

NAME:- AMADIKE CHIDERA LILIAN

DEPARTMENT:- COMPUTER ENGINEERING

MATRIC NO:- 19/ENG021005

1.) The two major classification of Alkanols are

a) This is based on the number of the hydrogen atoms attached to the carbon atom containing the hydroxyl group. They are three different forms which are primary alcohol ( $1^\circ$ ), if the number of hydrogen atoms attached to the carbon atom bearing the hydroxyl group are three or two. Secondary alcohol ( $2^\circ$ ), if it is only one hydrogen atom that is attached to the carbon atom bearing the hydroxyl group and Tertiary alcohol ( $3^\circ$ ), if no hydrogen atom is attached to the carbon atom bearing the hydroxyl group

Examples

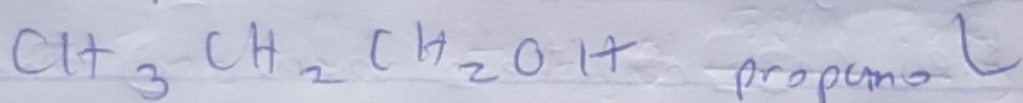
$\text{CH}_3\text{CH}_2\text{OH}$  Ethanol ( $1^\circ$ )

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

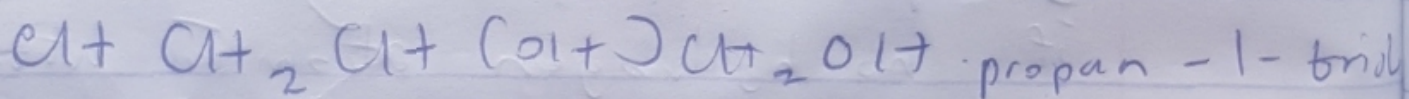
b) This is based on the number of hydroxyl groups they possess.

Monohydric alcohols have one hydroxyl group present in the alcohol structure, dihydric alcohol have two hydroxyl group present in the alcohol structure, trihydric group or triols have three hydroxyl group present in the structure of the alcohol, Polyhydric alcohols ~~are~~ have more than three hydroxyl groups present.

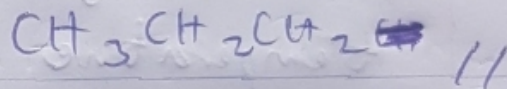
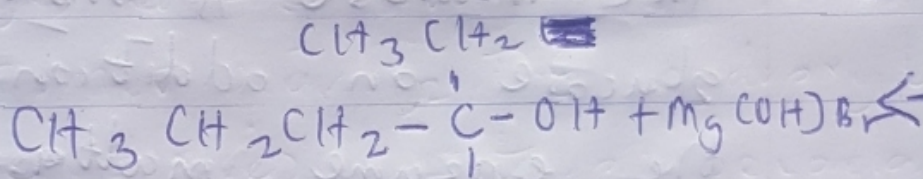
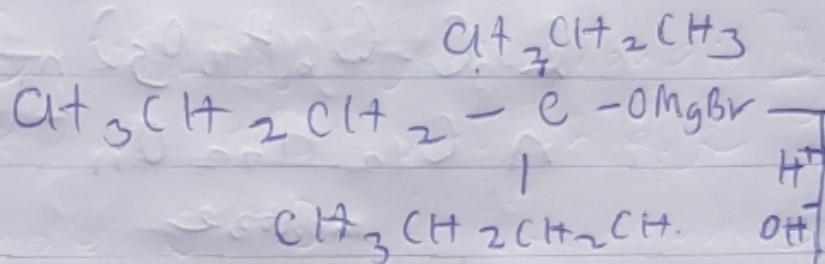
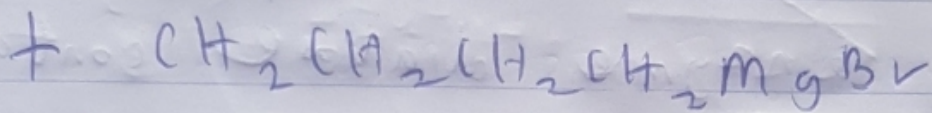
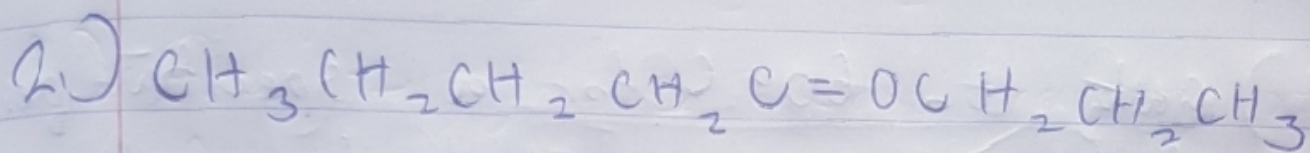
Examples are



(monohydric alcohol)



(Trihydric alcohol)

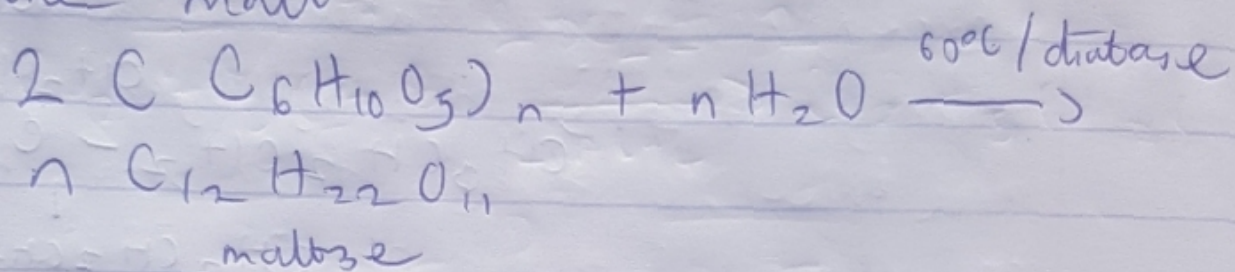


3-Butylhexane-3-ol

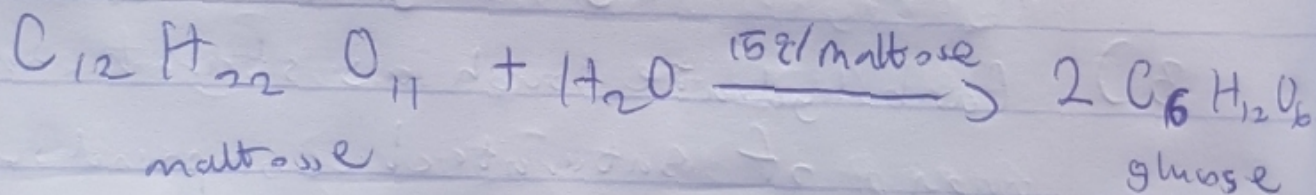
3.) Carbohydrate such as starch are under group of saturated compounds that can be made to produce Ethanol by the biological process of fermentation. The biological catalyst enzymes found in yeast breakdown. The carbohydrate give rise to about 95% of ethanol.

The starch containing substances with

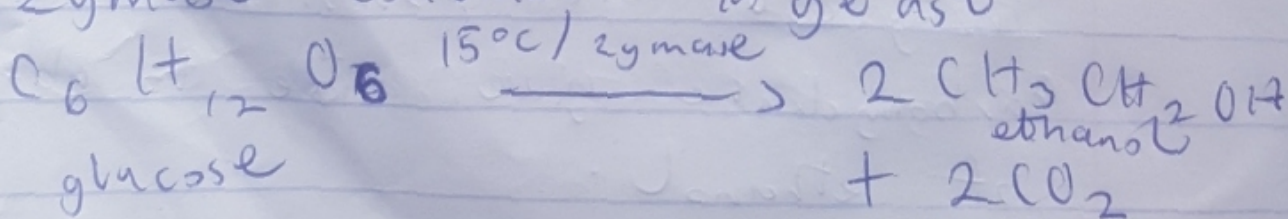
malt to  $60^{\circ}\text{C}$  for a specific period of time are converted to maltose by the enzyme diastase contained in the malt



The maltose is broken down into glucose on addition of yeast which the enzyme maltase & at the temperature of  $15^{\circ}\text{C}$

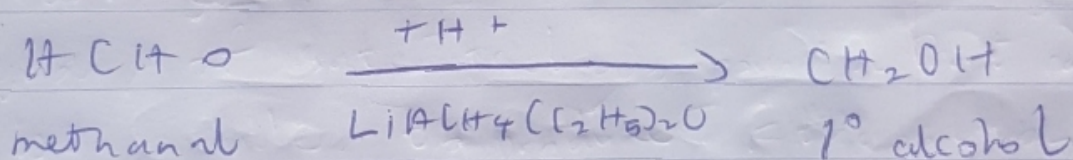
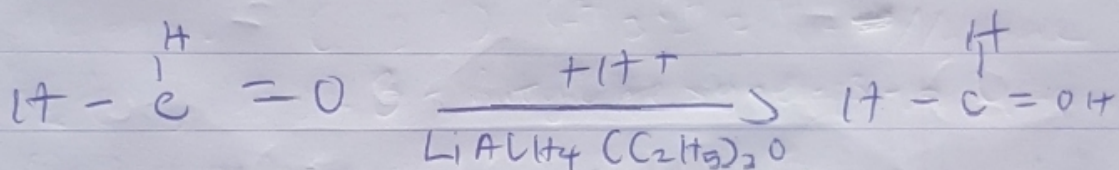
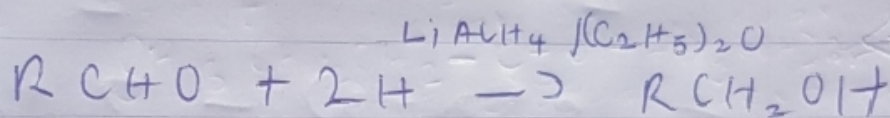


The glucose at constant temperature at  $15^{\circ}\text{C}$  is then converted to alcohol by the enzyme zymase contained in yeast



4) Alkanone (ketone) and Alkanal (aldehydes) belong to the functional group carbonyl and can be reduced to alcohols by the usual reducing agents like  $\text{LiAlH}_4$  ( $(\text{C}_2\text{H}_5)_2\text{O}$ ) or  $\text{NaBH}_4$  (sodium borohydride, sodium tetrahydridoborate)

Reduction of an aldehyde



Reduction of Ketones or Alkanone

Alkanones are reduced to 2° alcohol using  $\text{LiAlH}_4$  as reducing agent

