

SYNTHETIC REAGENTS

1.

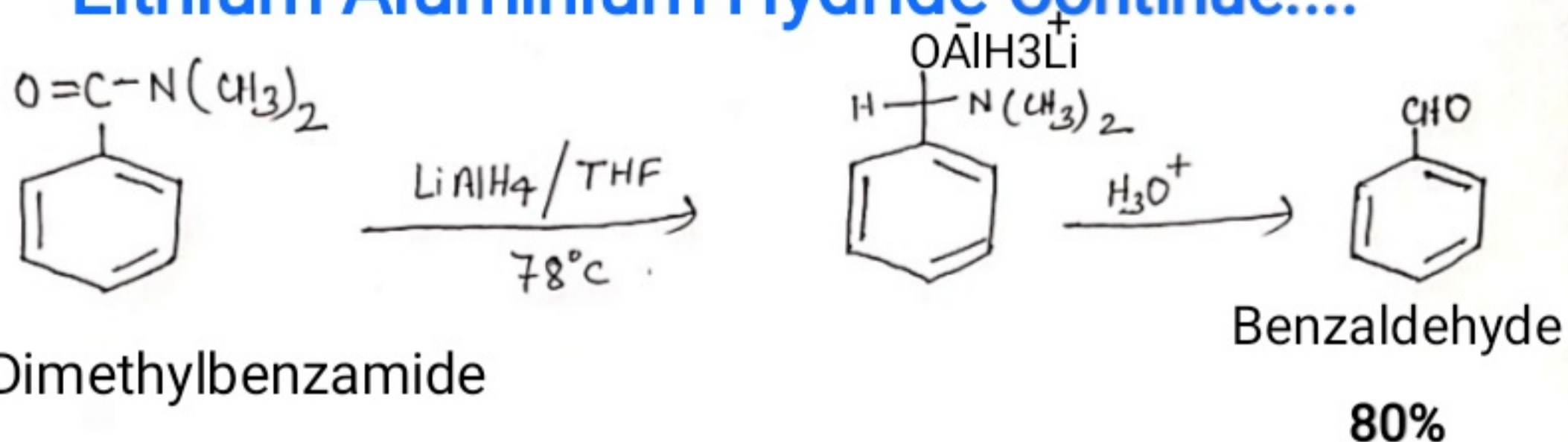
Organic chemistry
Paper -VII, Chapter-2

LECTURE-3

By-Dr.Rinky
04-08-2020

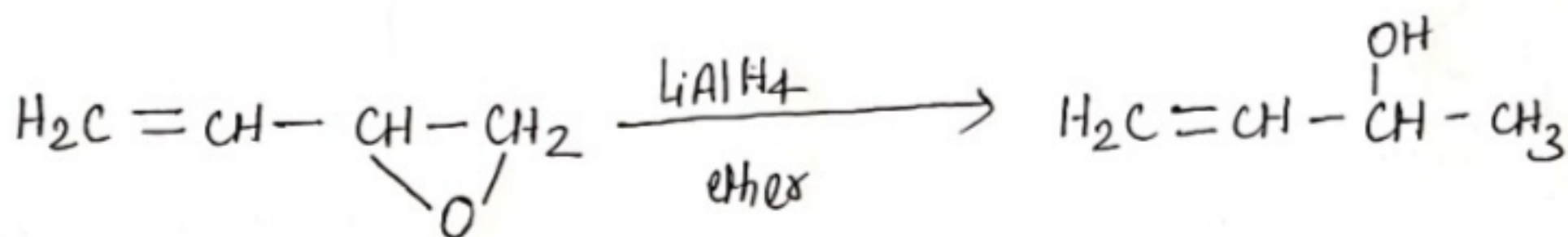
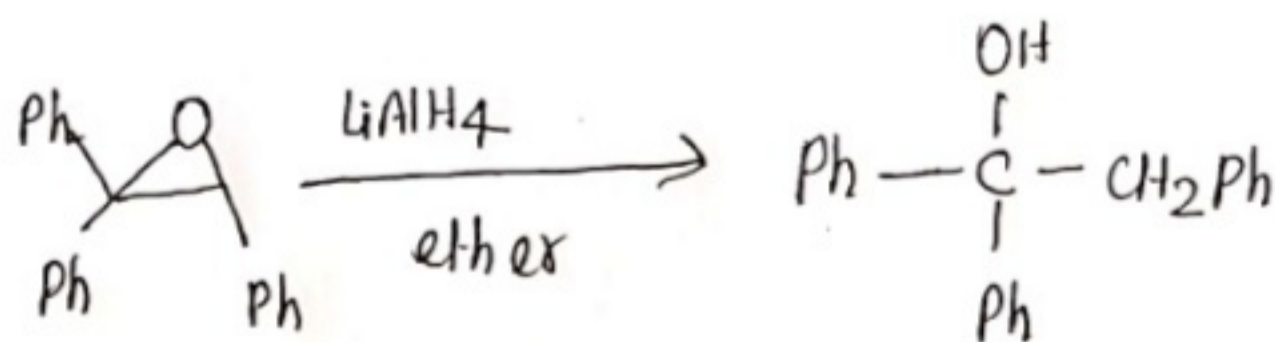
DEGREE-III (CHEMISTRY HONS.)

Lithium Aluminium Hydride Continue....



Reduction of Cyclic Ethers

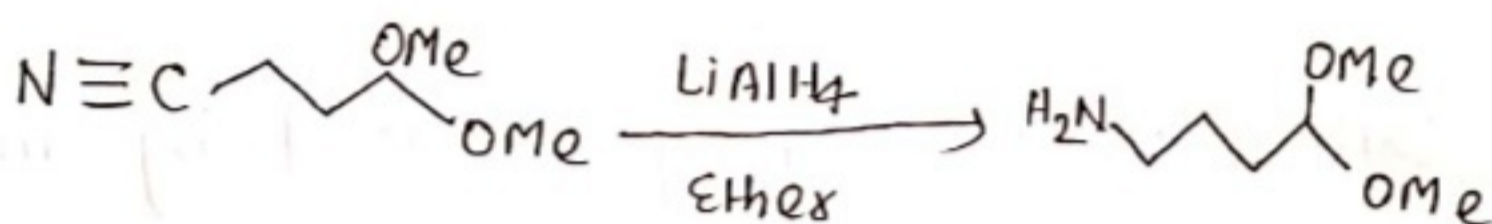
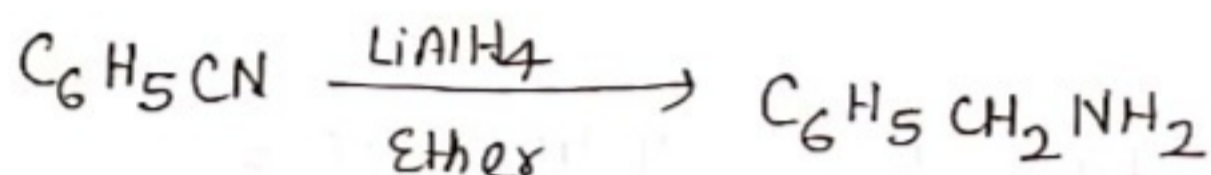
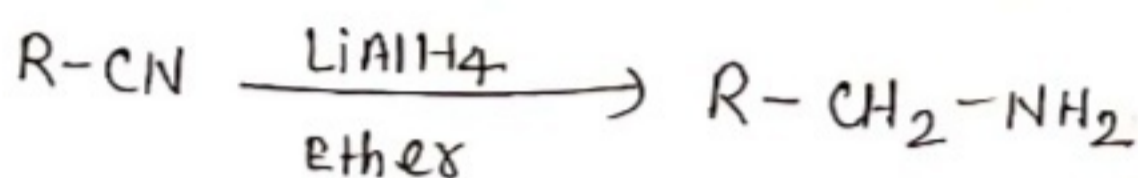
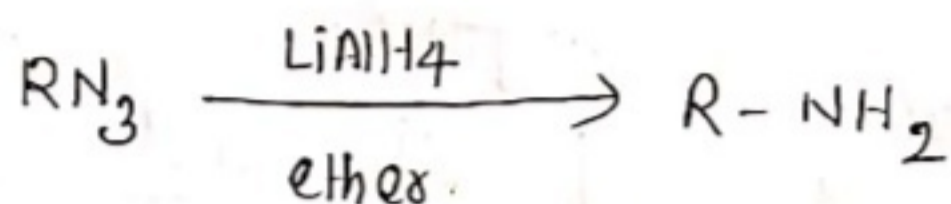
- * Epoxides (oxiranes) are easily reduced by LiAlH_4 to alcohols.
- * Unsymmetrical epoxide gives highly substituted alcohol.
- * The reaction takes place at less substituted carbon atom by the $\text{S}_{\text{N}}2$ mechanism.



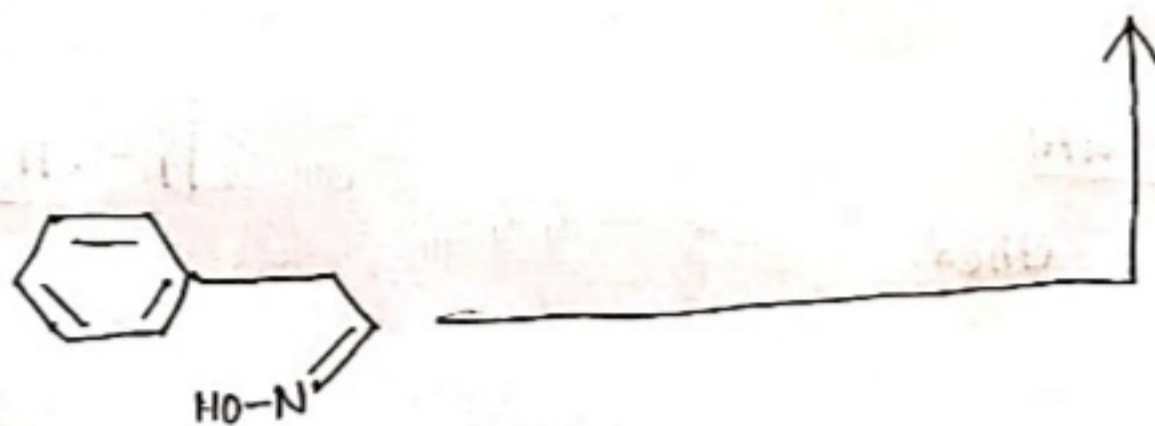
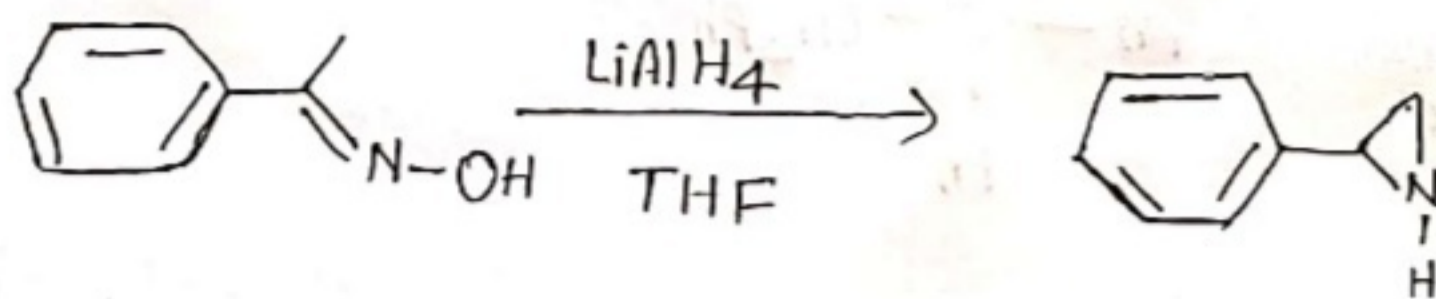
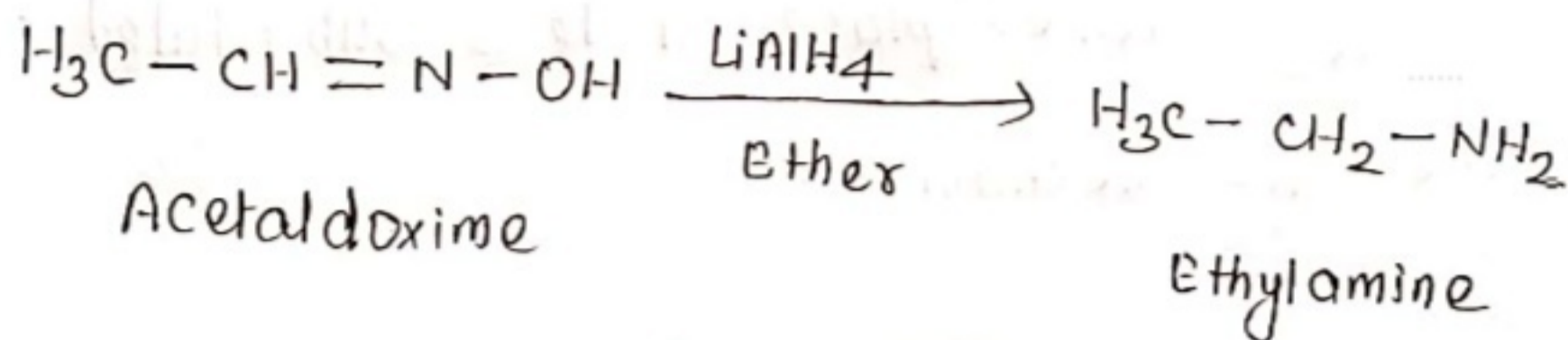
Reduction of Azides, Nitriles, Amides, Nitroalkanes, Imines And Oximes :-

2.

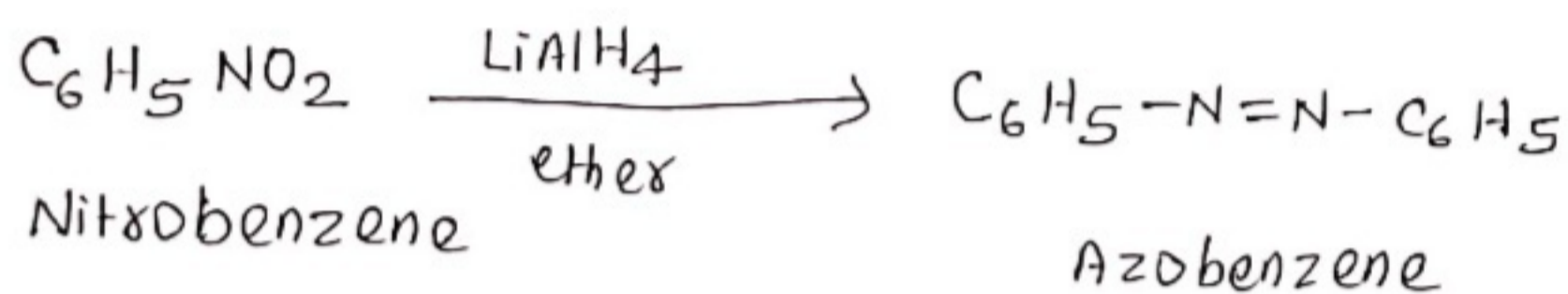
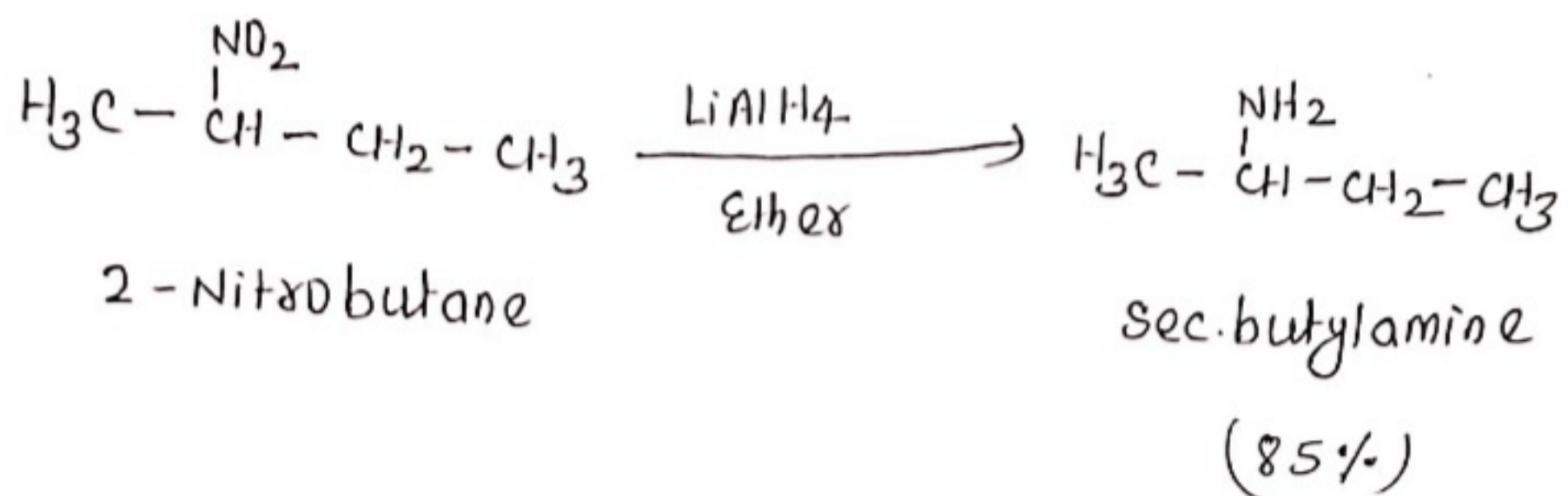
* Reduction of Azides and Nitriles with LAH gives Primary amines.....



* Oximes are reduced to primary amines by LAH, for example - Acetaldoxime forms ethylamines.



* Aliphatic nitro compounds gives primary amines, however, aromatic nitro compounds give complex products.



* Lactam are reduced to cyclic amines by LAH.

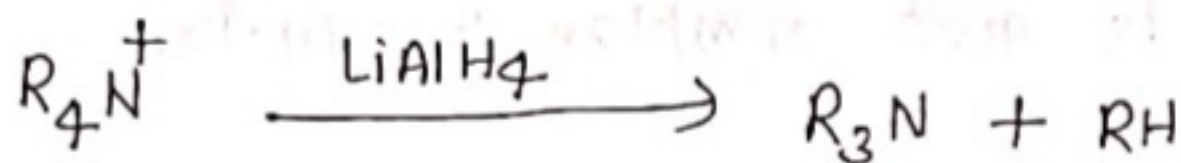
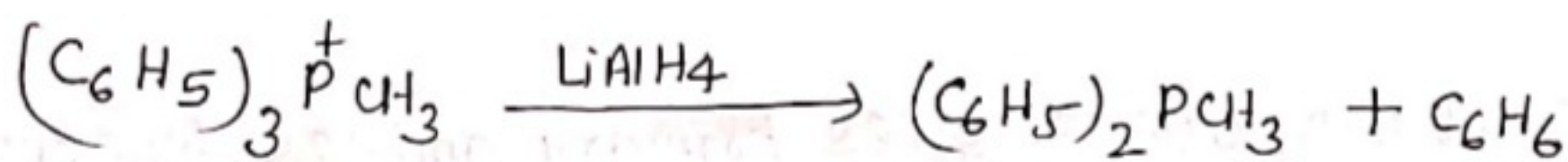
For example, 2-pyrrolidinone is converted into pyrrolidine.



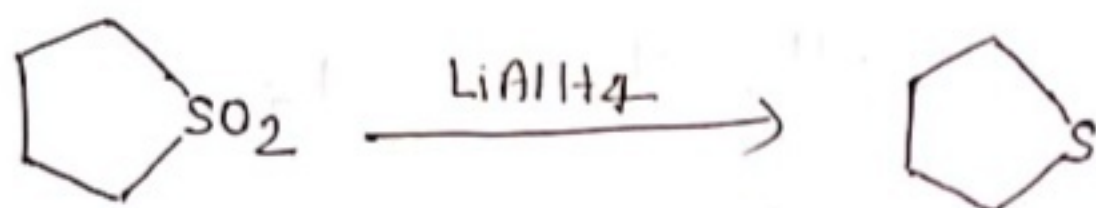
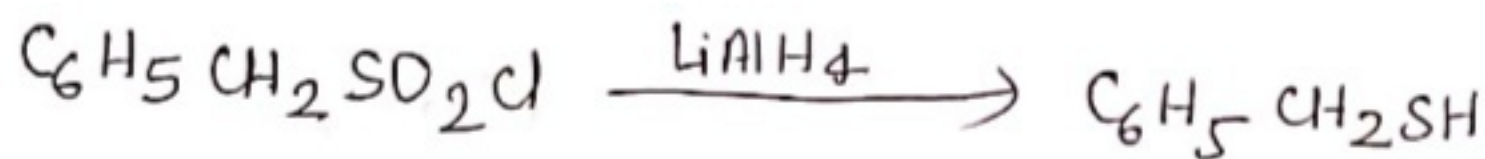
Reduction of phosphonium & ammonium salts :-

Phosphonium salts are reduced by LAH to phosphines and hydrocarbons.

Similarly, quaternary ammonium salts can be cleaved with LAH.

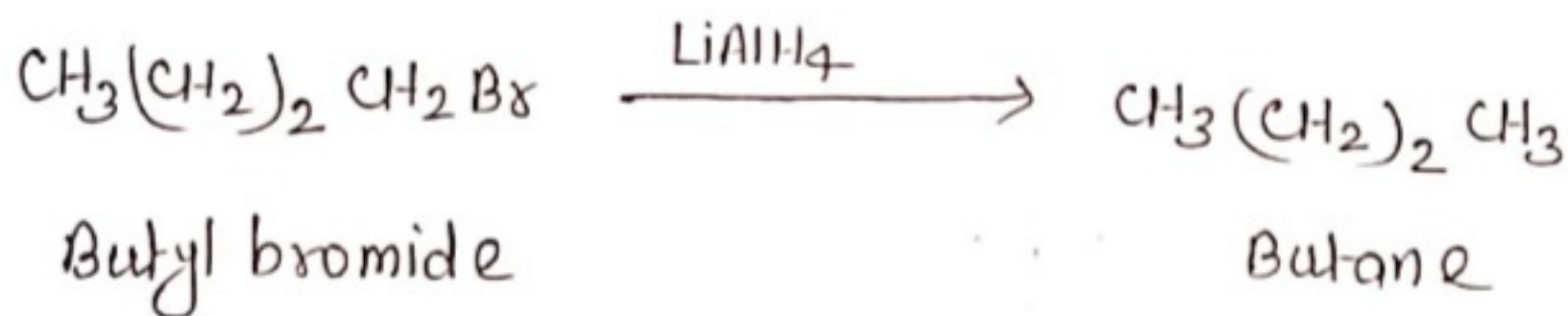


Reduction of sulphur compounds :-

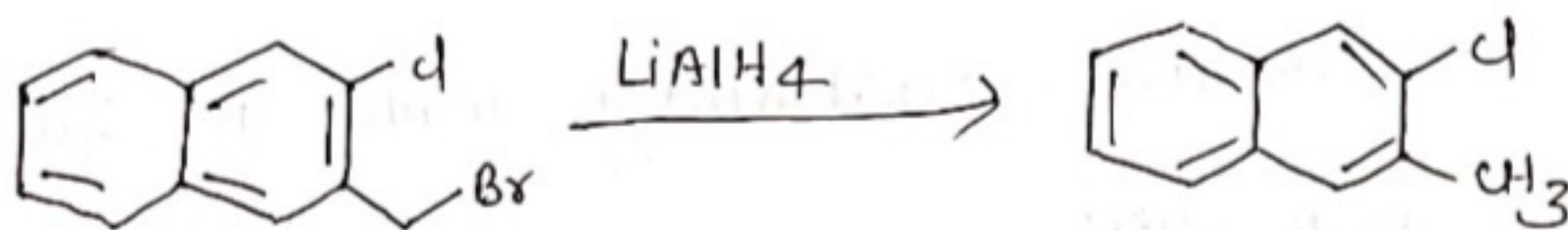
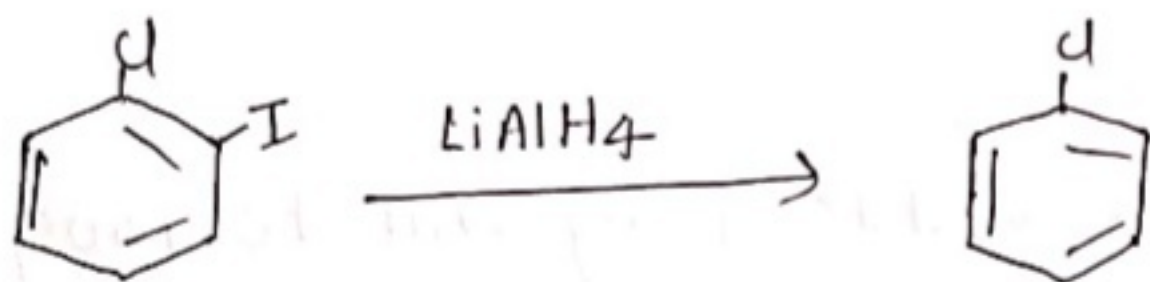


Reduction of alkyl halides & aryl halides:-

1° and 2° alkyl halides are reduced to alkanes by LAH.



* Aryl halides are resistant to reduction with LAH, but activated halides can be reduced.

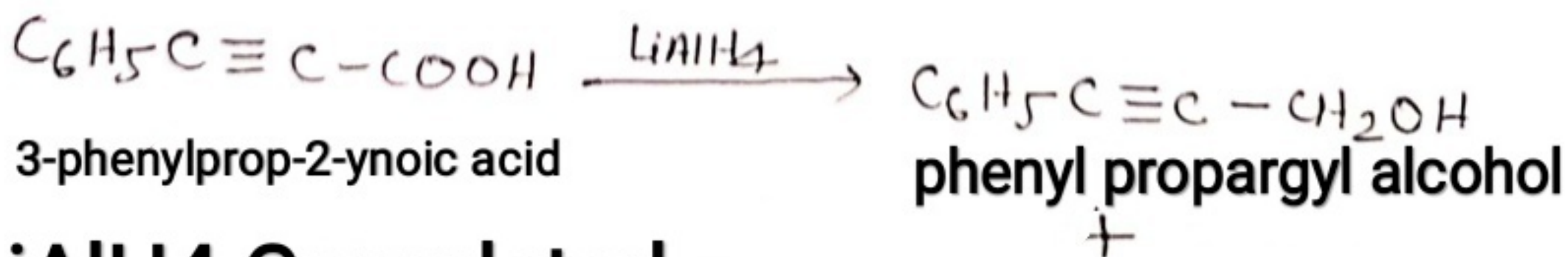
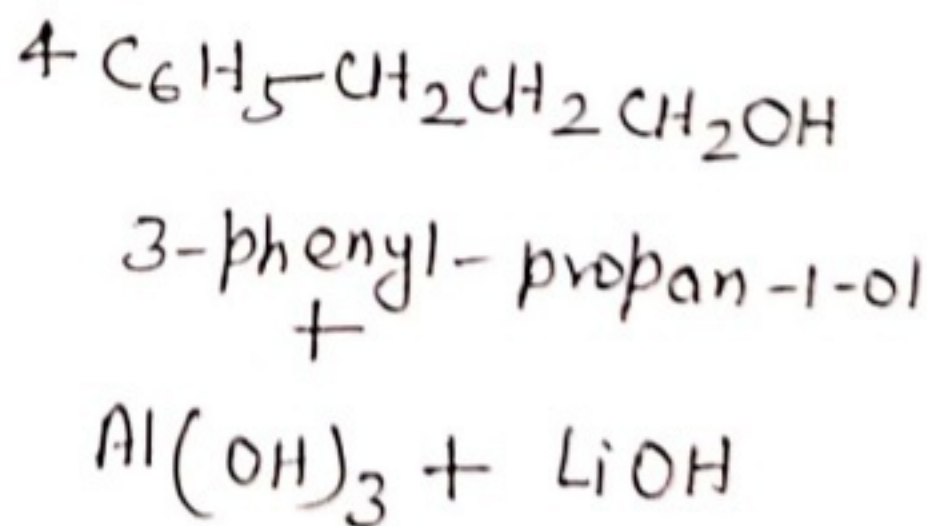
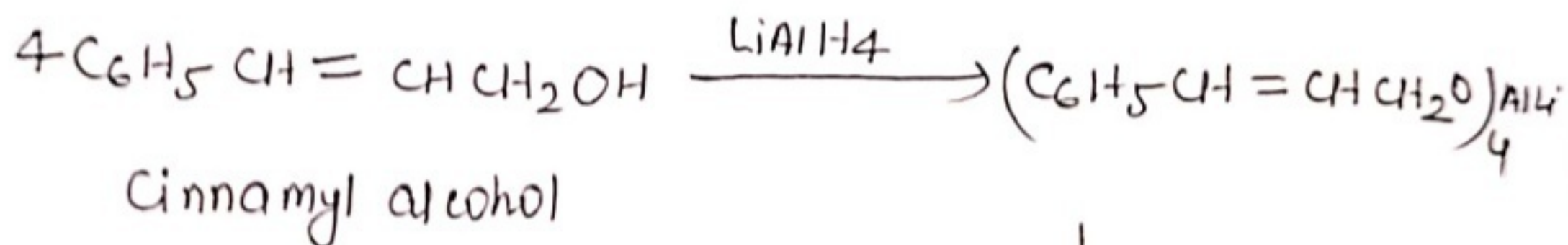


Reduction of dibromide with LiAlH_4 in THF gives prehnitene..

5.



Reduction of allylic & propargylic alcohols:-



LiAlH_4 Completed..

