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(1a) Classification based on the number of hydrogen atoms attached to the carbon containing the hydroxyl groups.

If the number of hydrogen atoms attached to the carbon atom bearing the OH group are two or three it is called a Primary alcohol (1°). If it is one hydrogen atom it is called 'Secondary alcohol (2°)', but if there is no hydrogen atom, it is called 'tertiary alcohol (3°)'. It is characterized by $>C-OH$ e.g.

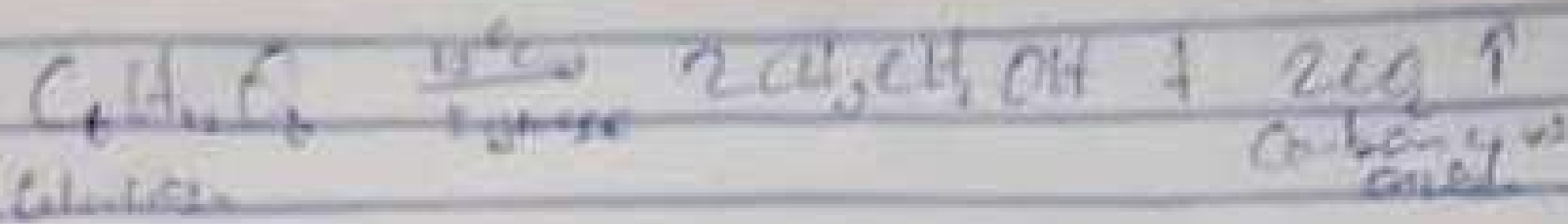
- i) CH_3CH_2OH - Ethanol (1°)
- ii) $CH_3CH(OH)CH_3$ - Propan-2-ol (2°)

(b) Classification based on the number of hydroxyl groups they possess:

Monohydric alcohols possess one hydroxyl group per molecule present in the alcohol structure. 'Dihydric alcohols' have two hydroxyl groups. They are also called 'glycols'. While 'Trihydric alcohols or triols' have three hydroxyl groups in the alcohol structure. 'Polyhydric alcohols or polyols' have more than one hydroxyl group e.g.

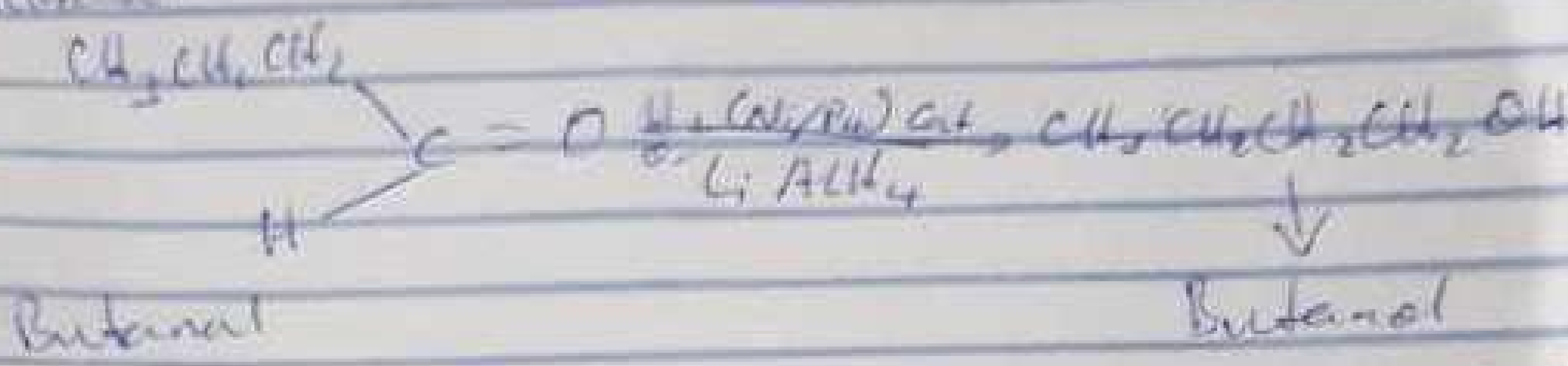
- i) $CH_3CH_2CH_2OH$ - Propan-1-ol (monohydric)
- ii) $CH_2(OH)CH_2(OH)CH_2(OH)CH_2(OH)CH_2(OH)CH_2(OH)$ - Hexane 2,4-diol (Dihydric)

(2) Alcohol reagents: CH_3CH_2MgCl [ethyl magnesium chloride]



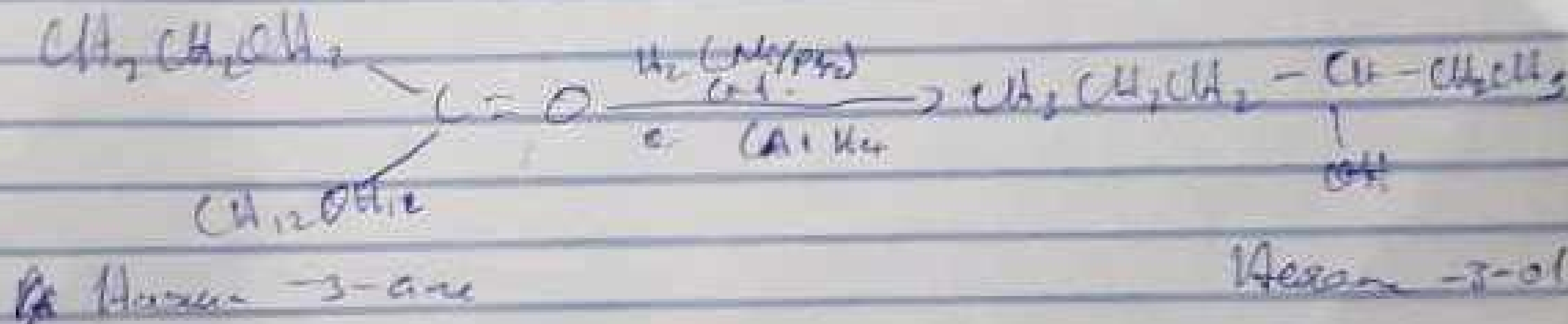
② The reduction of alkanone and alkanal using Meerwein-Ponndorf Reaction

① Alkanal



The reaction above shows that the reduction of an alkanal (butanal) to an alkanol (butanol).

Alkanone



The reaction above shows the reduction of an alkanone [Hexan-3-one] to an alkanol [Hexan-3-ol].