

Name: Oyedepo Oluwafinayomi Deborah

Department: Medicine & surgery

Matric number: 19/MHS 01/373



MACOSA
MASS COMMUNICATION
STUDENTS' ASSOCIATION
KWARA STATE UNIVERSITY



Course code: CHM 102

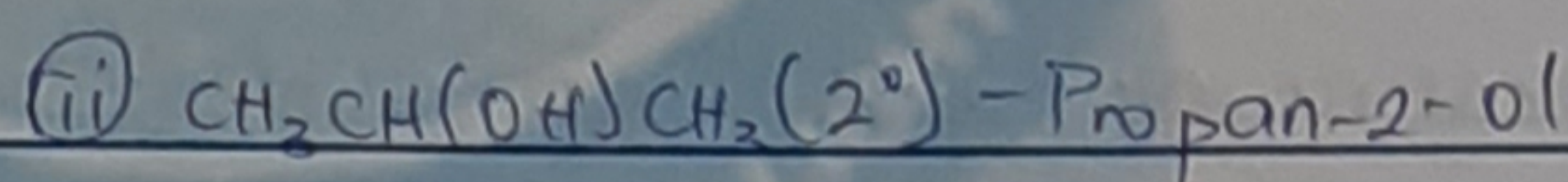
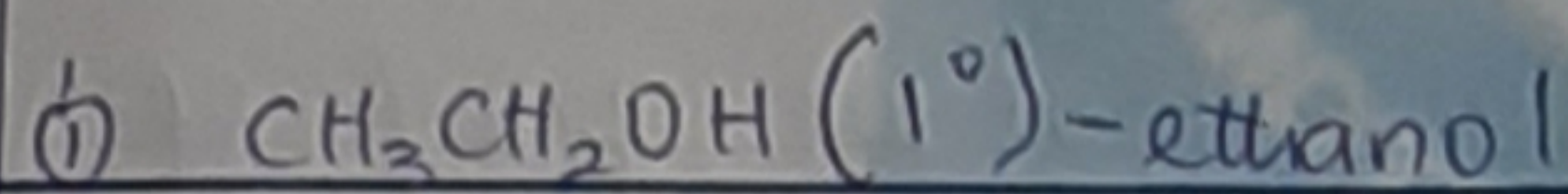
Course Title: General Chemistry II

Assignment

1. The 2 major classification of Alcohols are as follows:

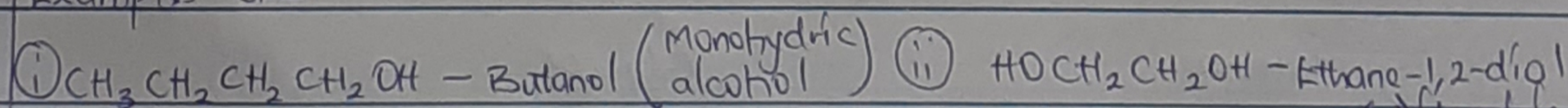
a. First classification: This is based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the numbers of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two; it is called a primary alcohol (1°). If it is one hydrogen atom, it is called 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 are:

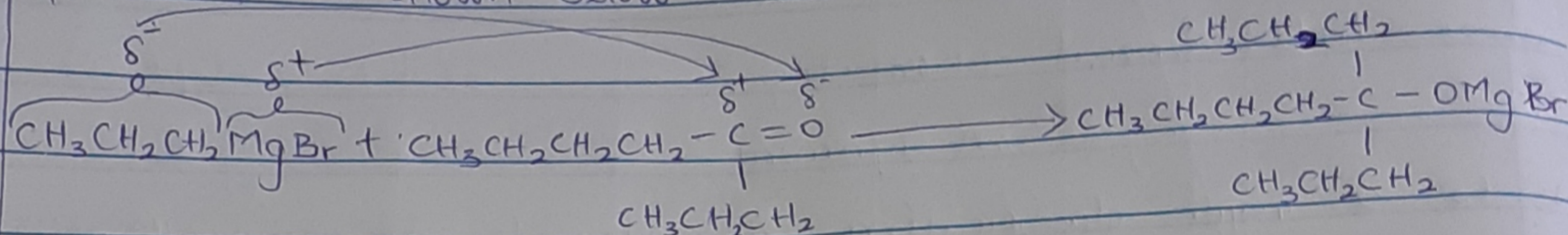


b. Second classification: This is based on the number of hydroxyl groups they possess. Monohydric alcohols have one hydroxyl group present in the alcohol structure. Dihydric (also called glycols), have two hydroxyl groups present in the alcohol structure while trihydric alcohols or triols have three hydroxyl groups present in the alcohol structure. Polyhydric alcohols or polyols have more than three hydroxyl groups.

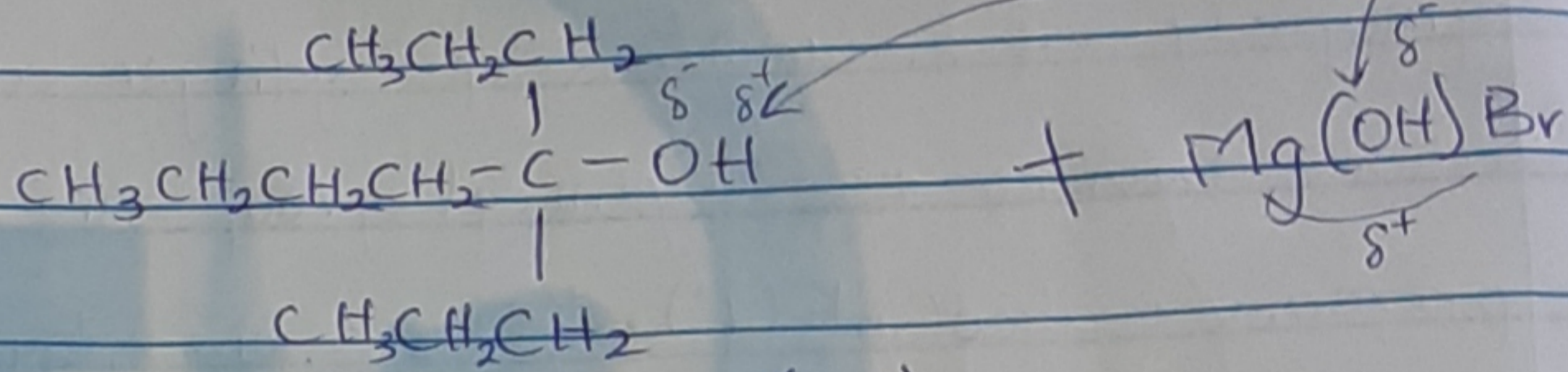
Examples are:



2. Using Propylmagnesium bromide as Grignard reagent $[\text{CH}_3\text{CH}_2\text{CH}_2\text{MgBr}]$ to synthesize alcohol, equation of reaction is shown below.



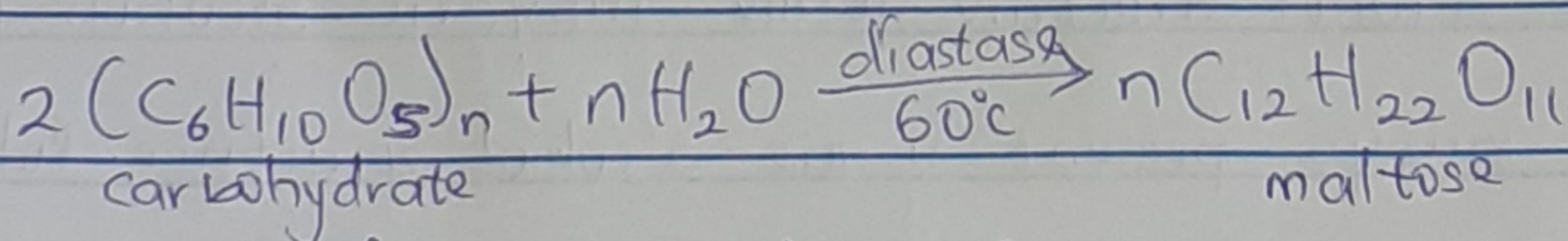
Hydrolysis with
dil. acid
 $\text{H}^+ \cdot \text{OH}^-$



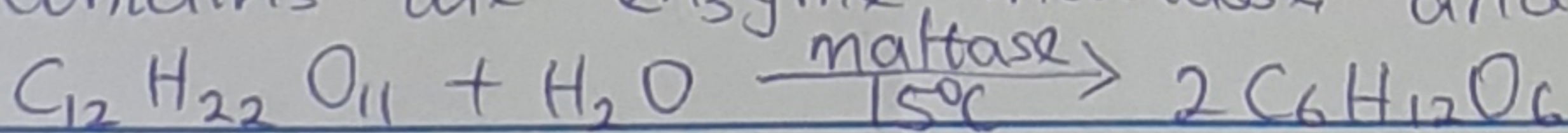
4-Propyl Octan-4-ol (3°)

3. The process of industrial manufacture of ethanol is known as fermentation. Carbohydrates such as starch are major group of natural compounds that can be made to yield ethanol by the biological process of fermentation. The process is as follows:

(a) The starch is warmed with malt to 60°C are converted to maltose by the enzyme diastase contained in the malt.



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

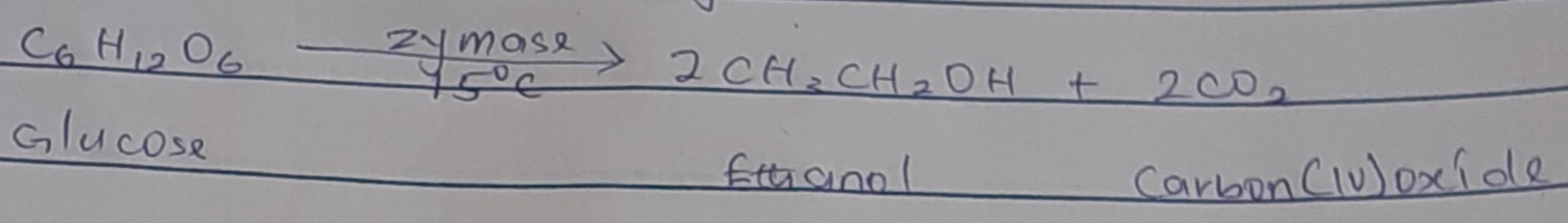


Maltose

Glucose

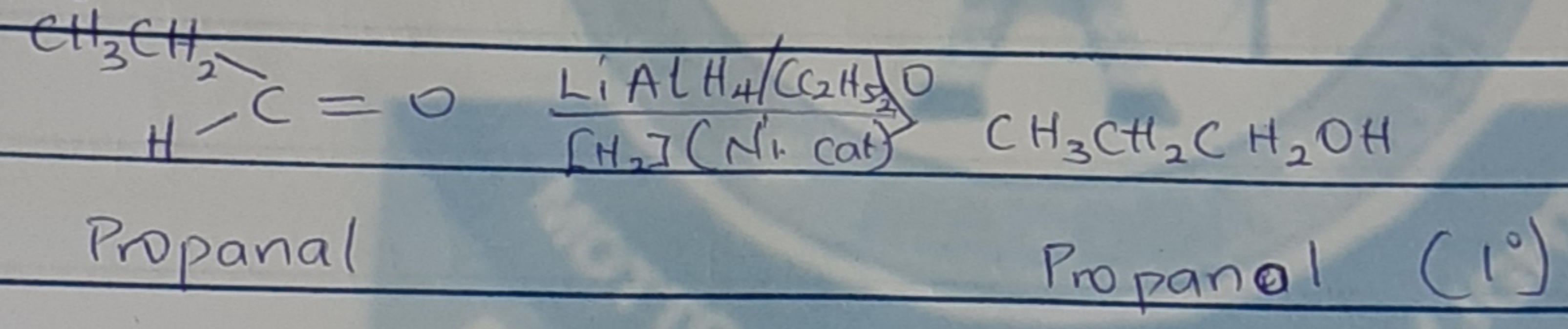
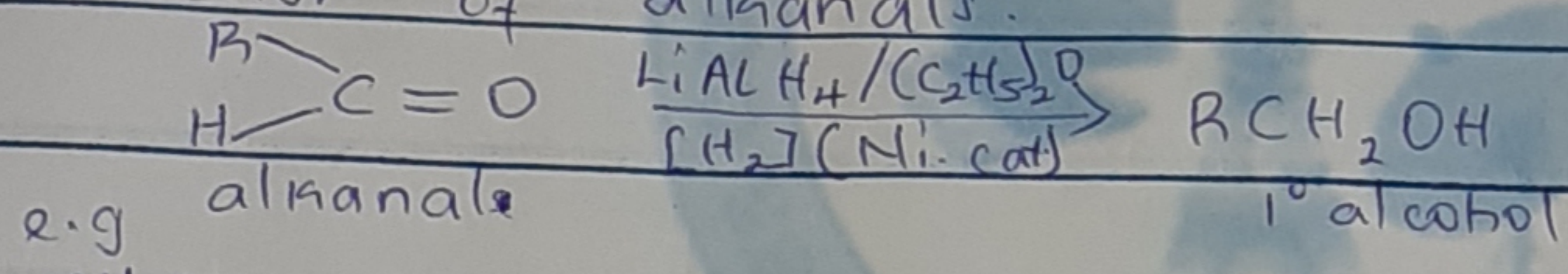


② The glucose at constant temperature of 15°C is then converted into alcohol (ethanol) by the enzyme zymase contained also in yeast.



4. Alkanals and Alkanones are reduced to primary and secondary alcohols respectively by reaction with hydrogen in the presence of reducing agents like Lithiumtetrahydridoaluminate(III) (LiAlH₄) or Sodiumtetrahydridoborate(III) (NaBH₄)

① Reduction of alkanals:



② Reduction of alkanones:

