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Subject: Chemistry 102

Matric. num: 19 (MATHS 02/008)

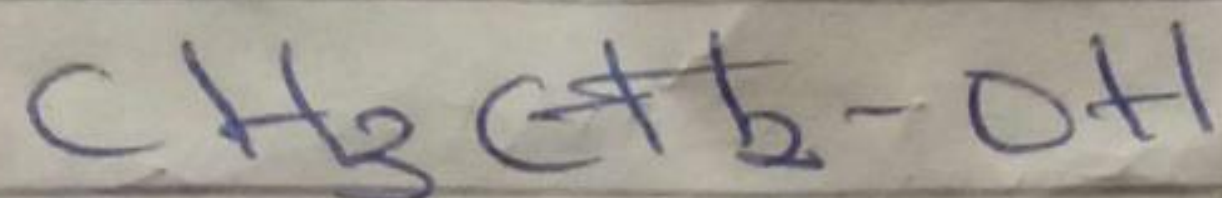
Alkanols are known as alcohols. Alkanols are classified into

primary alkanol (1°)

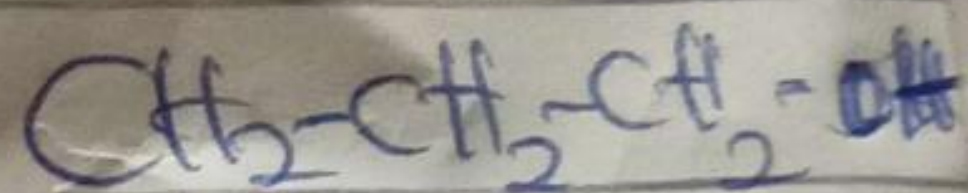
secondary alkanol (2°)

primary alkanol (1°)

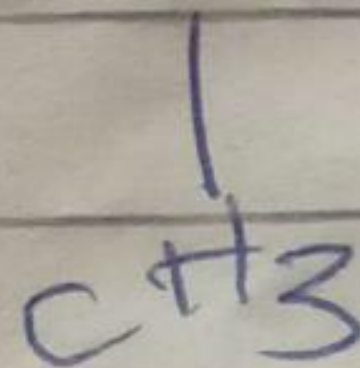
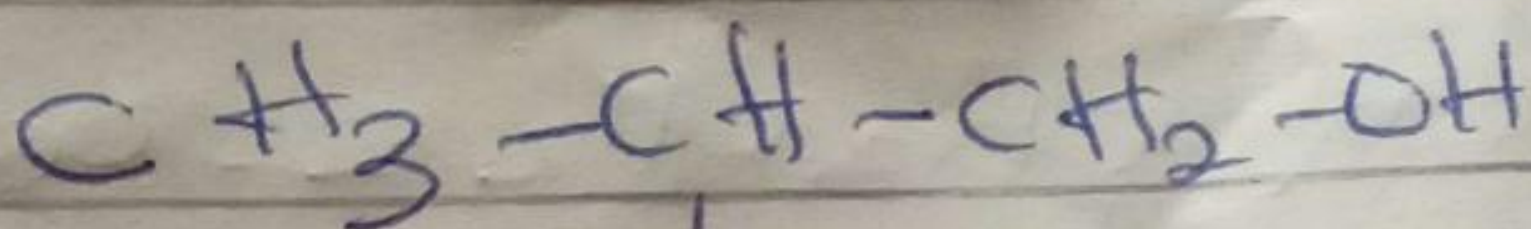
The carbon which carries the -OH group is only attached to one alkyl group. Example include



Ethanol



Propan-1-ol

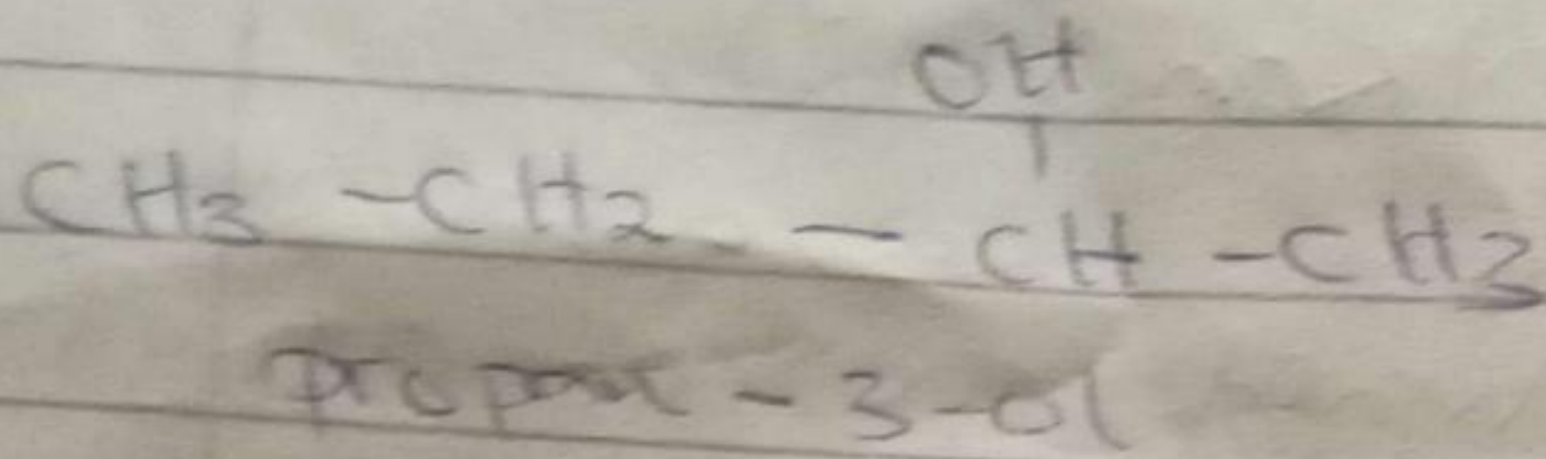
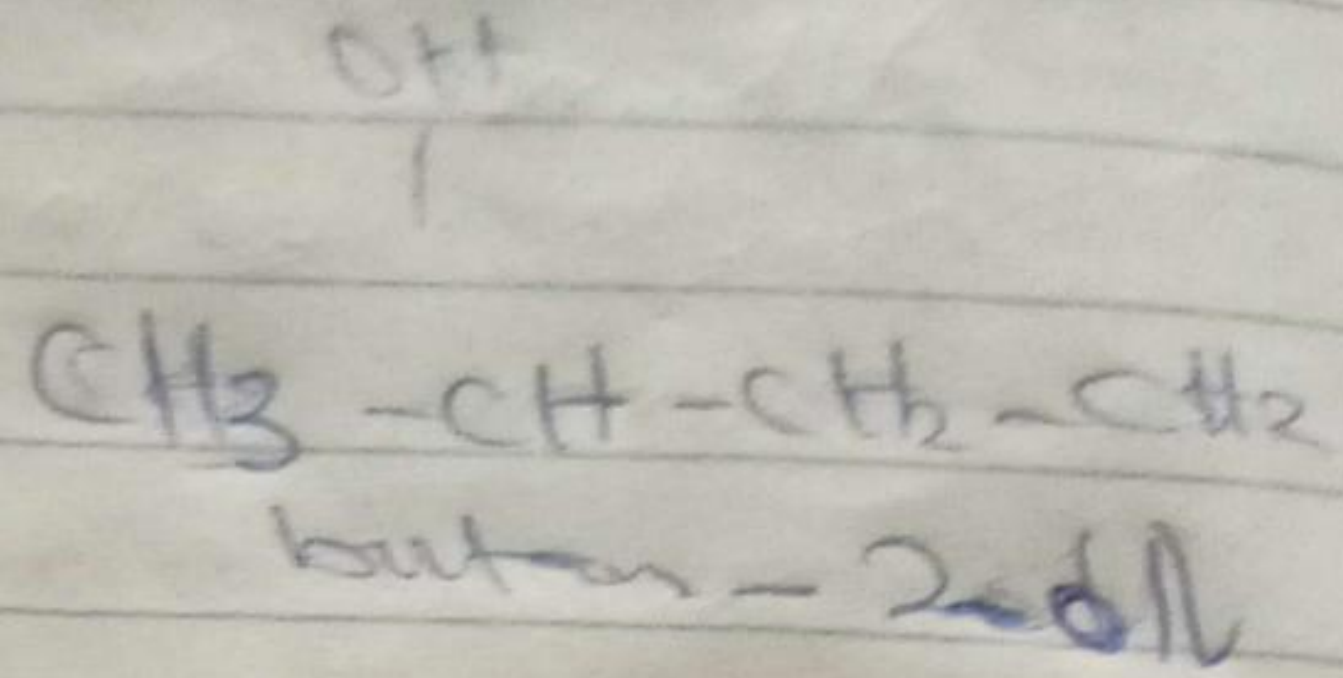
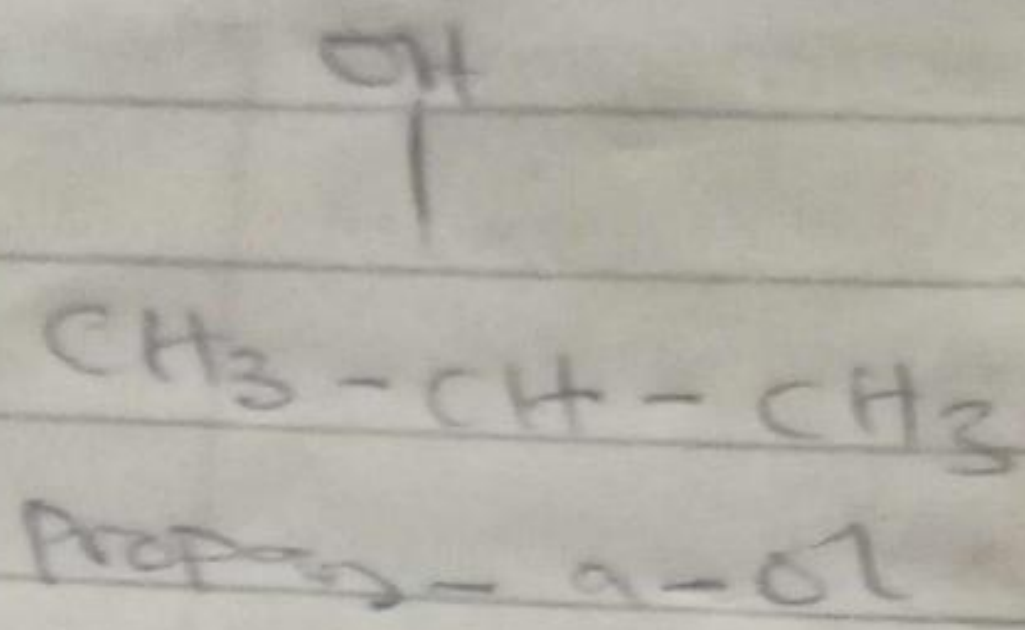


2-methyl propan-1-ol

Secondary alkanol (2°)

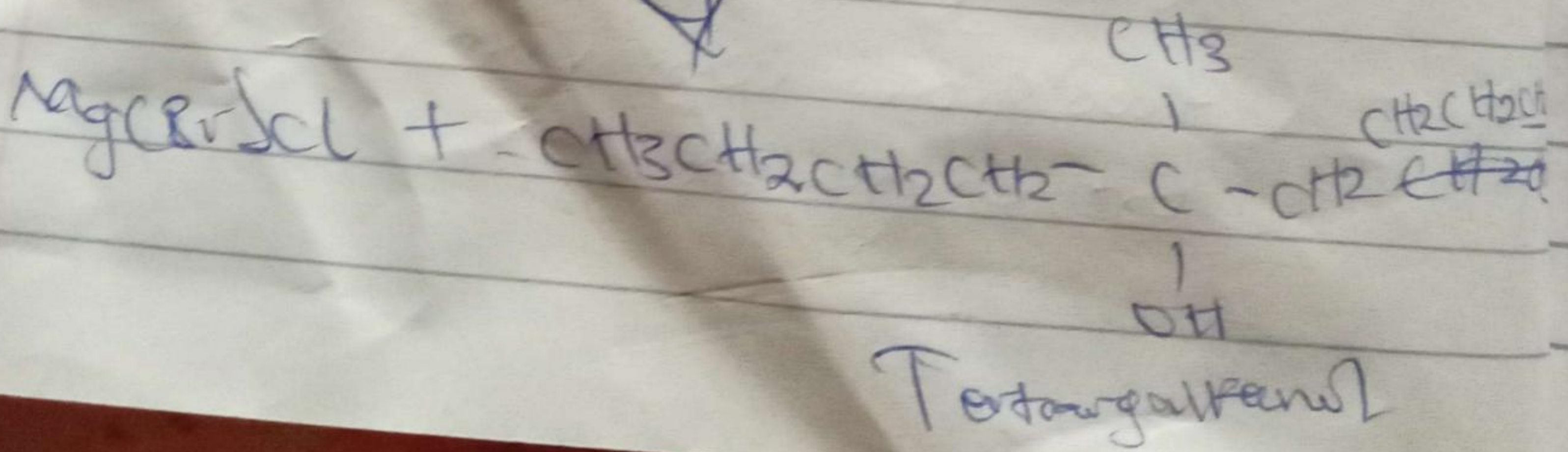
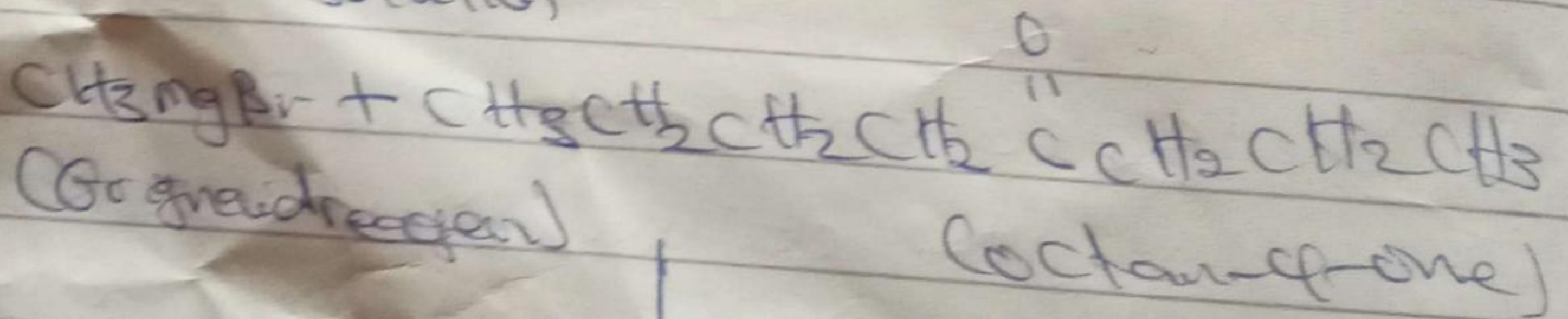
The carbon which carries the OH group is attached to ~~groups~~ two groups which may be the same or different

Examples



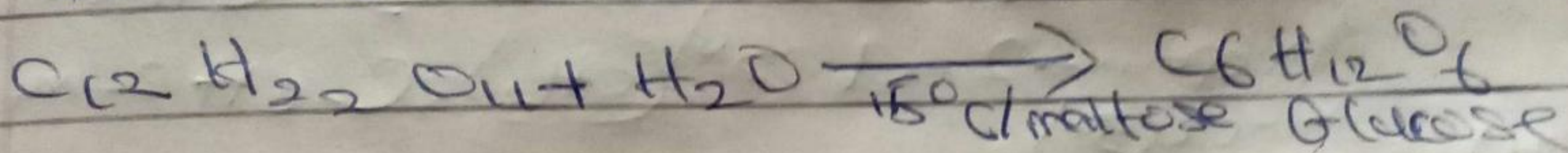
2) In the Grignard synthesis of alcohols react a named reagent with $\text{CH}_3\text{CH}_2\text{CH}_2\text{C}(=\text{O})\text{CH}_2\text{CH}_2\text{CH}_3$ show reaction

Solution

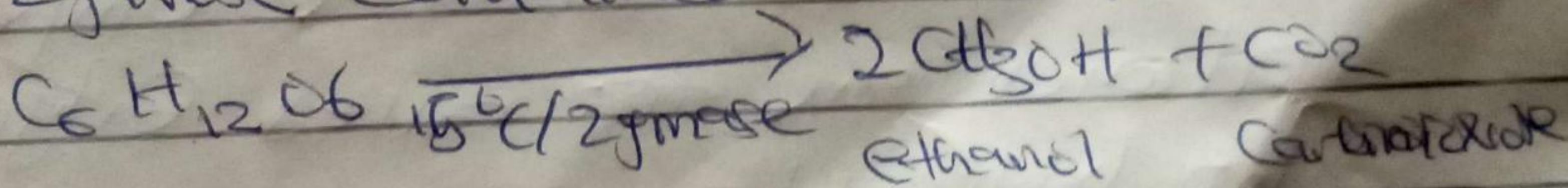


3) Industrial manufacture of ethanol
 carbohydrate is converted into maltose
 at a temperature of 60°C using the
 enzyme diastase $2(\text{C}_6\text{H}_{10}\text{O}_5) + \text{nH}_2\text{O}$
 $\xrightarrow{60^{\circ}\text{C}/\text{diastase}}$ $\text{nC}_{12}\text{H}_{22}\text{O}_{11}$
 maltose

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



Glucose at constant temp 15°C is
 converted into alcohol with enzyme
 zymase contained also in yeast



4) This is based on the number of
 hydrogen atoms attached to the carbon
 atom containing the hydroxyl group. If
 the number of hydrogen atoms attached
 to the carbon atom bearing the hydroxyl

group are three carbon atoms. 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: CH_3OH methanol (1°)
 $\text{CH}_3\text{CH}_2\text{OH}$ ethanol (1°) $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
 Propan-2-ol (2°) $(\text{CH}_3)_3\text{C-OH}$ 2-methylpropan-2-ol (3°)

(ii)

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