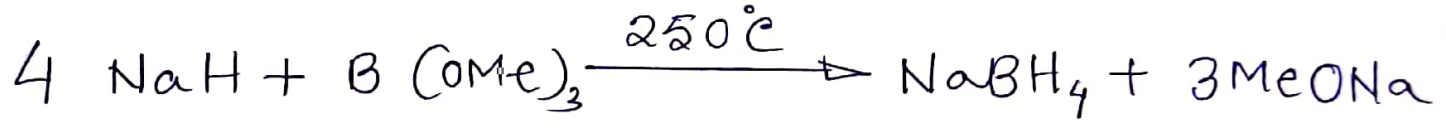


NaBH₄

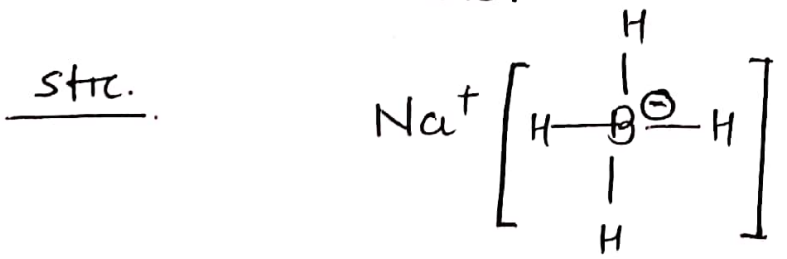
It is a selective reducing agent and reduces aldehydes and ketones to alcohols.

Other groups like CN, X, CONH₂, CO₂R are unaffected by this reagent.

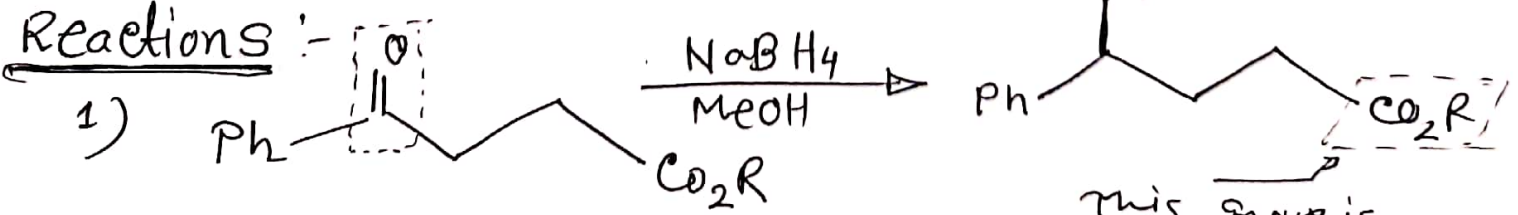
Preparation :- It is prepared by the reaction between sodium hydride and trimethoxyborane at high temperature.



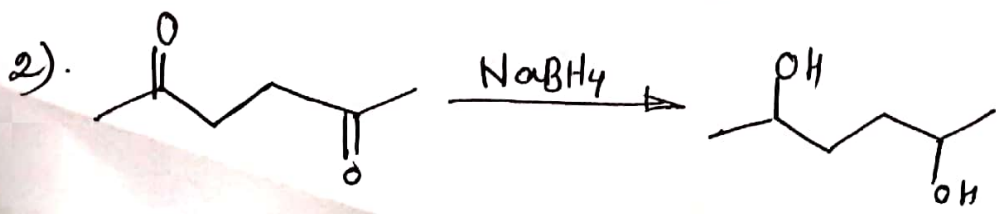
Properties :- It is insoluble in ether but soluble in alcohol and water. So this reagent is used in hydroxylic solvent like alcohol, isopropanol etc.



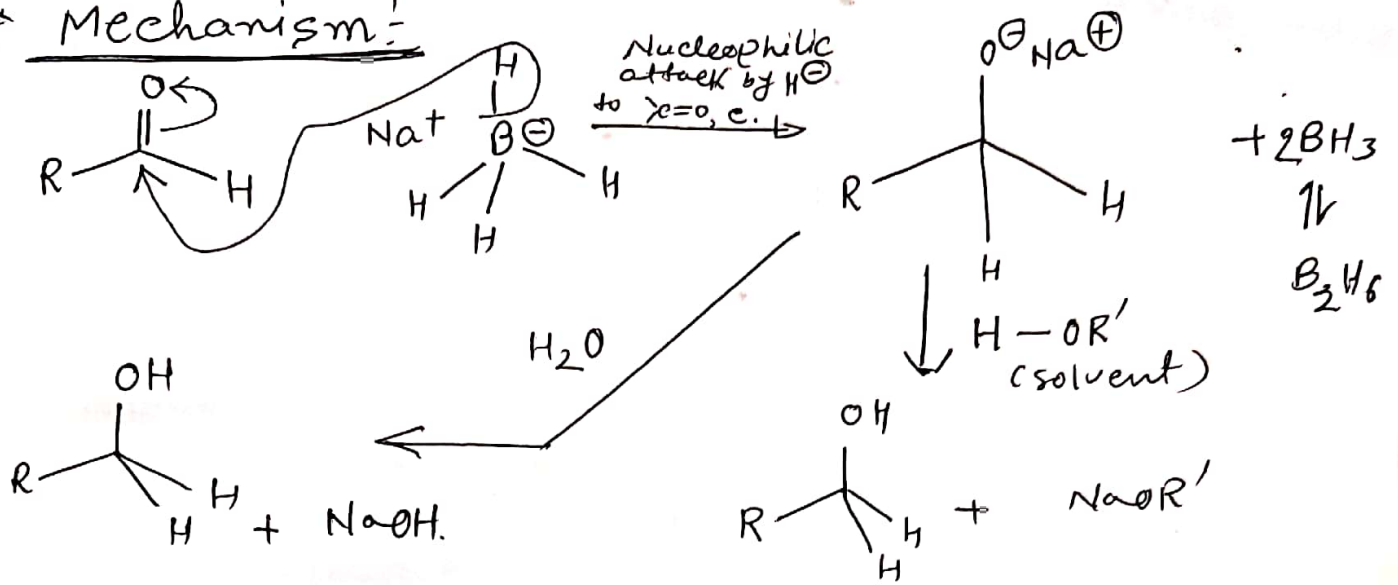
Reactions :-



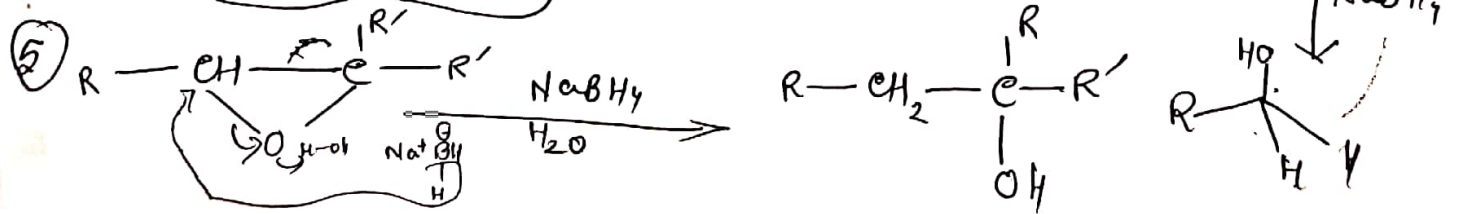
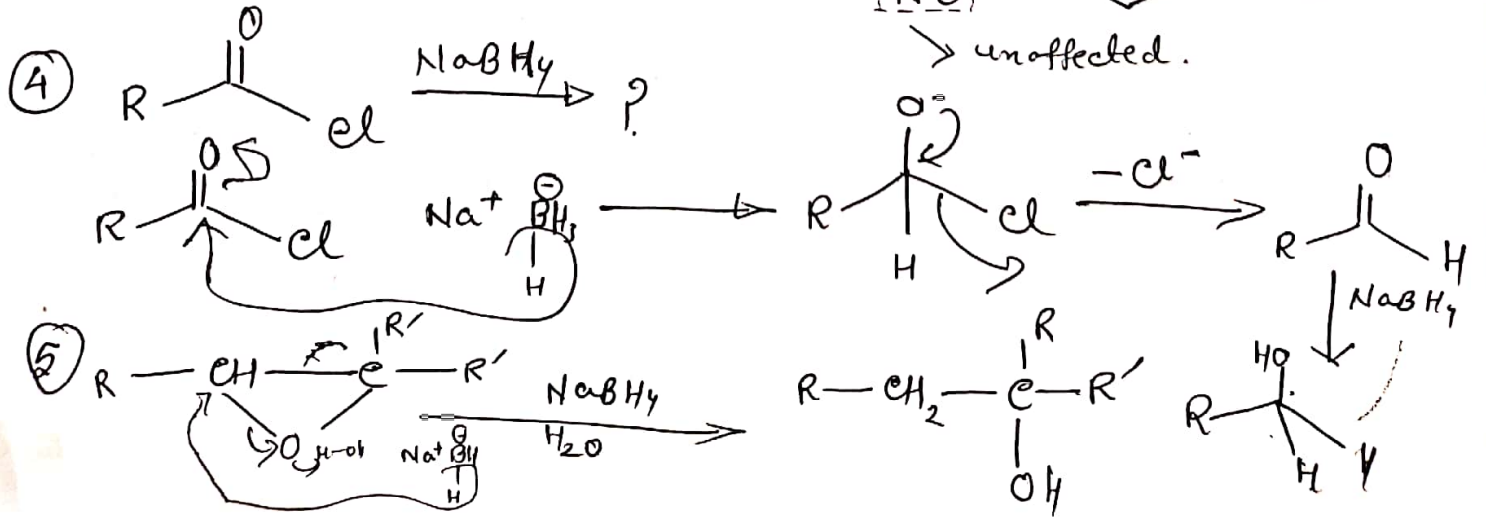
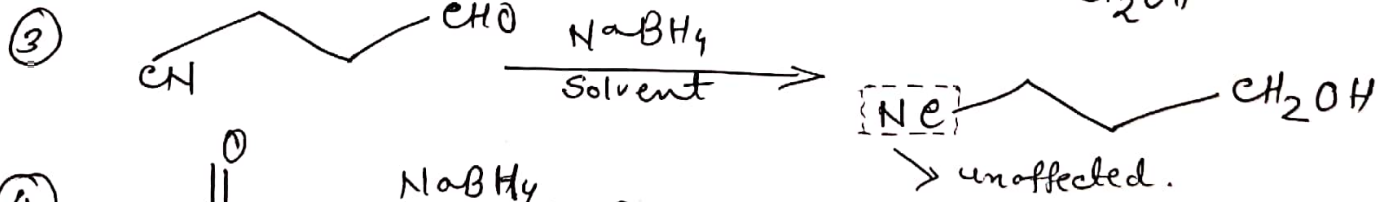
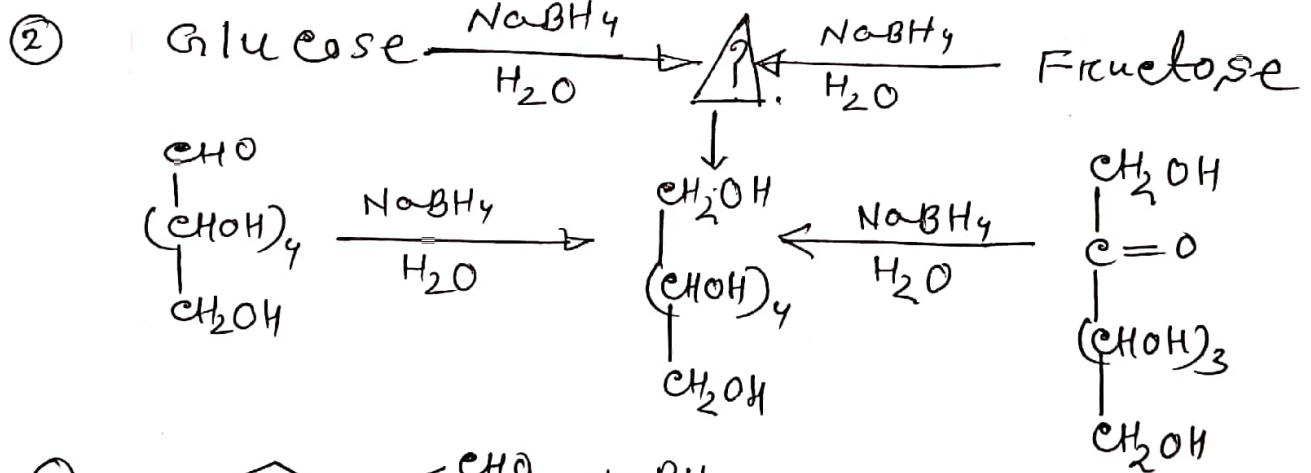
This group is unaffected.



Mechanism:



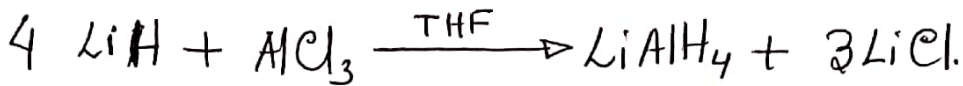
By product in water medium = ?
 BH_3 and H_2O .



LiAlH₄ (LAH)

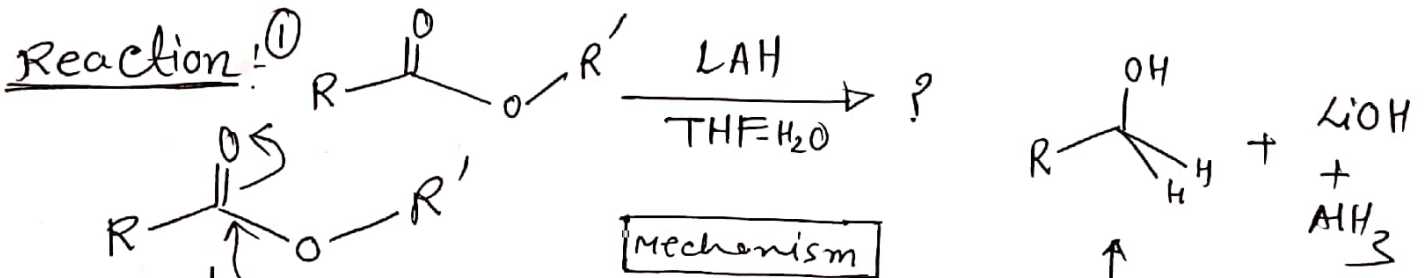
It is one of the strong hydride reducing agent.

Preparation:- It is prepared by the action of anhydrous AlCl₃ with LiH in THF solvent.

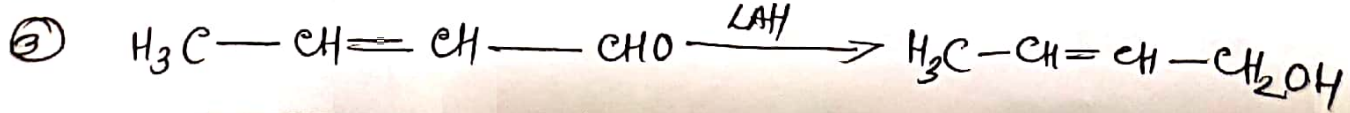
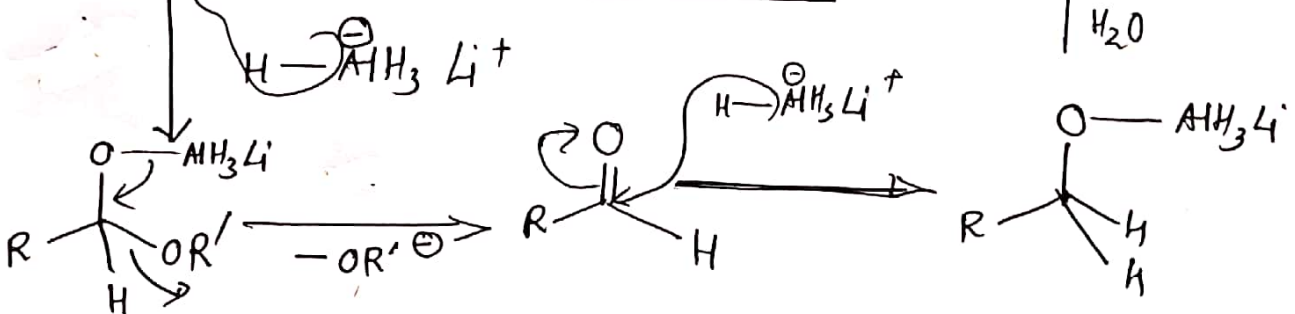


This reagent reduces a number of functional groups such as nitro, carbonyl, carboxylic acid, nitrile, ester, amide in presence of olefinic bond.

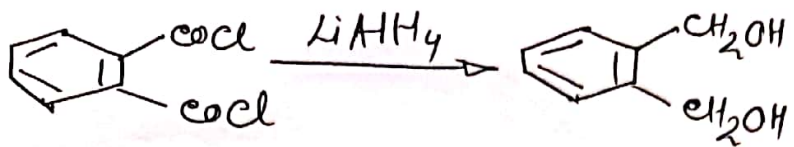
Reactivity:- reactivity order of various functional group: others than aldehyde and ketone



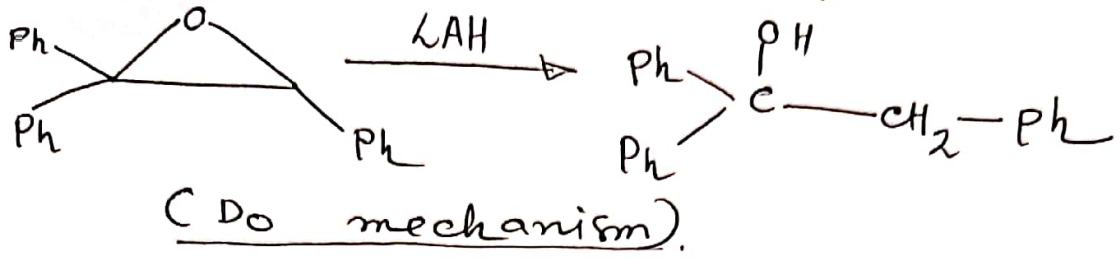
Mechanism



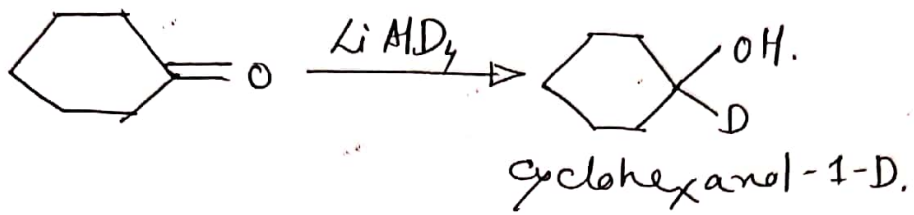
4



5



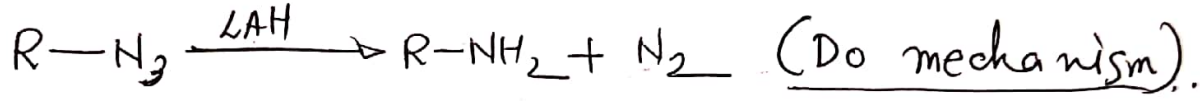
6



7



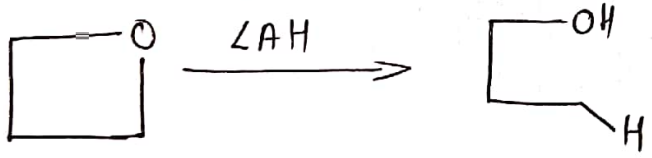
8



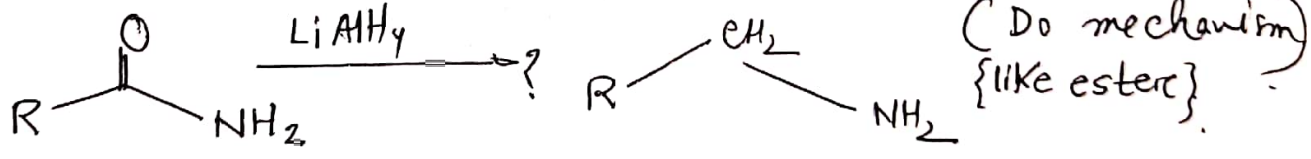
9



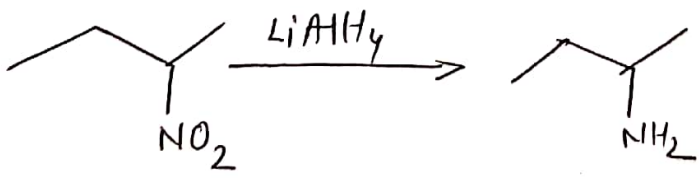
10



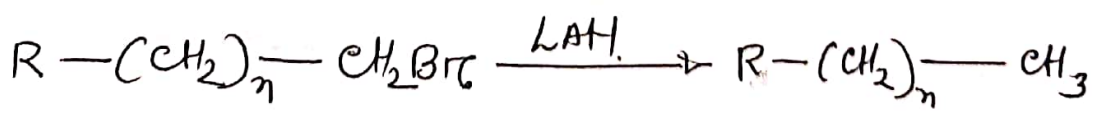
11



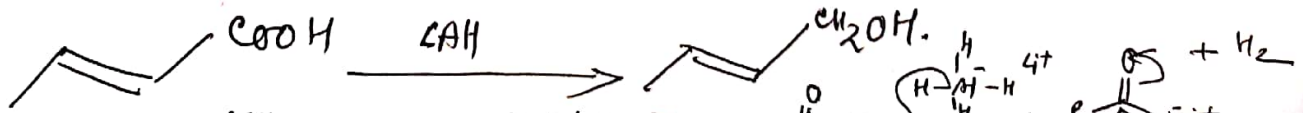
12



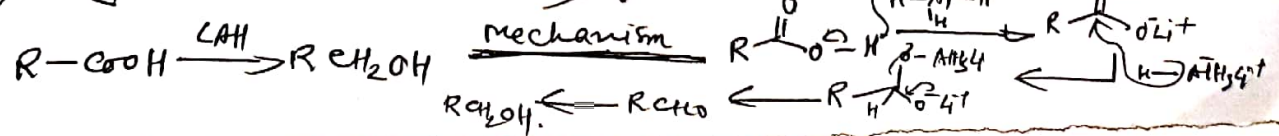
13



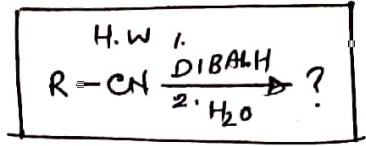
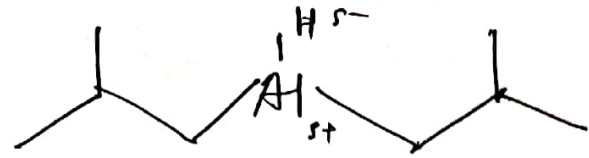
14



15



DIBALH



Di-isobutyl aluminium hydride.

Preparation:- It is prepared by decomposition of tri-isobutyl Aluminium dimers

