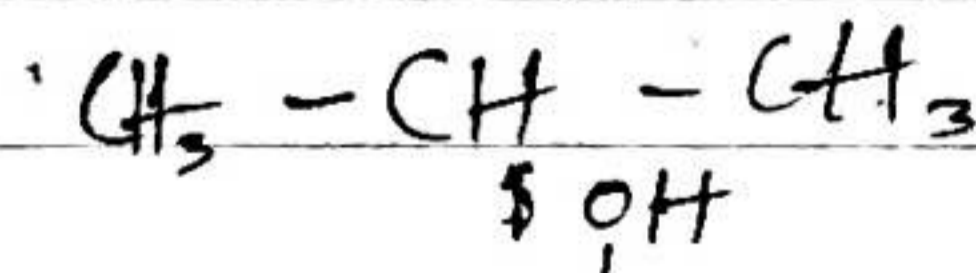
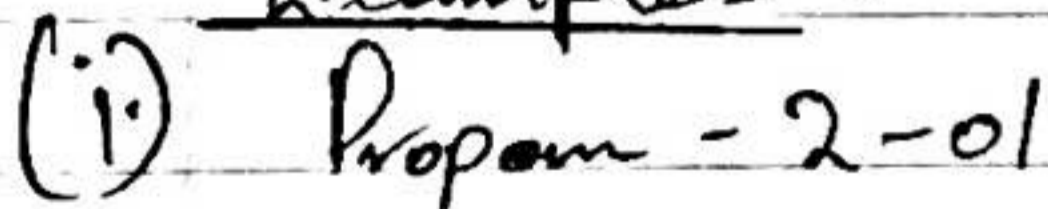
a.) Primary Alcohols: Primary alcohols are those alcohols where the carbon atom of the hydroxyl group (OH) is attached to only one alkyl group. The complexity of the alkyl chain is unrelated to the classification of any alcohol considered as primary. The existence of only one linkage $-\text{OH}$ group and an alkyl group and thing that qualifies alcohol as a primary.

Examples:

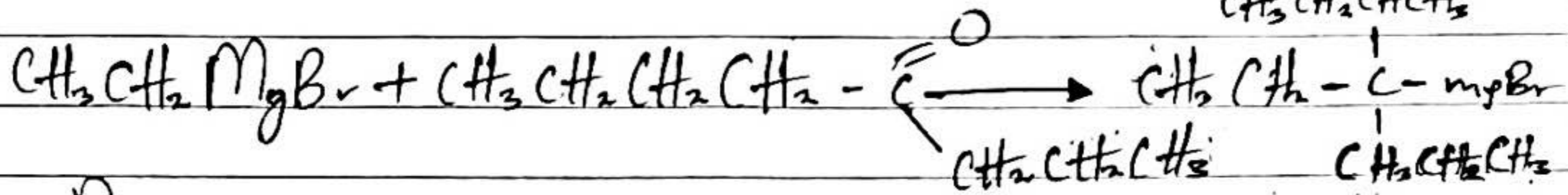


b.) Secondary Alcohols: Secondary alcohols are those where the carbon atom of the hydroxyl of the hydroxyl group is attached to two alkyl groups on either side. The alkyl groups present may be either structurally identical or even different.

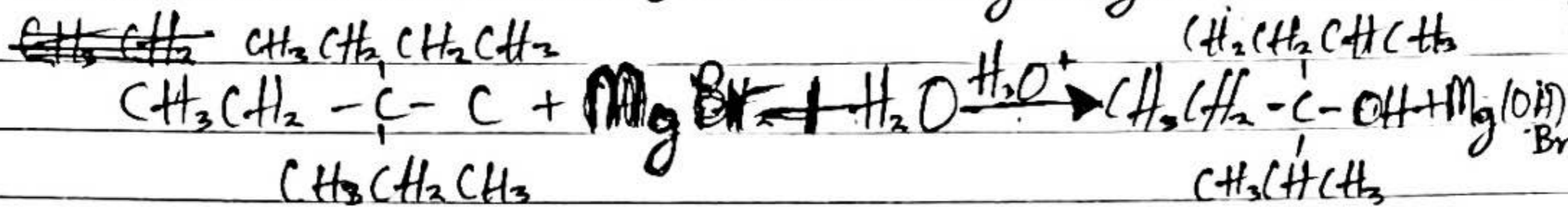
Examples:



2. In the Grignard synthesis of Alkanols, Grignard reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}=\text{OCH}_2\text{CH}_2\text{CH}_3$

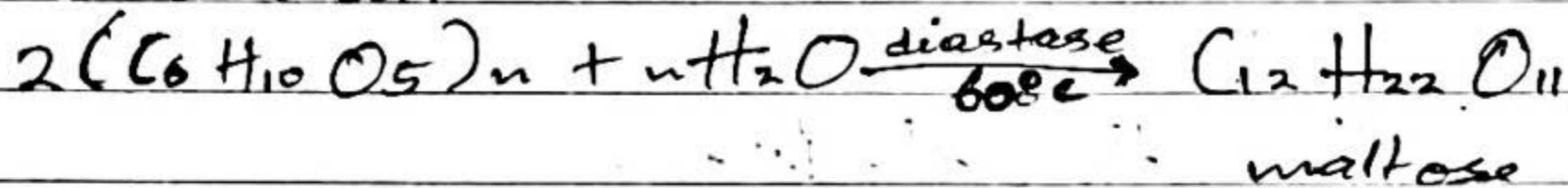


Dilute acid is then added to this to hydrolyse it.

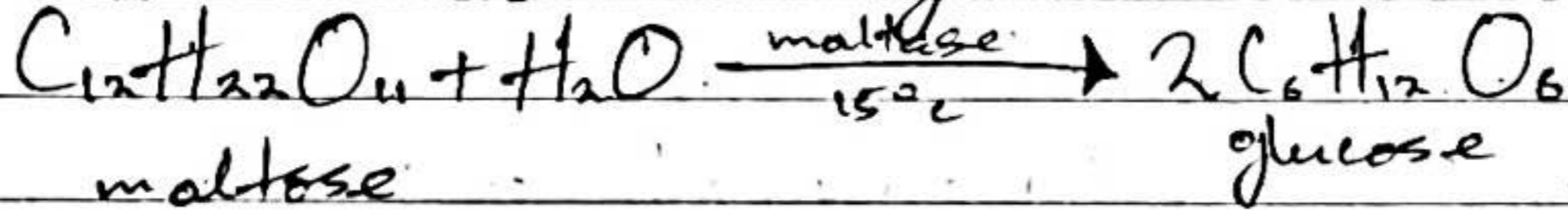


3. Discuss the industrial manufacture of ethanol showing all reactions equation and necessary enzymes and temperature of reaction.

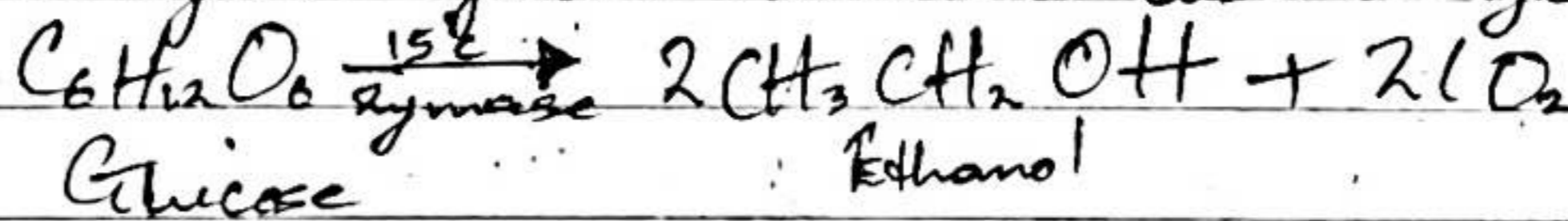
Firstly, the starch containing materials e.g. potatoes warmed with malt to 60°C for a specific time. The starch is converted to maltose by the enzyme diastase contained in malt.



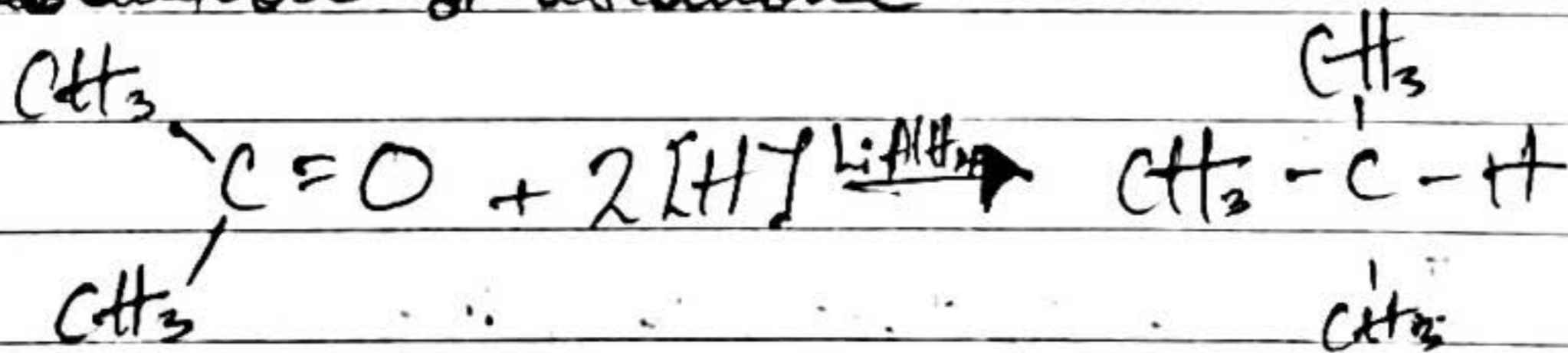
The maltose is broken down into glucose on addition of yeast which contains the enzyme maltase at 15°C



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



4. Reduction of alkanone



Secondary alcohol



Primary alcohol.