

NAME: OKWUOKWU BRYAN COURSE: CHEM 102

MATRIC NO. 19/ENG05/049 DEPT: Mechatronics

1) a) Classification based on number of hydrogen atoms attached to the carbon atom containing the hydroxyl group. If the numbers of hydrogen atoms attached to the carbon atoms bearing the hydroxyl group are three or two, it is called primary alcohol. If there is one hydrogen atom, it is called secondary alcohol. If there is no hydrogen atom, it is a tertiary alcohol.

Examples: CH_3OH - Methanol

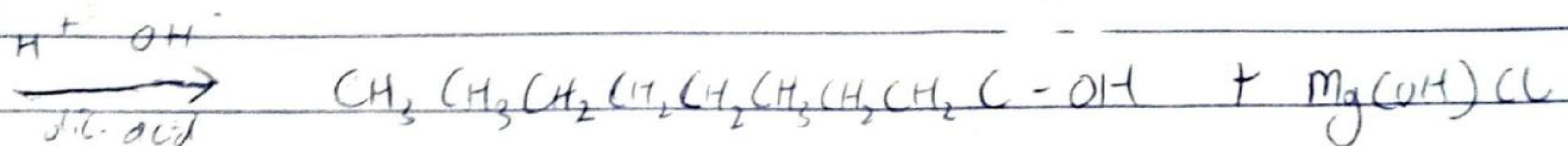
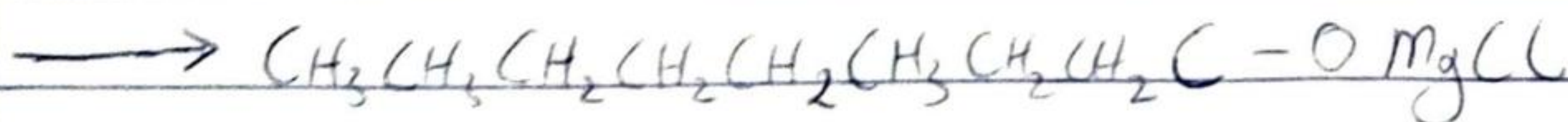
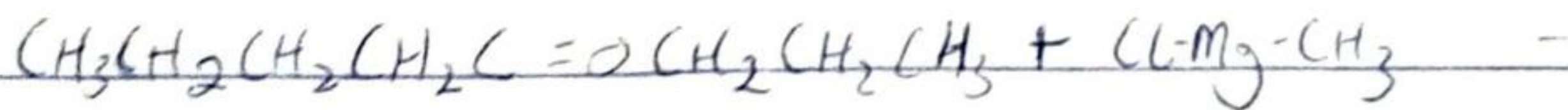
$\text{CH}_3(\text{CH}(\text{OH}))\text{CH}_3$ - Propan-2-ol

b) Classification based on number of possessed hydroxyl groups. Monohydric alcohols have one hydroxyl group present in its structure. Dihydric have two while trihydric / triols have three hydroxyl groups present. Polyhydric alcohols / Polyols have more than three hydroxyl groups.

Examples: $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ - Propanol (monohydric)

$\text{OHCH}_2\text{CH}_2\text{OH}$ - Ethane-1,2-diol (Glycol)

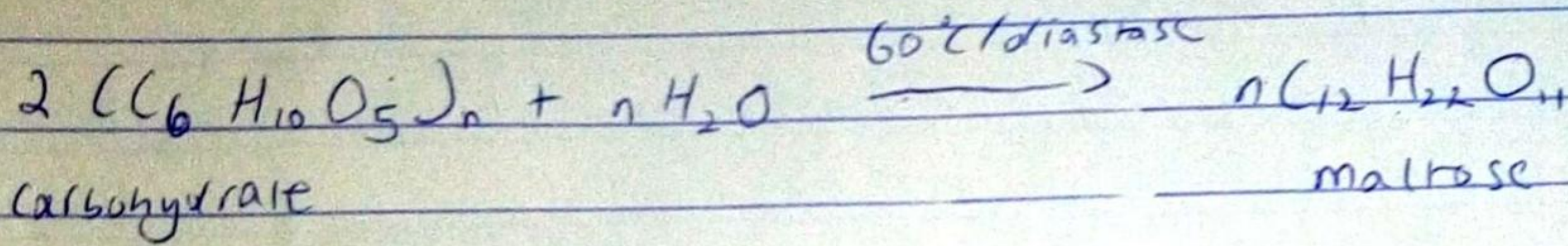
2) Grignard reagent $\rightarrow \text{Cl-Mg-CH}_3$ (Methylmagnesium chloride)



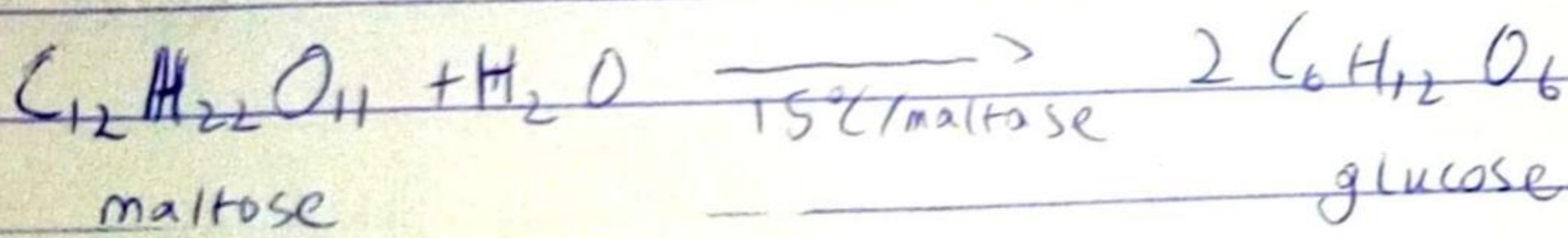
③ Production of Ethanol

Carbohydrates such as starch are major group of natural compounds that can be made to yield ethanol by fermentation.

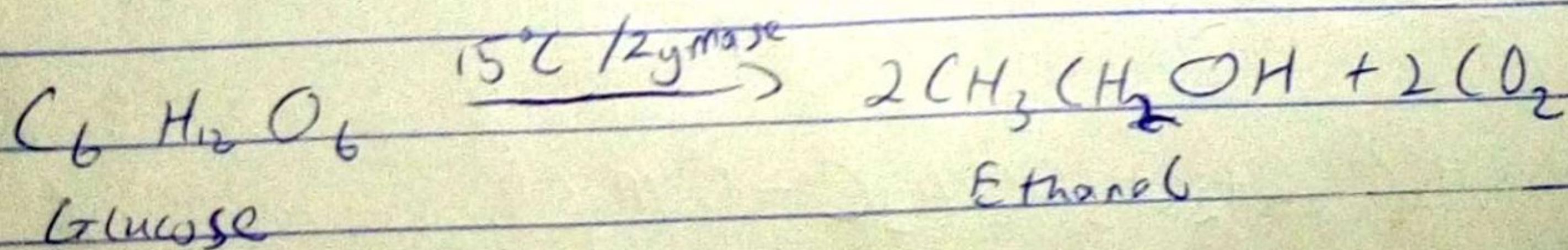
The enzymes found in yeast break down the carbohydrate molecules into ethanol to give 95% yield. On warming these starch containing materials to 60°C for a period of time in malt, the molecules are converted to maltose by the enzyme diastase in the malt.



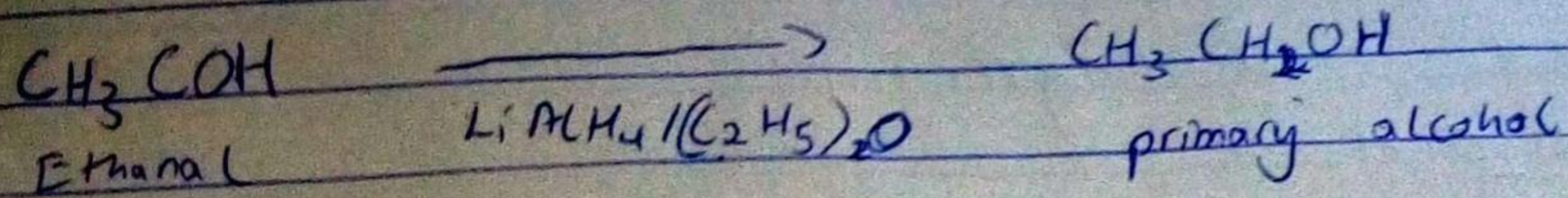
The maltose is broken down into glucose on addition of yeast which contains enzyme maltase at a temp. of 15°C .



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



④ (i) Reduction of alkanone (ketones) gives secondary alcohols



(ii) Reduction of alkanal (aldehydes) give primary alcohols

