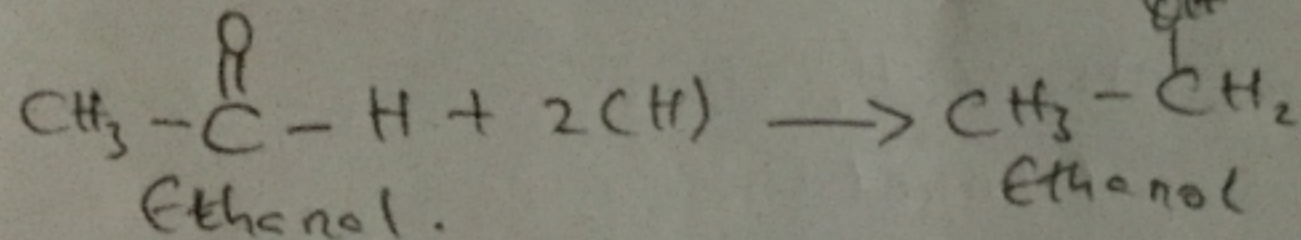


④ Reduction of Alkanone and Alkanal with specific examples and reactions:

Ans

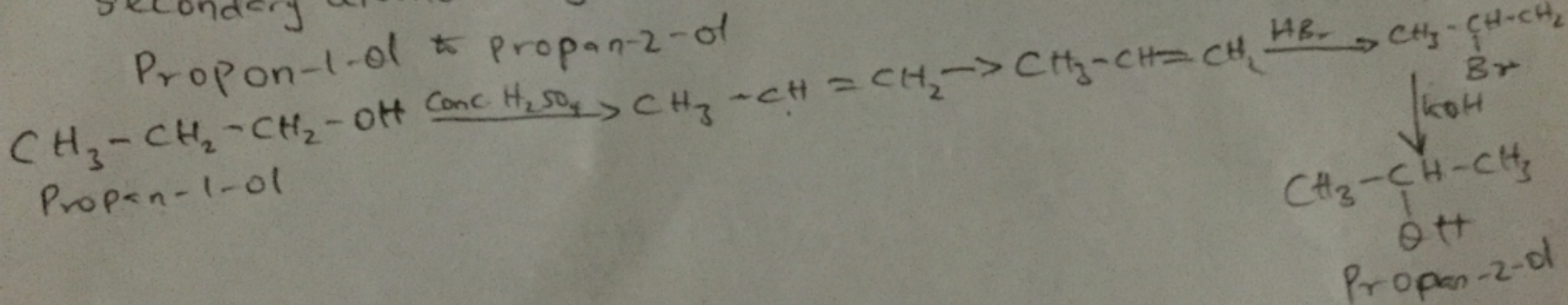
Reduction of Alkanal: Alkanal are reduced to the corresponding primary alkanol by reducing agent such as Lithium tetrahydridoaluminate (III) ( $\text{LiAlH}_4$ )

e.g. Ethanal is reduced to ethanol

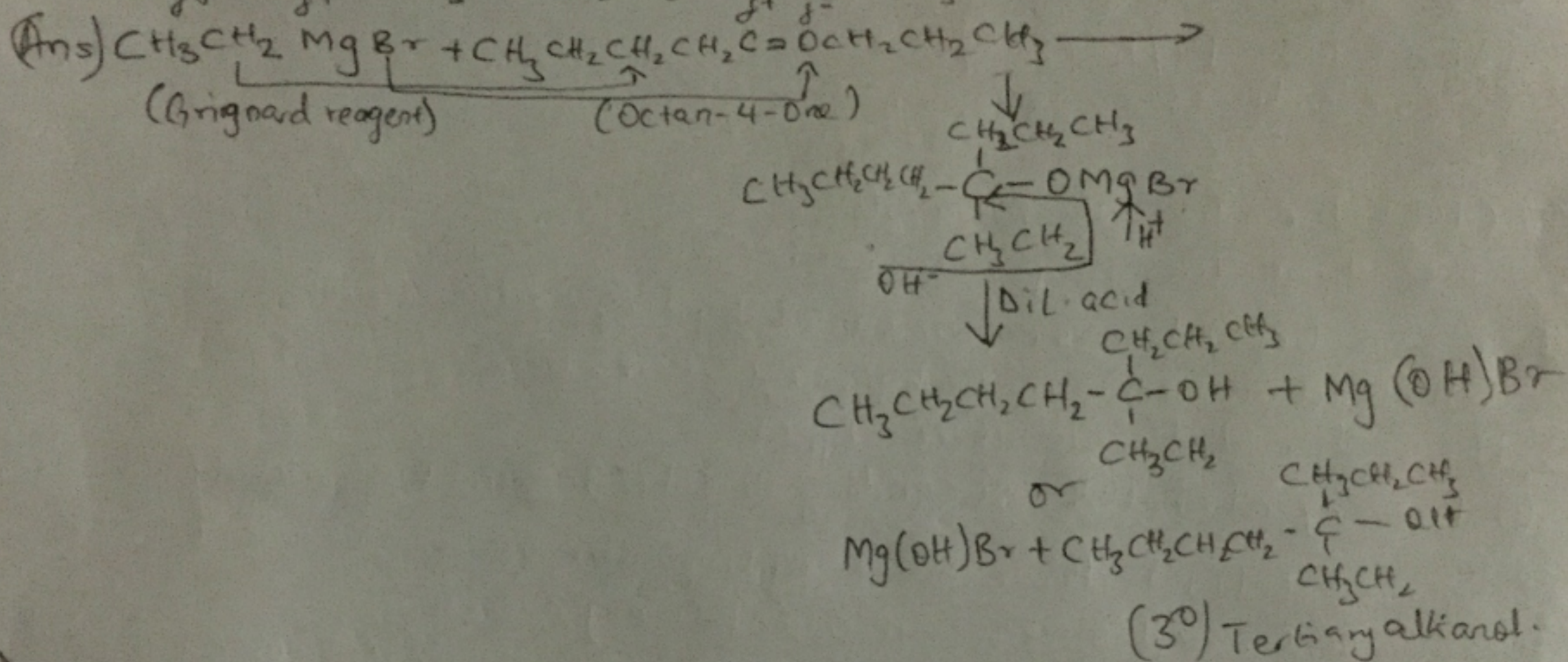


Reduction of Alkanone: Alkanone are reduced to the corresponding secondary alkanol using Conc.  $\text{H}_2\text{SO}_4$

Propan-1-ol to propan-2-ol

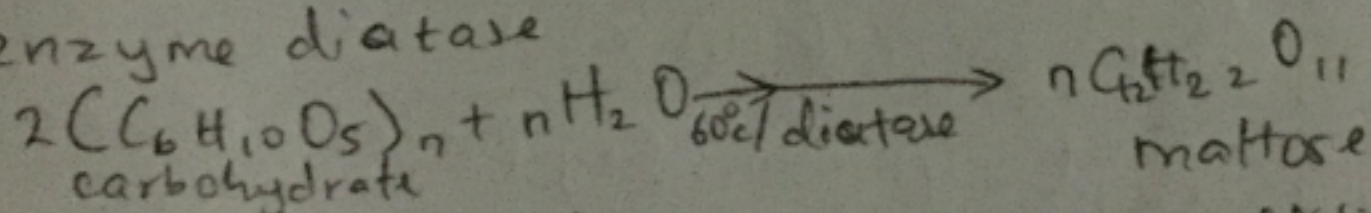


② In the Grignard synthesis of alkanols react a named Grignard reagent with  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{C}(=\text{O})\text{CH}_2\text{CH}_2\text{CH}_3$  - show the reaction steps.

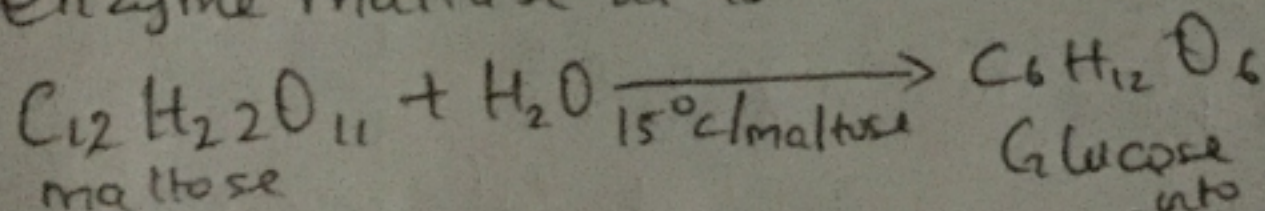


③ The manufacture of ethanol

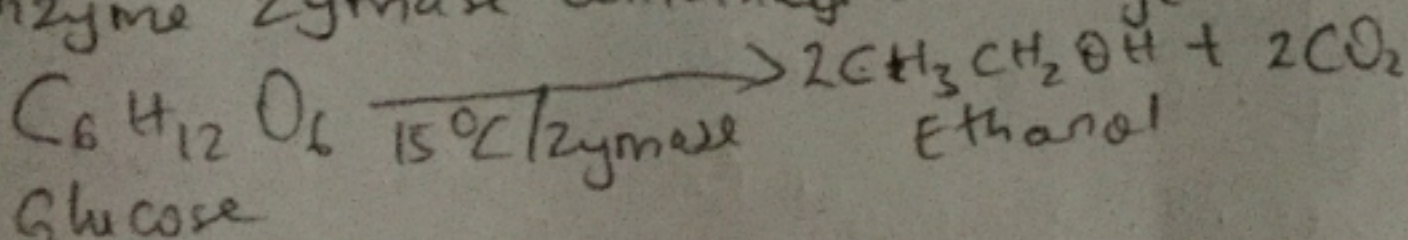
i Carbohydrate is converted into maltose at a temperature of  $60^\circ\text{C}$  and by the enzyme diastase



ii Maltose is broken down into glucose on addition of yeast which contains the enzyme maltase at  $15^\circ\text{C}$



iii Glucose at constant temperature  $15^\circ\text{C}$  is converted into alcohol by the enzyme zymase contained also in yeast



Name: Dgiah Precious Chimdiato

Department: Nursing

Matric NO: 19/MHS02/089

Course code: Chem 102

### Assignment

#### ① Classification of Alkanols

we have two major classes:

① This is based on the number of hydrogen atom attached to the Carbon atom containing the hydroxyl group. It is divided into three types:

① Primary alcohol ( $1^\circ$ ) ② secondary alcohol ( $2^\circ$ ) ③ Tertiary alcohol ( $3^\circ$ )

a Primary alcohol ( $1^\circ$ ): This is when the hydrogen atom attached to the carbon atom bearing the hydroxyl group are three or two e.g  $\text{CH}_3\text{OH}$

b Secondary alcohol: This is when the hydrogen atom attached to the carbon atom bearing the hydroxyl group is one e.g  $(\text{CH}_3)_2\text{CHOH}$

c Tertiary alcohol: This is when there is no hydrogen atom attached to the carbon atom bearing the hydroxyl group. e.g  $(\text{CH}_3)_3\text{COH}$

② It is based on the number of hydroxyl group they possess. Monohydric It is divided into ~~four~~ (4)

a Monohydric alcohols: It have one hydroxyl group present in the structure

b Dihydric alcohol: It have two hydroxyl group present in the structure.

c Trihydric alcohols: It have three hydroxyl group in the structure of the alcohols

d Polyhydric alcohols: It have more than three hydroxyl group

Example:  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  Propanol (monohydric alcohol)

$\text{HOCH}_2\text{CH}_2\text{OH}$  ethane-1,2-diol (Dihydric alcohol)