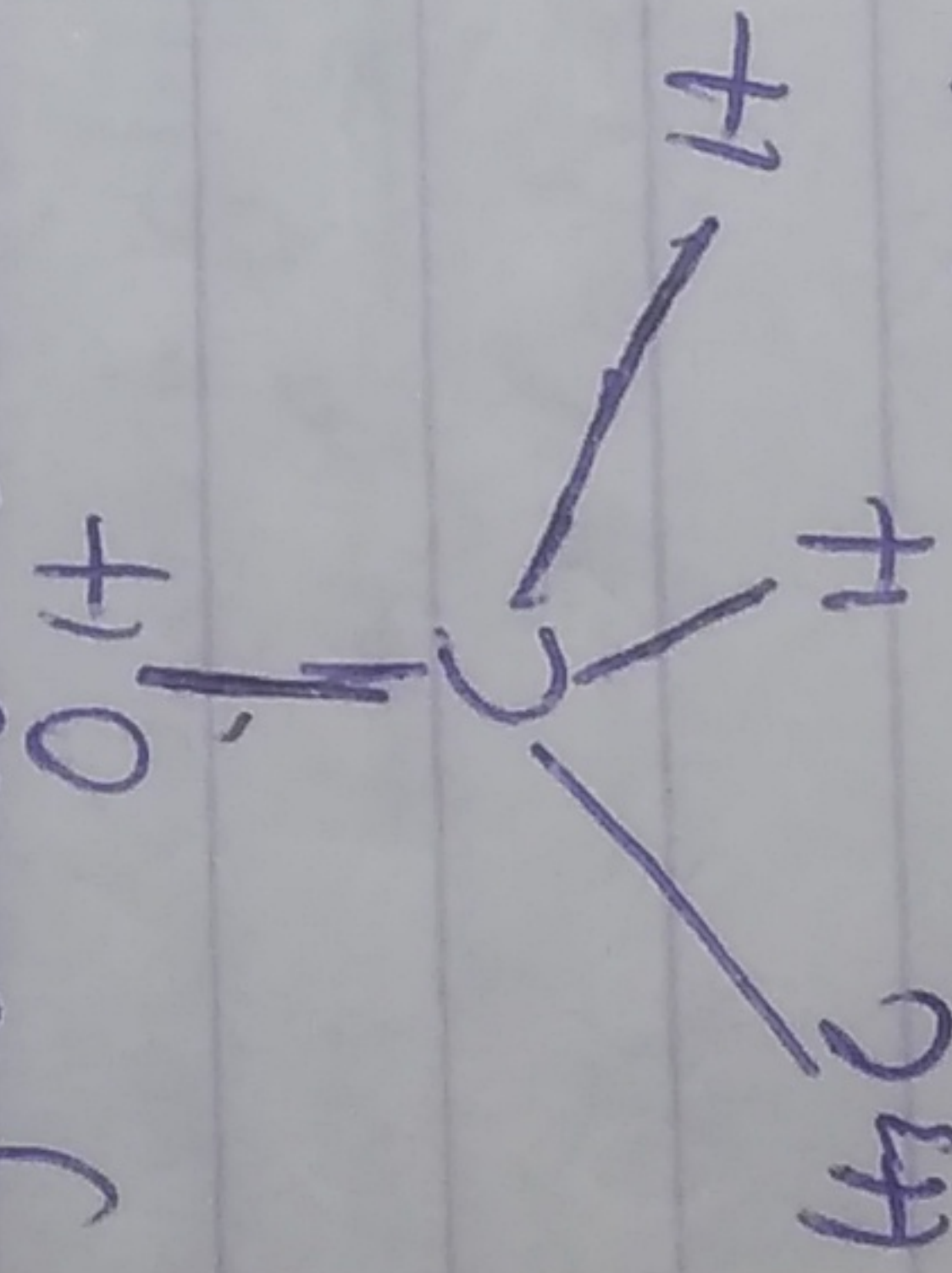


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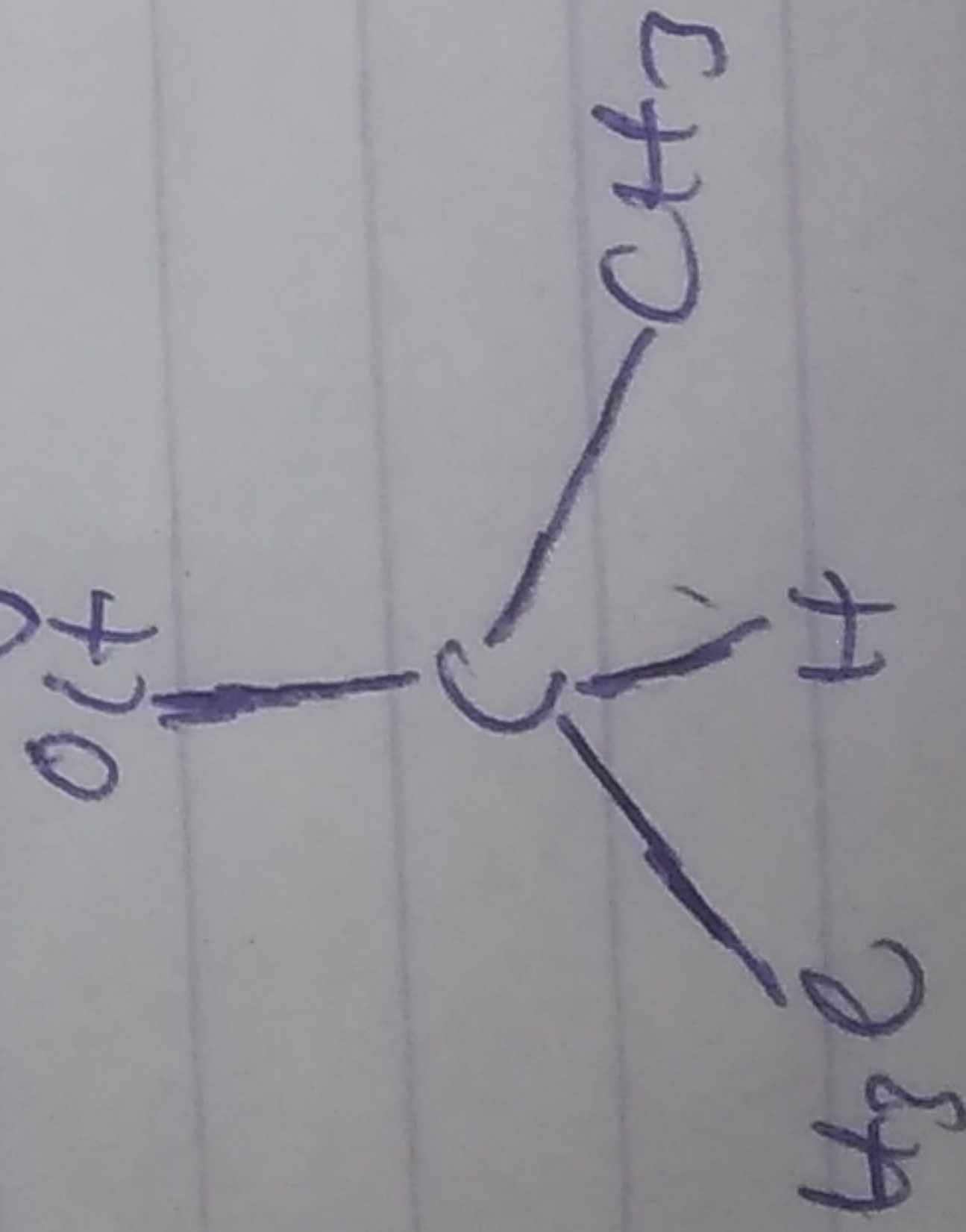
- (a) Depending on the number of hydroxyl groups attached, alcohols can be classified into three types
- (i) Monohydric alcohols e.g. $\text{CH}_3\text{CH}_2\text{OH}$
 - (ii) Dihydric alcohols e.g. $\text{C}_2\text{H}_4\text{O}_2$
 - (iii) Trihydric alcohols: $\text{C}_3\text{H}_8\text{O}_3$

(b) Depending on the number of carbon atoms which are directly attached to the carbon that is bonded with the OH groups, alcohols can be classified into three types.

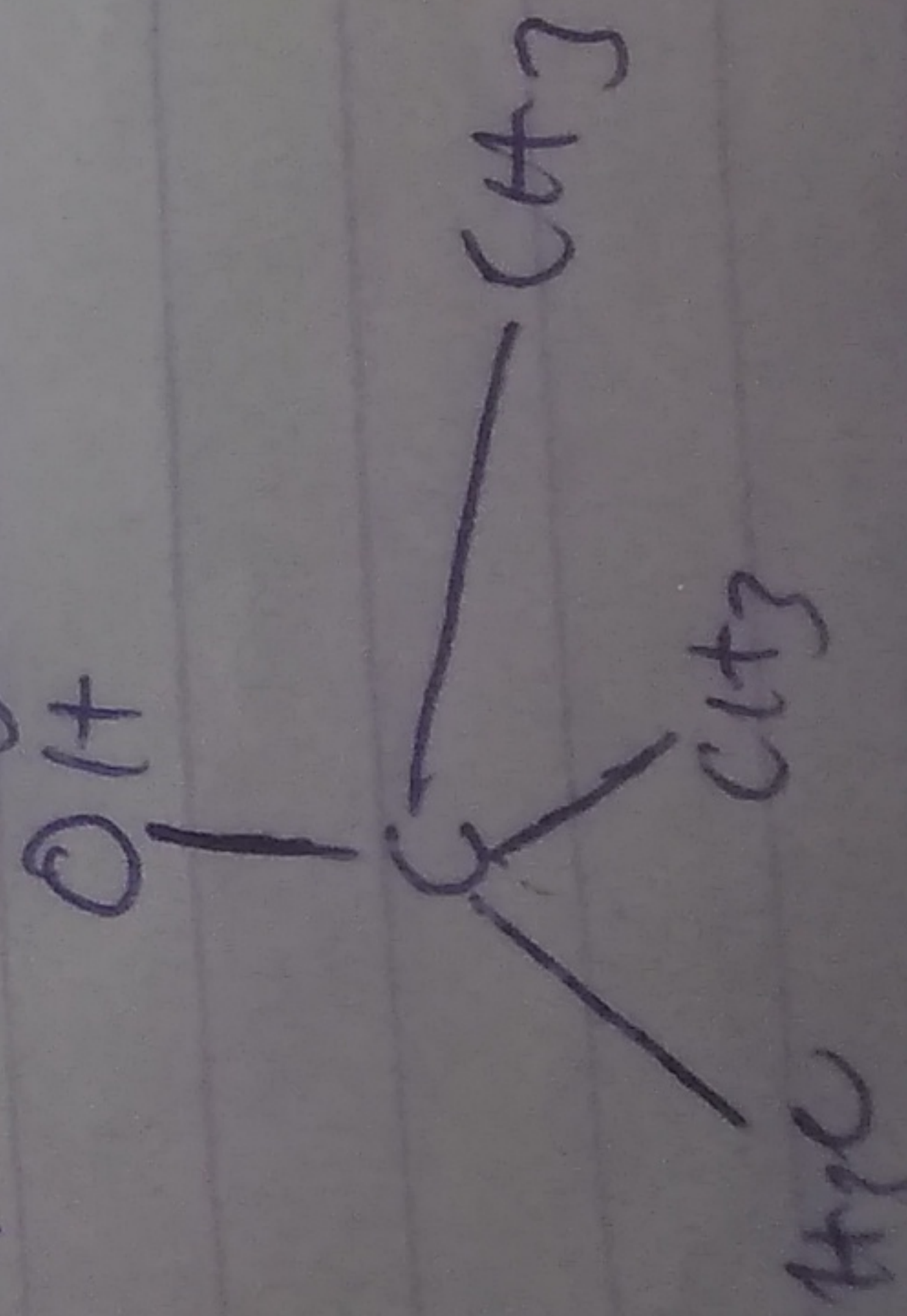
(i) Primary alcohols



(ii) Secondary alcohols



(iii) Tertiary alcohols



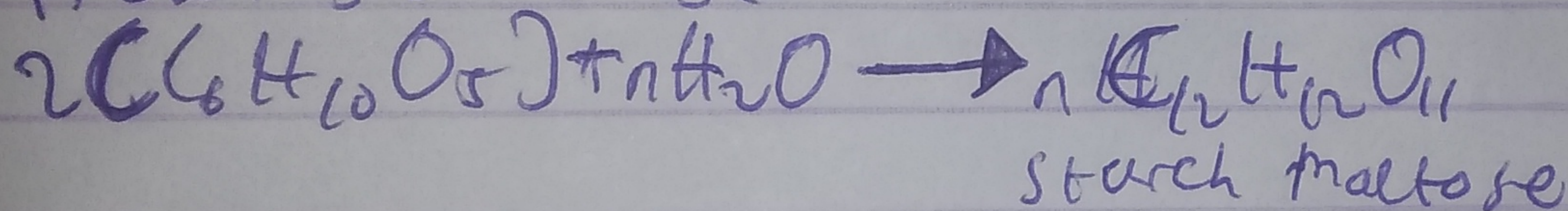
⑥ In the case of alcohols, just as it happens in case of other biological molecules, the basic solubility rule that "like dissolves like" is a bit more complexed. Each alcohol consists of a carbon chain (always non-polar) and an OH group (which is polar). For ethanol, for example the chemical formula looks like this: C_2H_5OH . Ethanol has a 2 carbon chain and an OH group. As water is polar it attracts OH while the non-polar carbon chain is repelled.

③ Extraction of starch:-

The crushed potato is steamed at 140°C to 150°C under pressure to prepare starch solution known as mash. Germination at 10°C to 13°C for few days. This germinated starch is called malt.

- Hydrolysis of starch:-

The starch is hydrolysed to maltose by an enzyme known as diastase.

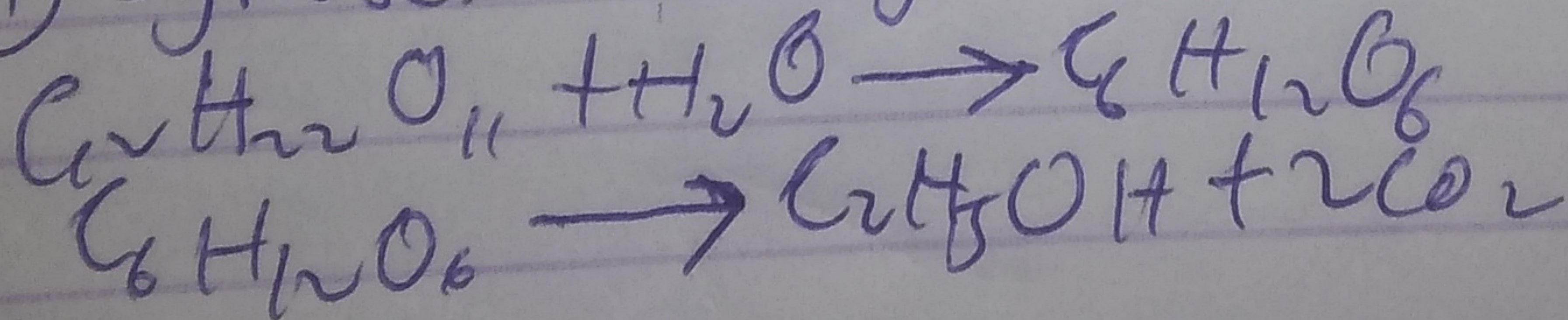


- Fermentation

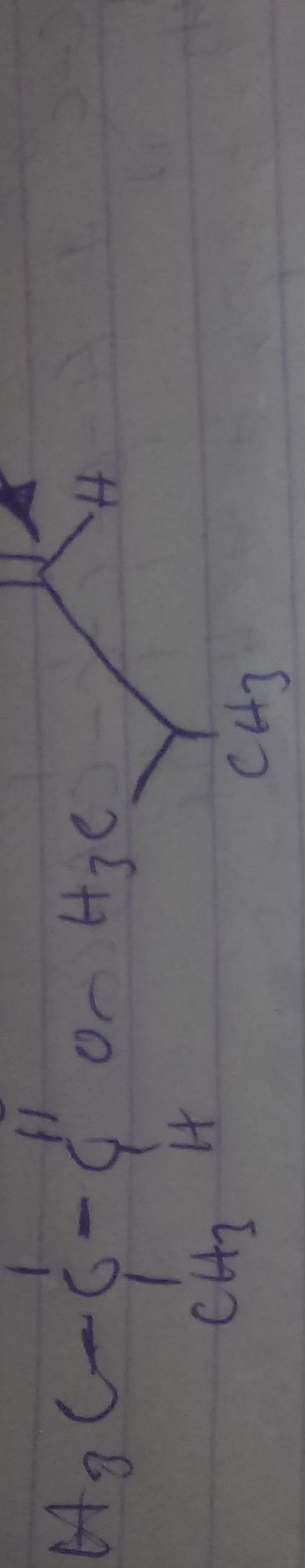
Finally yeast is added to maltose. Yeast secretes two enzymes:-

① maltase:- converts maltose into glucose

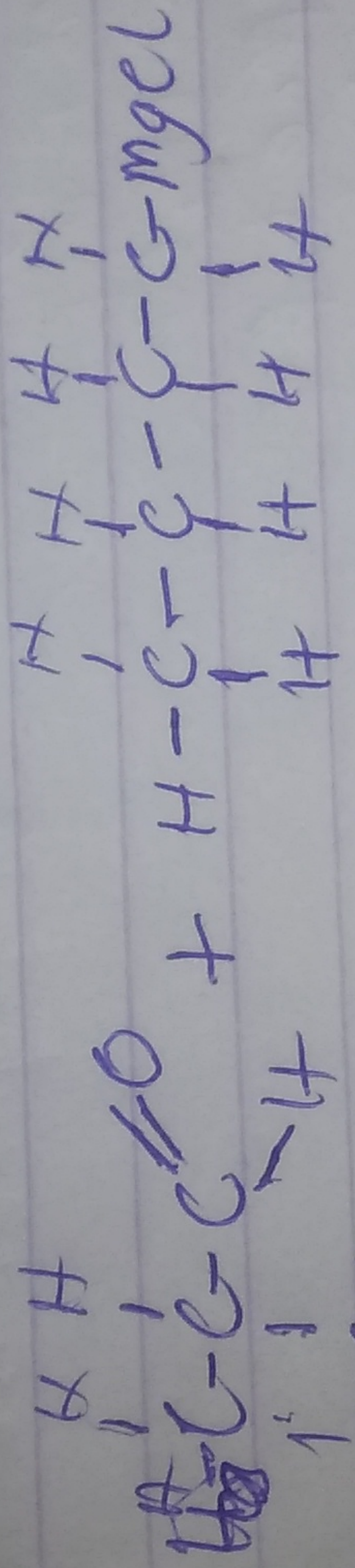
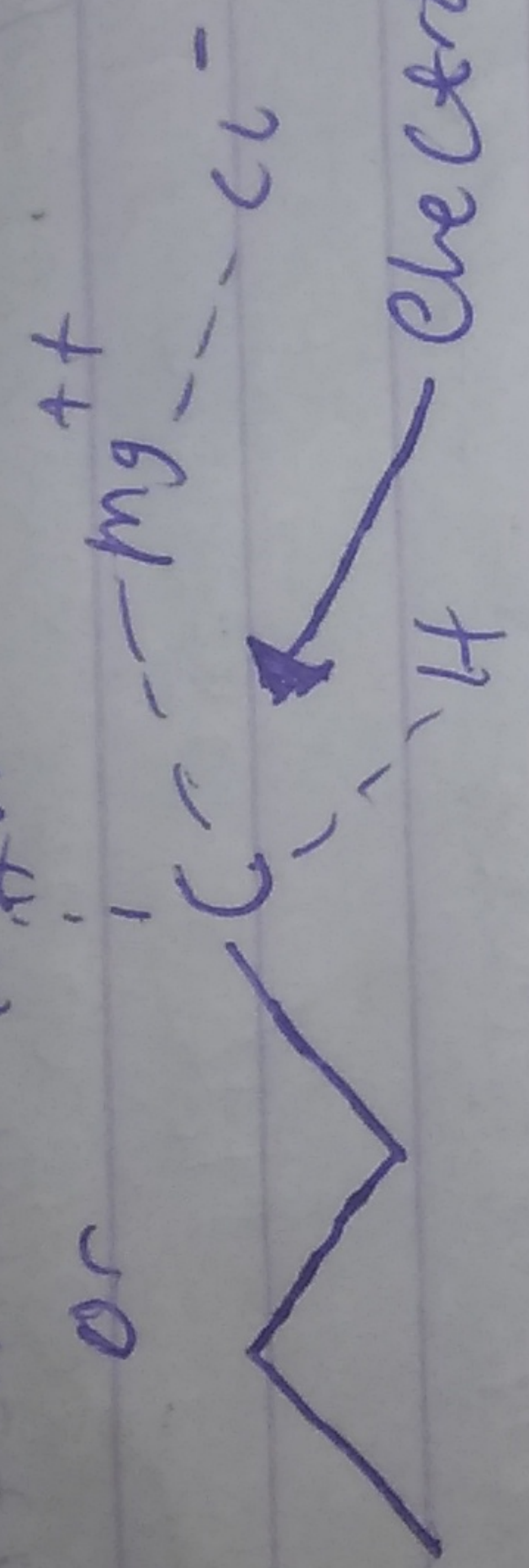
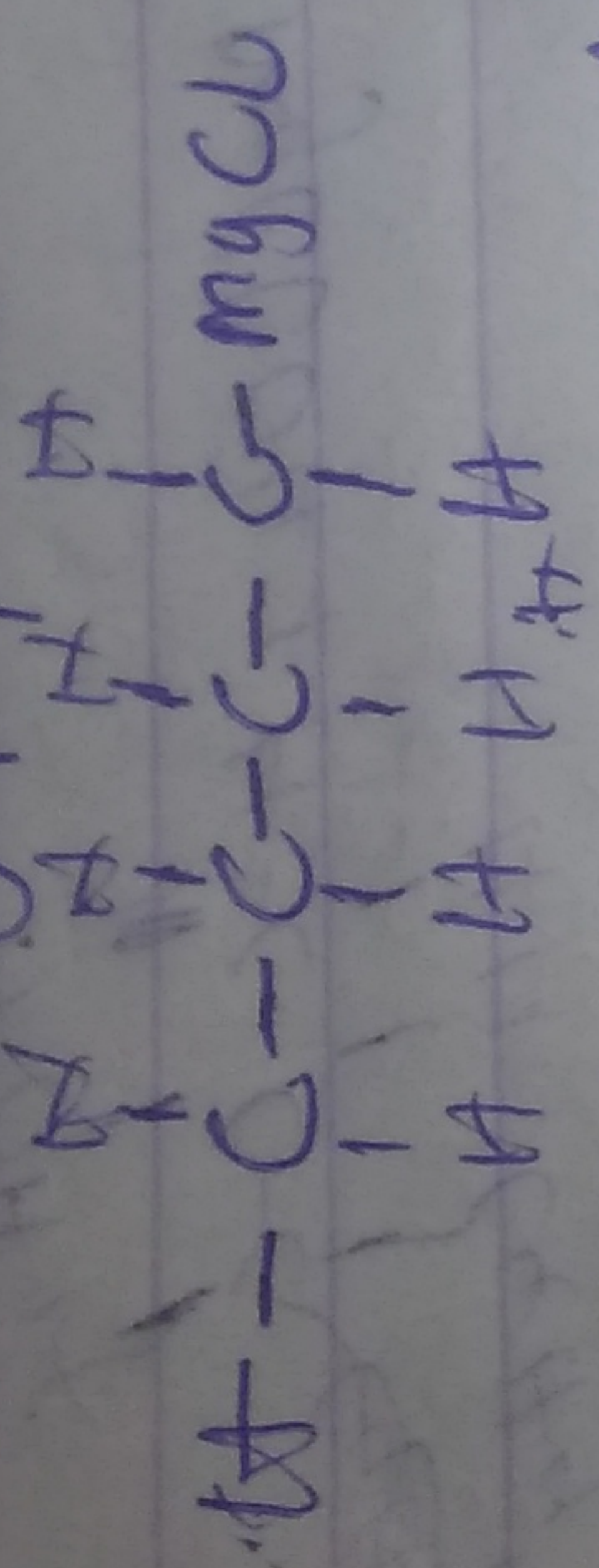
② zymase:- convert glucose into ethanol.



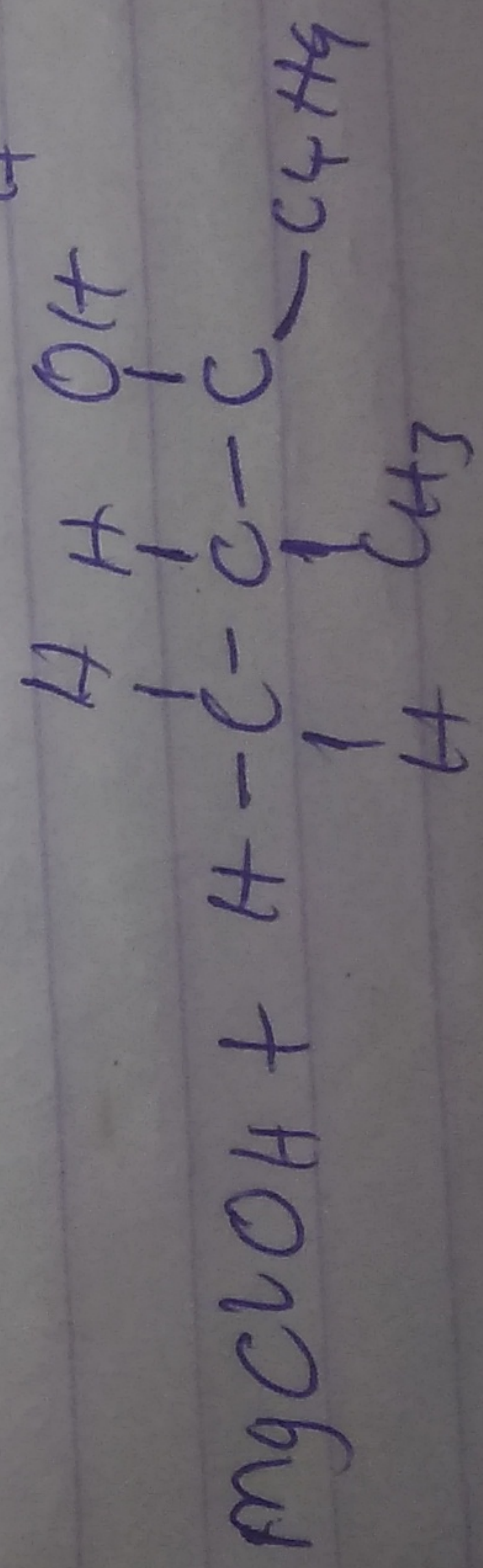
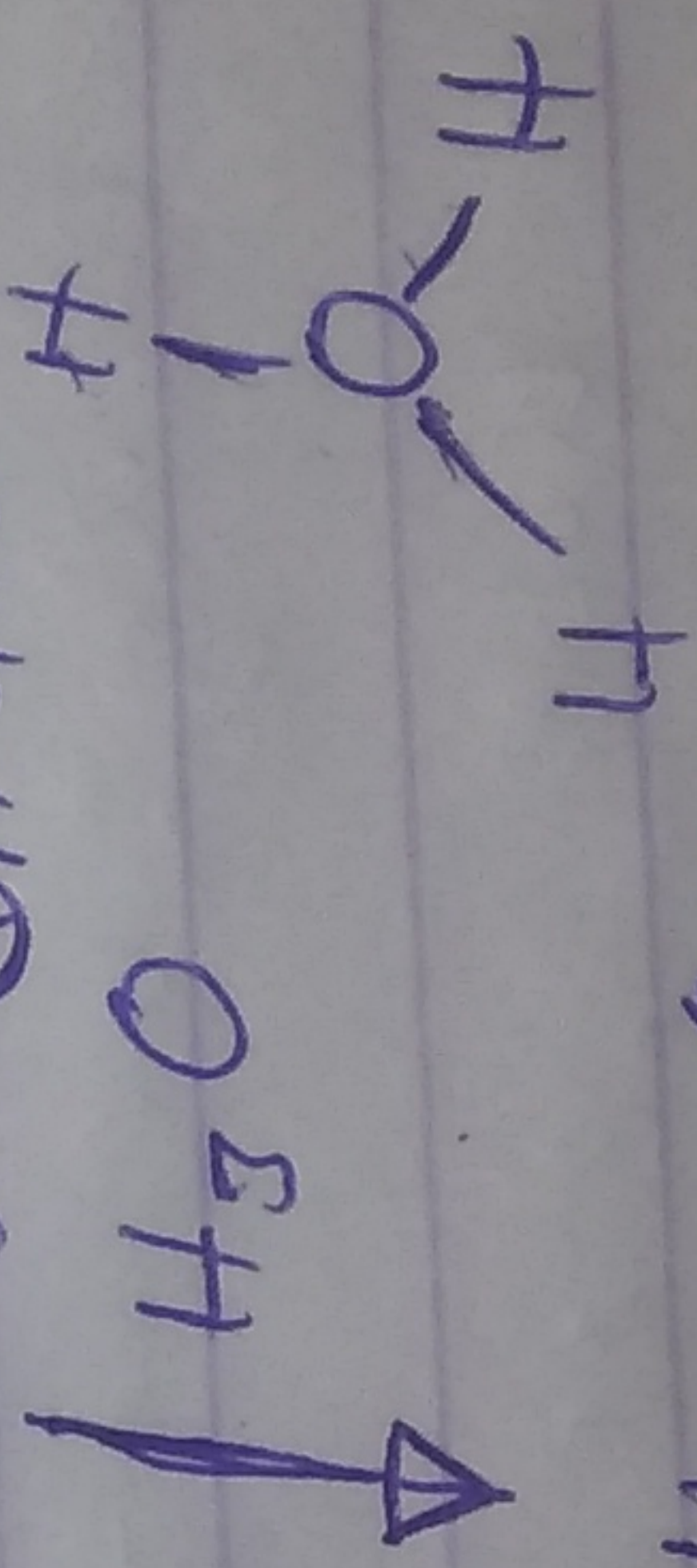
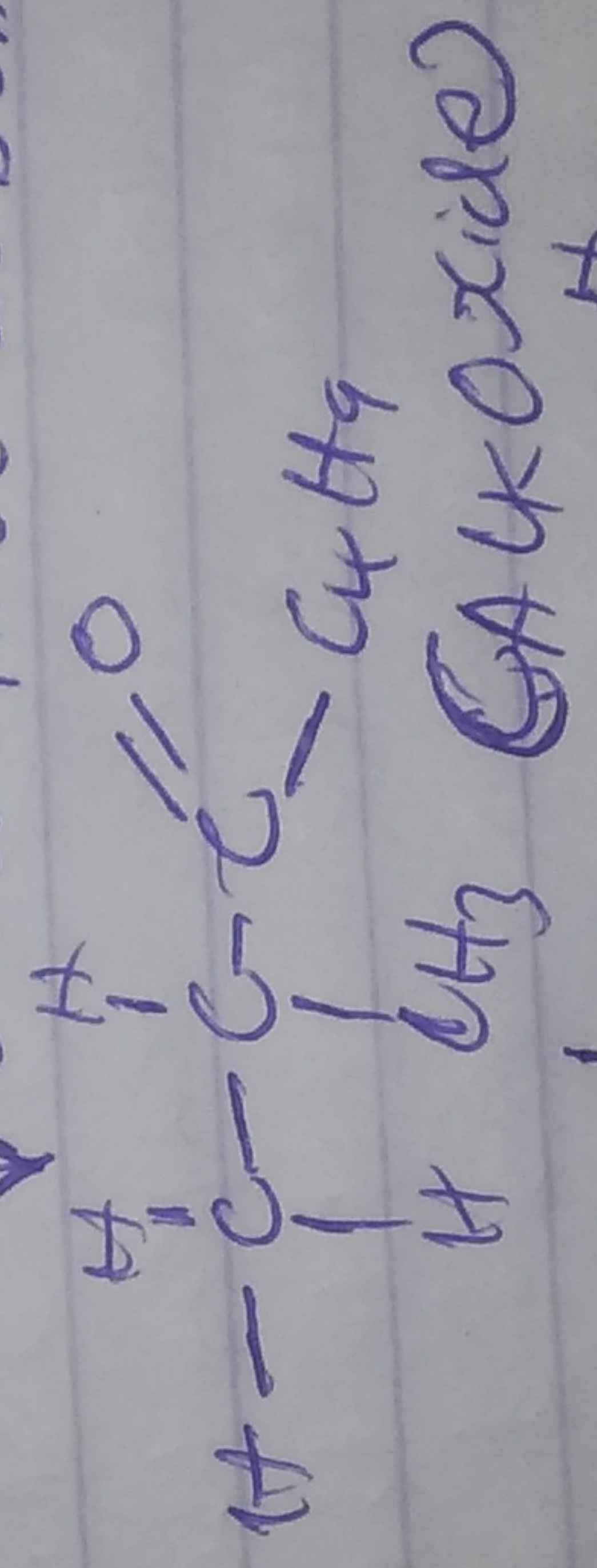
Q) 2-methylpropanal + butylmagnesium chloride?
 (the Grignard synthesis)



2-methylpropanal



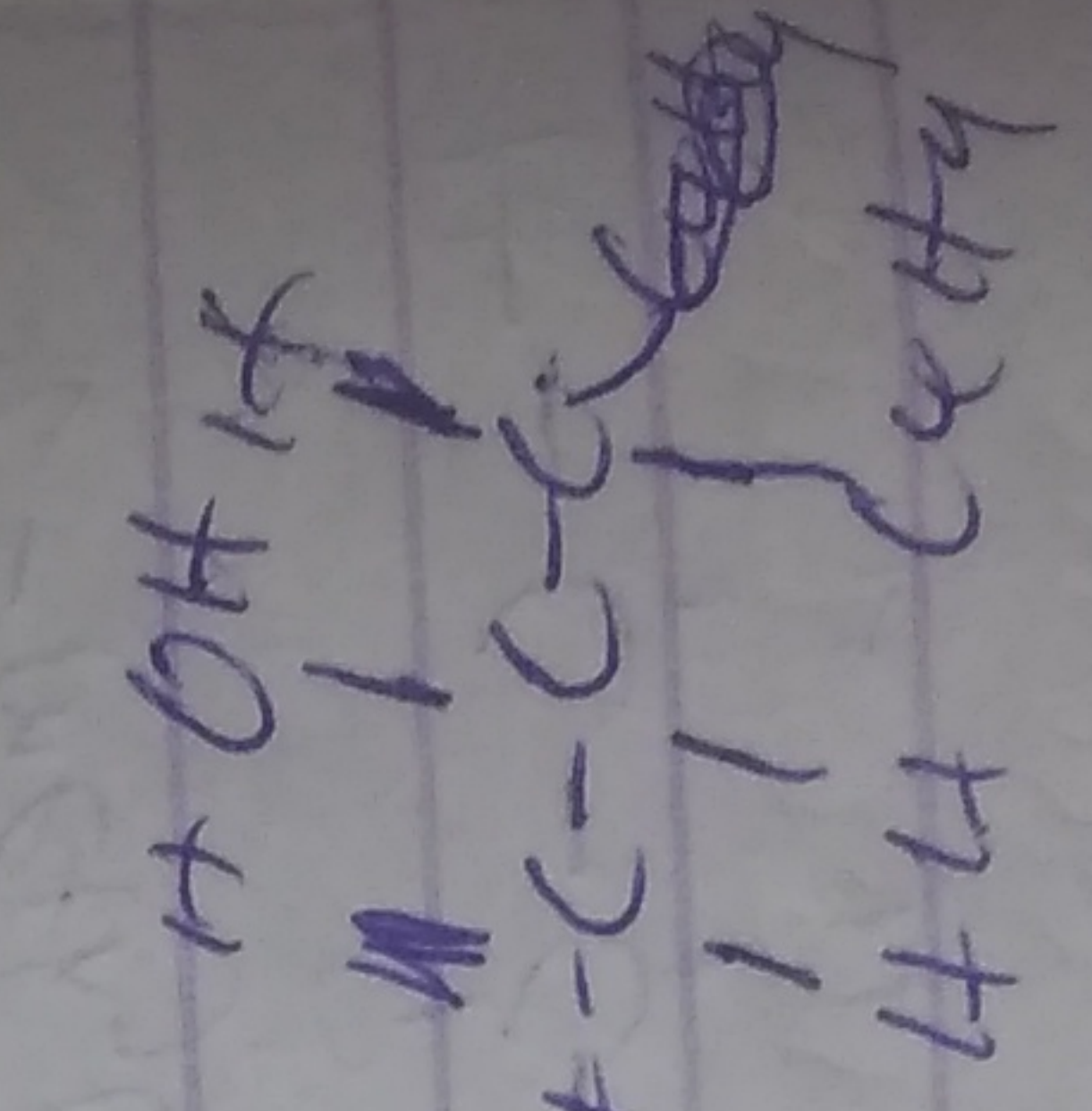
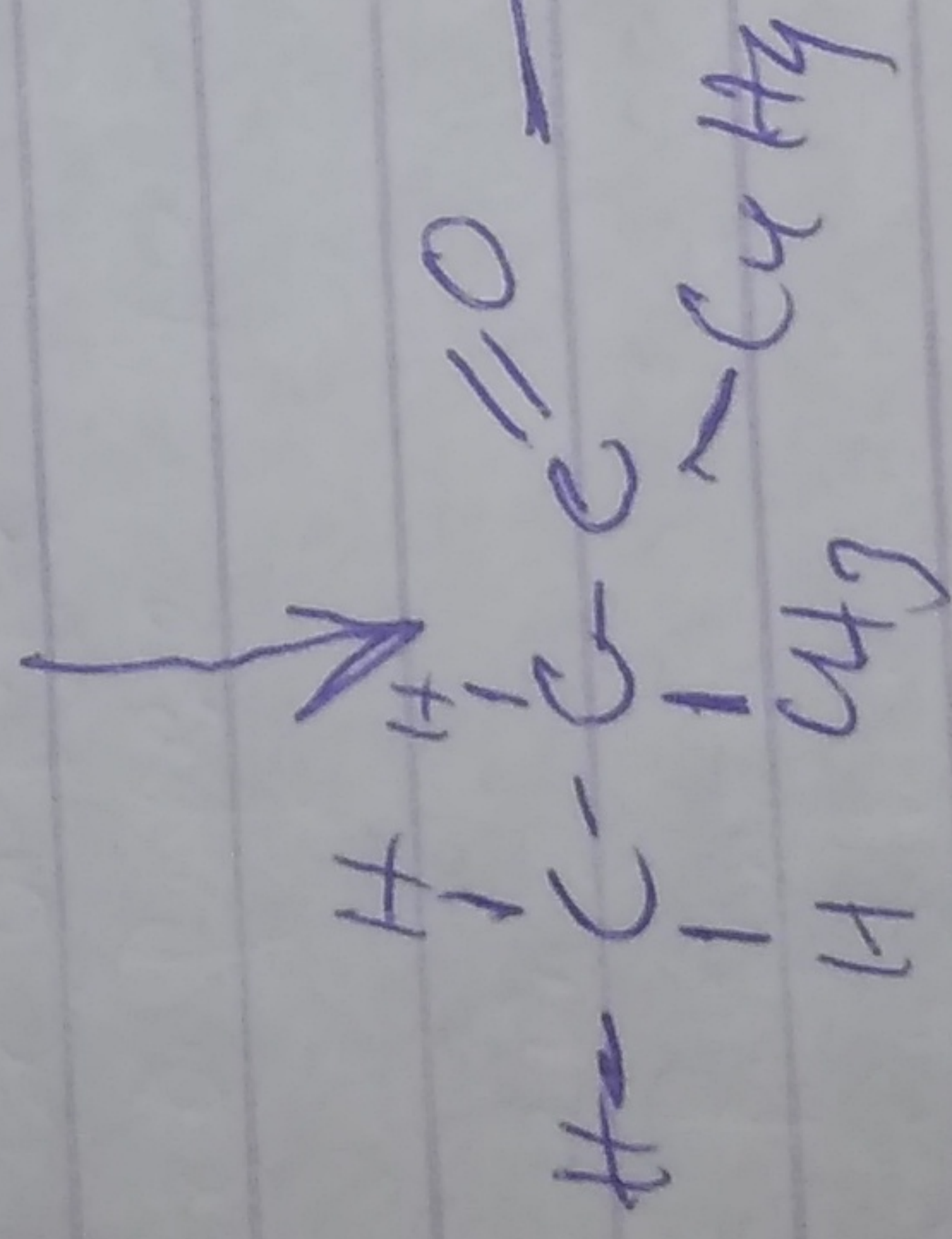
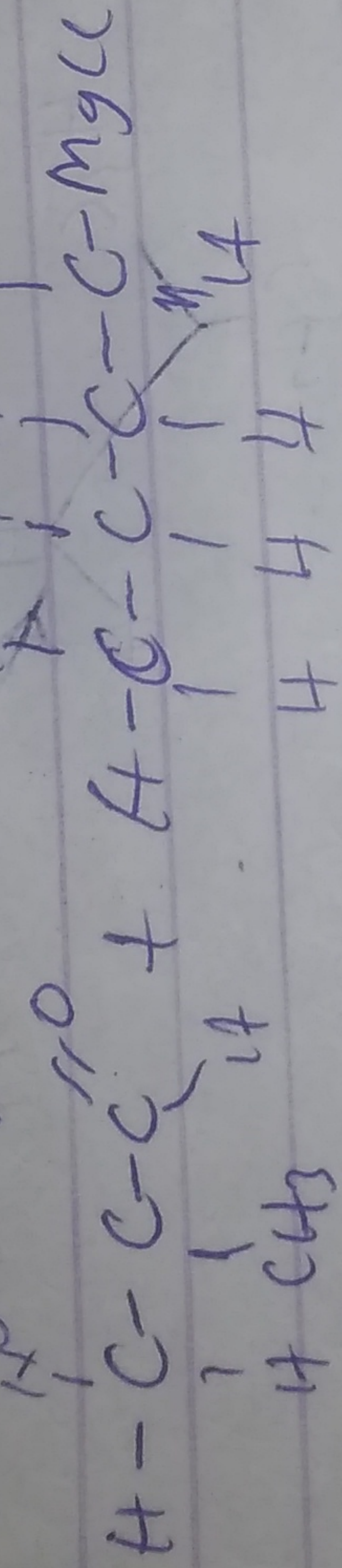
nucleophilic carbon attacks electrophilic carbon



MgClOH + H₃C-CH₂-CH₂-CH₃

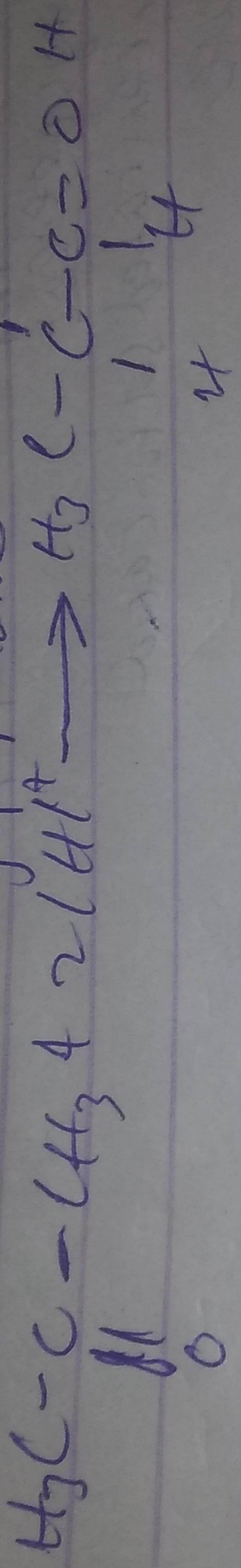
⑤ 2-methylpropane + butylmagnesium chloride

(Grignard synthesis)

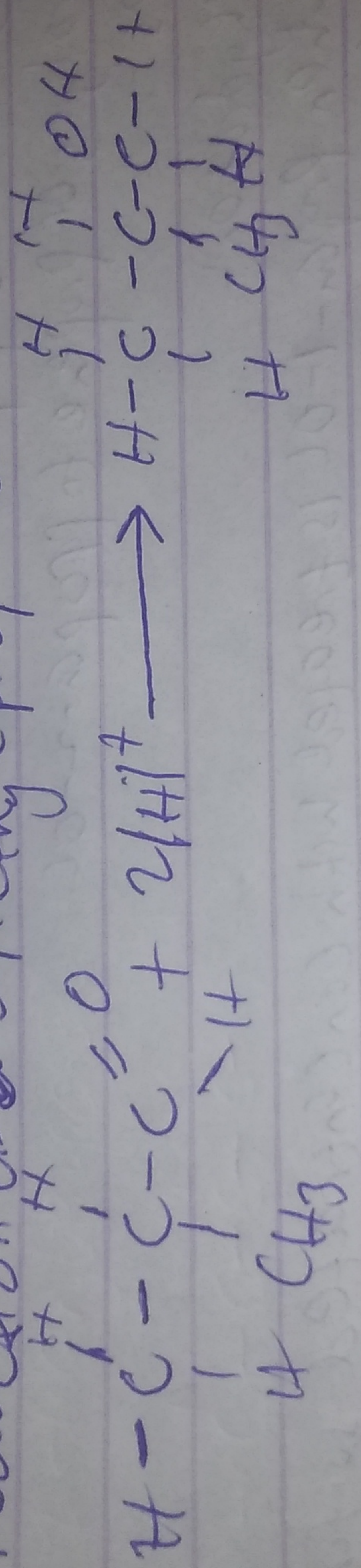


[Faint handwritten notes and diagrams, possibly showing the mechanism of the Grignard reaction, including the formation of a tetrahedral intermediate.]

① reduction of 2-methylpropanone



② reduction of 2-methylpropanal



8) to convert propan-1-ol to propan-2-ol

things needed

(1) concentrated sulfuric acid

(2) water

Process involved

(1) Dehydration of propan-1-ol to propene

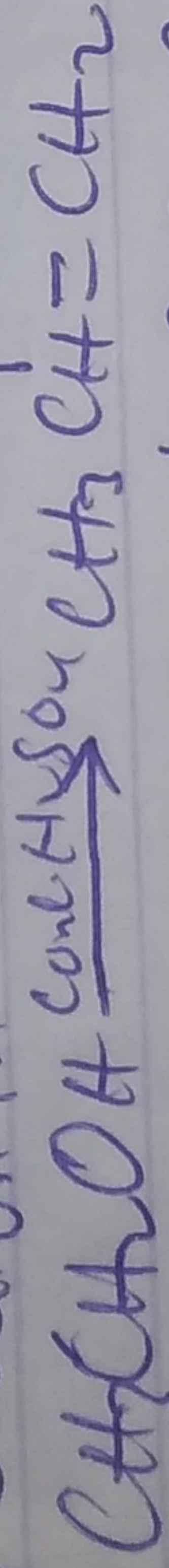
(2) Hydrolysis of propene to propan-2-ol.

Steps:-

(1) Dehydration

- When propan-1-ol is treated with concentrated sulfuric acid (H_2SO_4) the phenomenon called dehydration occurs due to which a water molecule from propan-1-ol gets eliminated.

- Due to this propan-1-ol gets converted into propene. The reaction involved is as follows



(2) Hydrolysis of propene to propan-2-ol

- Propene can be hydrolysed to propan-2-ol in accordance

with mechanism known as Markownikoff's addition.

- It states that when an symmetrical reagent the negative part of the reagent gets attached to the carbon atom of the alkene which has less number of hydrogen atoms

- In case, the unsymmetrical reagent used in H_2O which is composed of H^+ and OH^- part.

- Due to the hydrolysis or water, the negative part attaches itself to the propene and thus convert it as propan-2-ol.

The reaction involved is as follows:-

