

The Chidera  
Computer Engr.  
19/ENG02/020  
CH19 102

1. Alcohols are very important organic components. Discuss briefly their classification and give 1 example each.

a. Alcohols can be classified based on the number of hydrogen atoms attached to the carbon atom containing the hydroxyl group.

e.g.  $\text{CH}_3\text{OH}$  (Methanol  $1^\circ$ ),  $(\text{CH}_3)_3\text{C-OH}$  (2-methyl propan-2-ol)

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

Monohydric Alcohol - having only one hydroxyl group

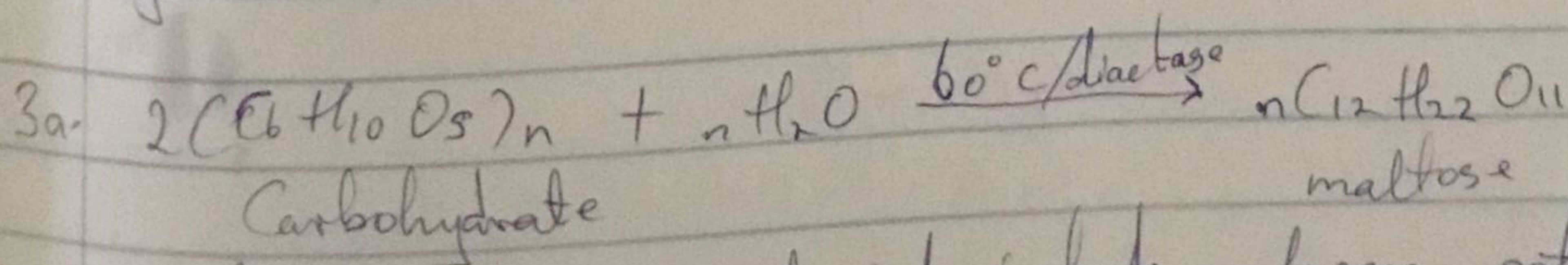
Dihydric Alcohol - having two hydroxyl groups (glycol)

Trihydric Alcohol - having three hydroxyl groups (Triol)

e.g.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  propanol (Monohydric)

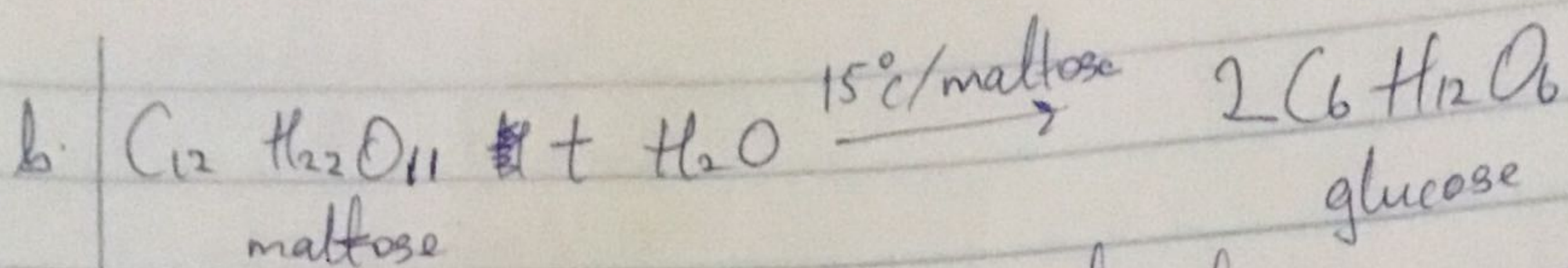
$\text{HOCH}_2\text{CH}_2\text{OH}$  Ethane-1,2-diol (Dihydric)

2. Alcohols are soluble in water. This is due to the hydroxyl group in the alcohol which is able to form hydrogen bonds with water molecules. Alcohols with a smaller hydrocarbon chain are very soluble as the length of the hydrocarbon chain increases, the solubility in water decreases.

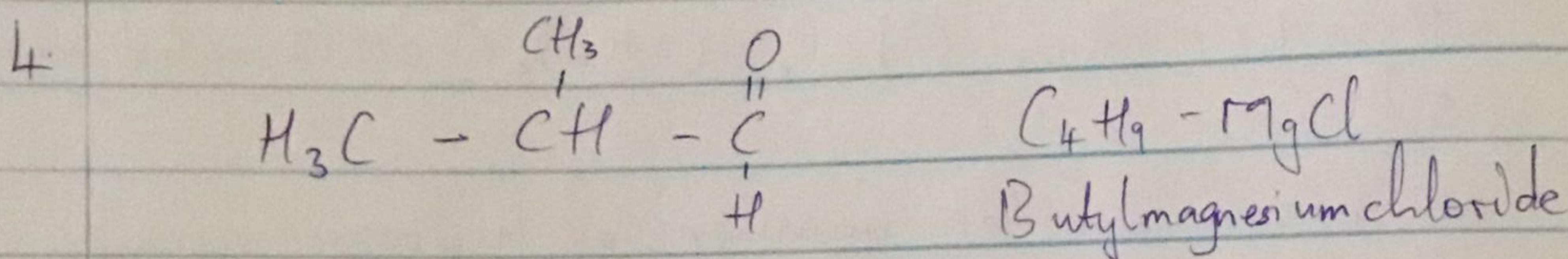
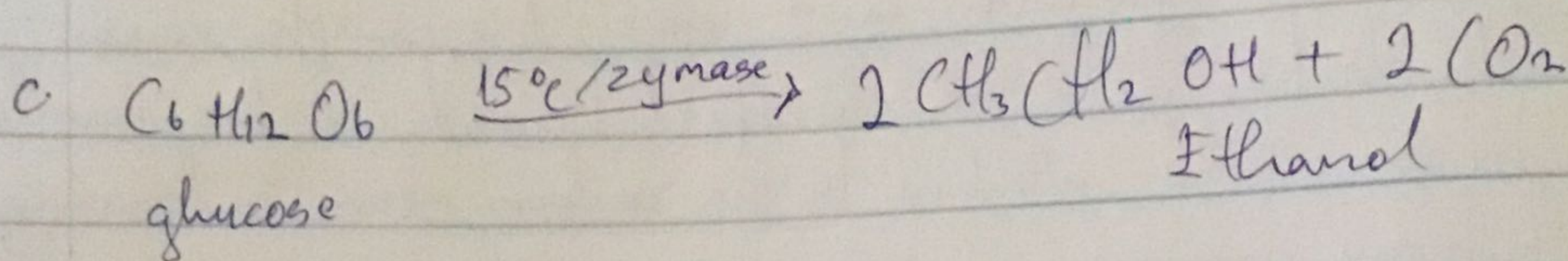


The starch containing materials include molasses, potatoes, cereals, rice and on warming with malt of  $60^\circ\text{C}$  for a specific period of time are converted into maltose by the enzyme diastase contained in the malt.

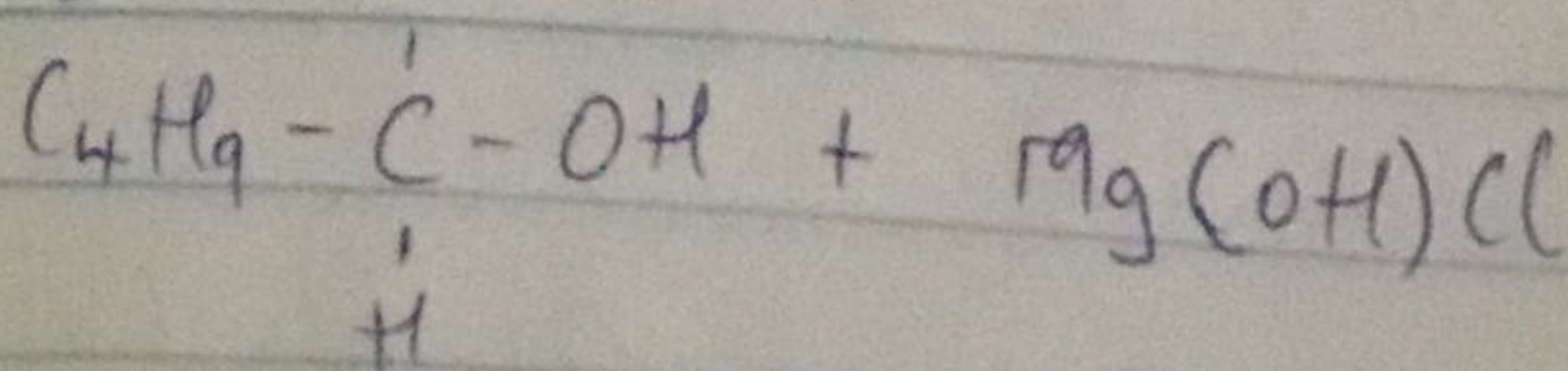
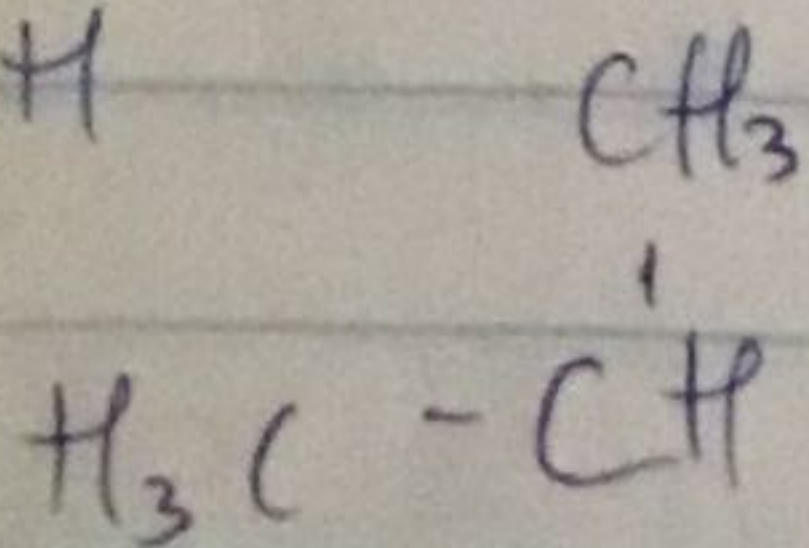
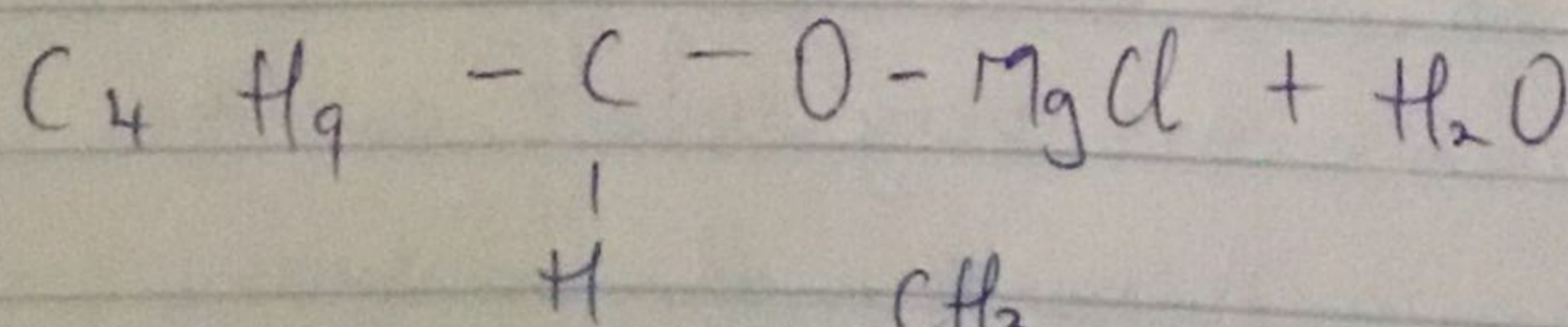
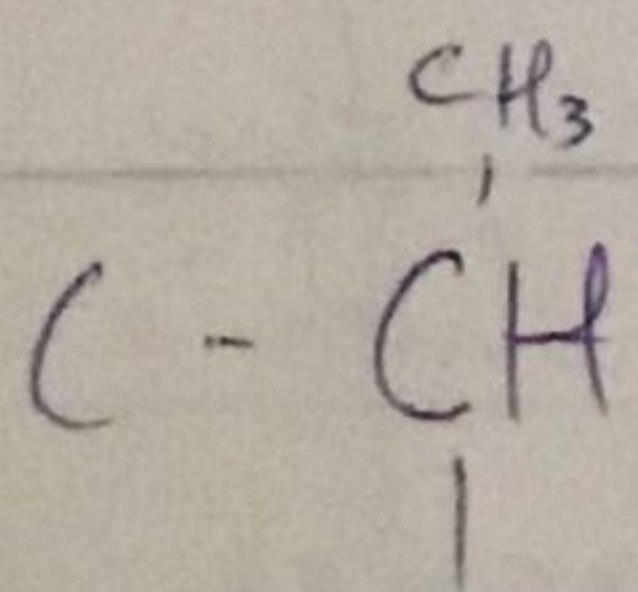
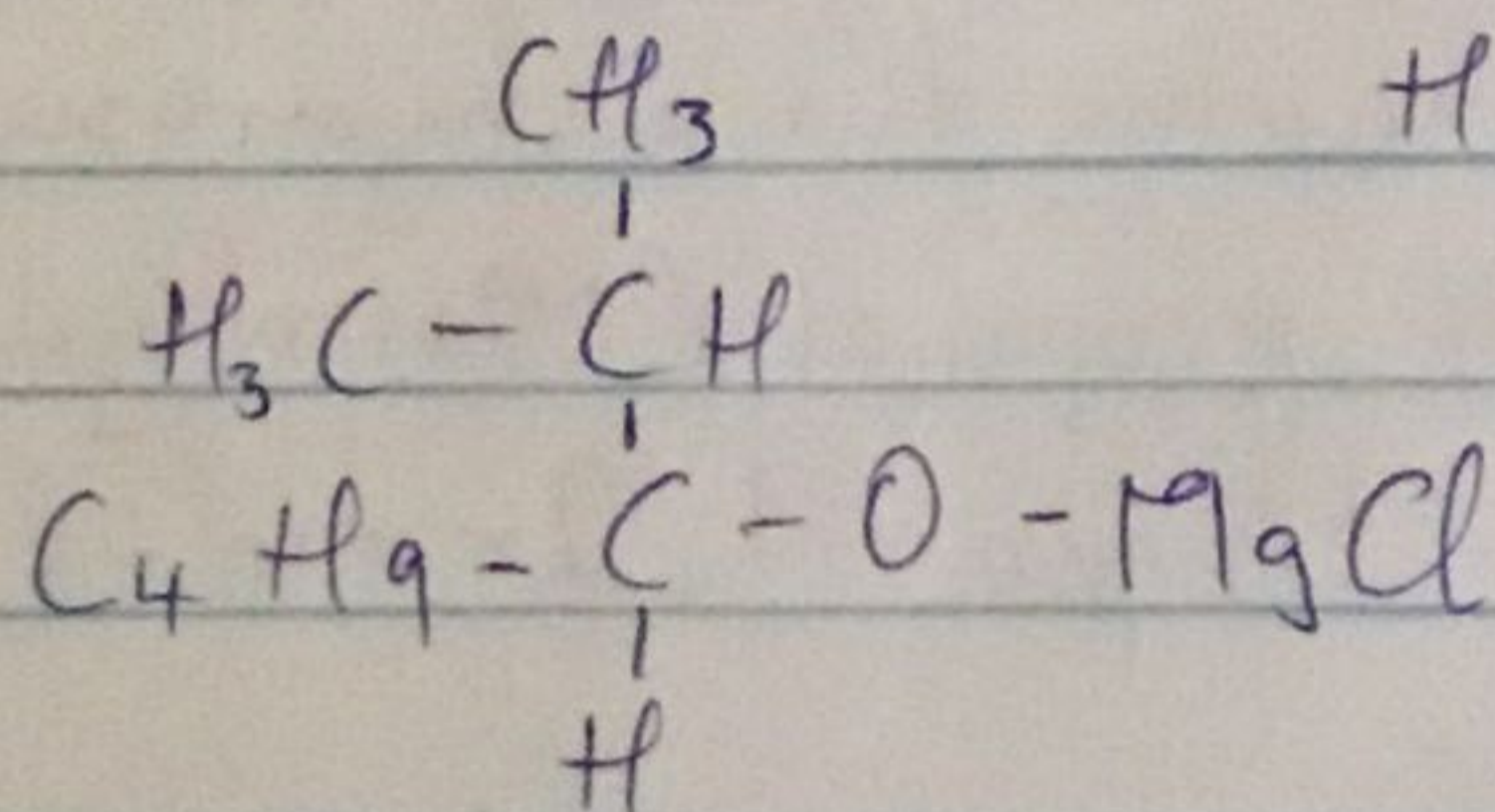
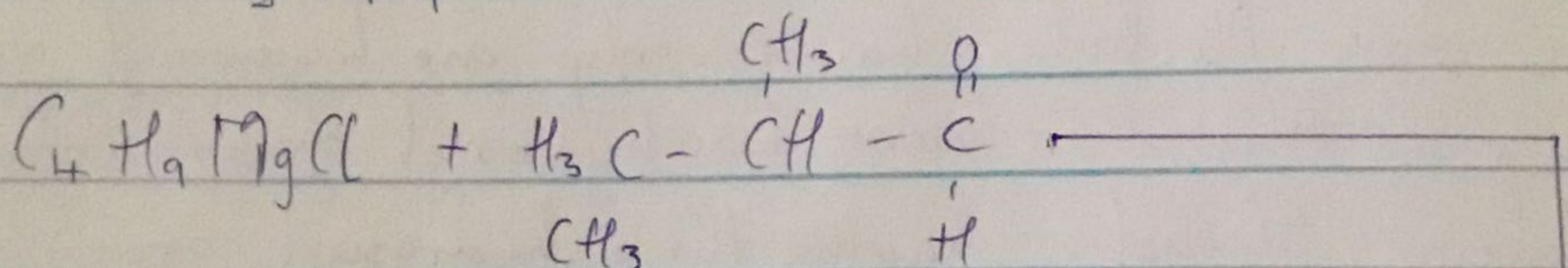




The maltose is broken down into glucose on addition of yeast which contains the enzymes maltase and at a temperature of  $15^\circ\text{C}$

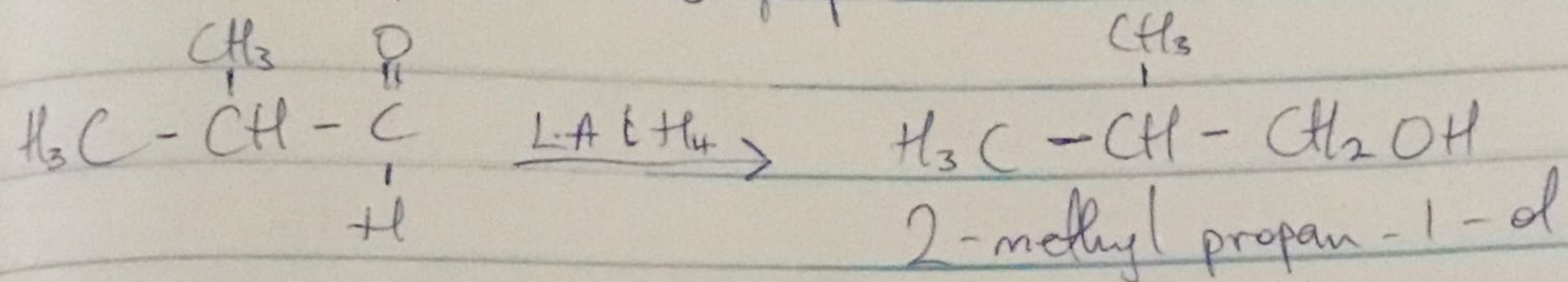


2-methyl propanal

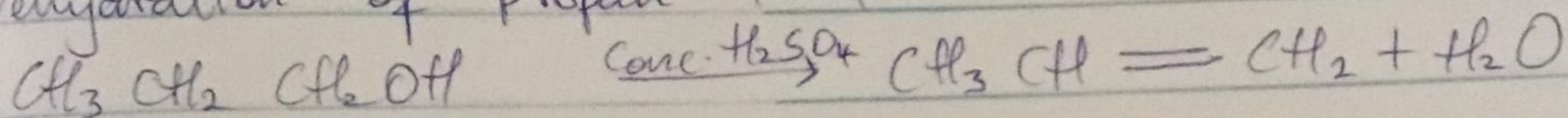




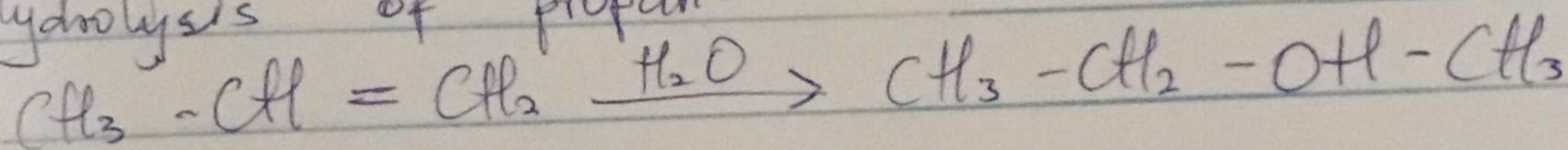
7. Reduction of 2-methyl propanoic acid



8. Dehydration of propan-1-ol



ii. Hydrolysis of propene



Propene is hydrolyzed to propan-2-ol in accordance with Markownikoff's addition which states that in an unsymmetrical reagent the negative part of the reagent gets attached itself to the carbon atom of the alkene which has less number of hydrogen atoms.