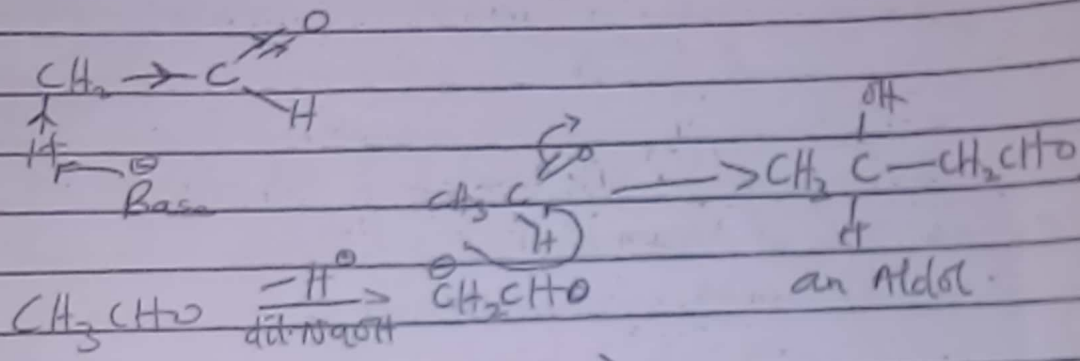


Aldehydes didn't react with the acid itself b/c nucleophile does not easily attack. A proton that can easily be removed is acidic proton.

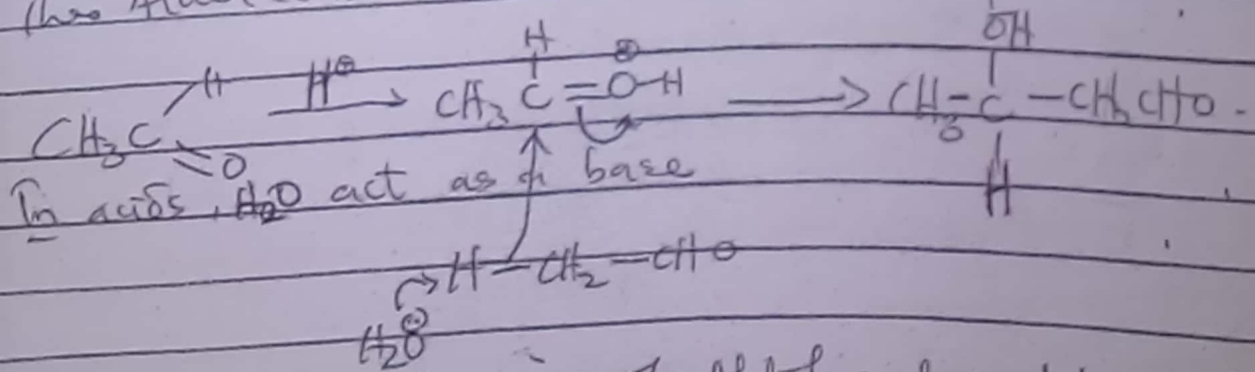


(Aldol condensation)

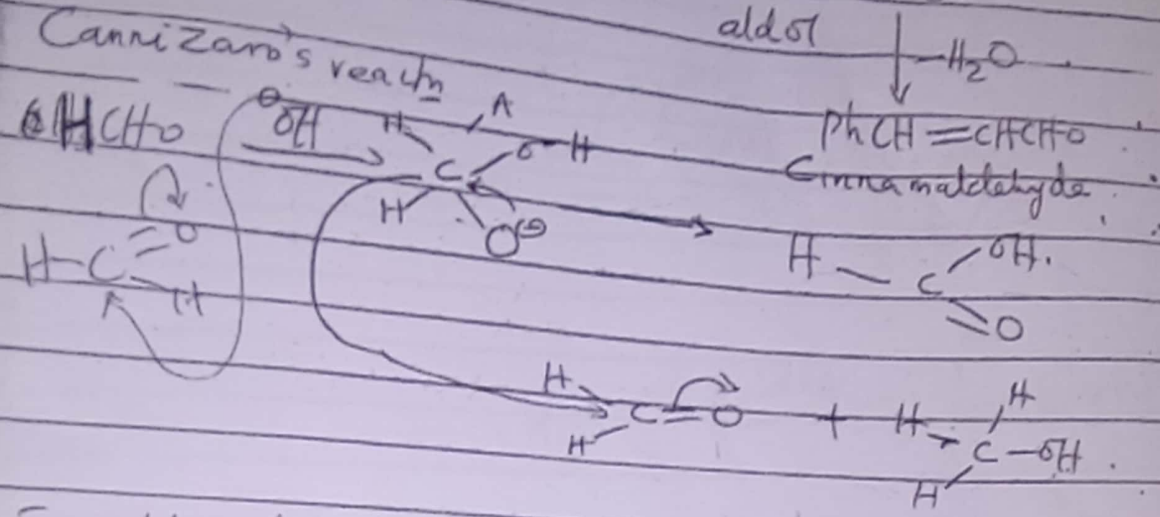
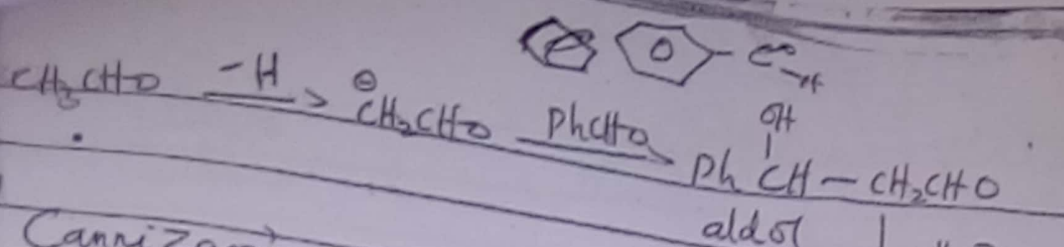
A carbonyl bond is polarised towards the oxygen, the polarisation is transmitted thru the carbon-carbon sigma bond to the α C hydrogen. In base therefore a proton can easily be removed. This is a general process in Aldol condensation.

Aldehydes with dilute base form an anion, condense with the carbonyl of another molecule to give a condensation product is called Aldol.

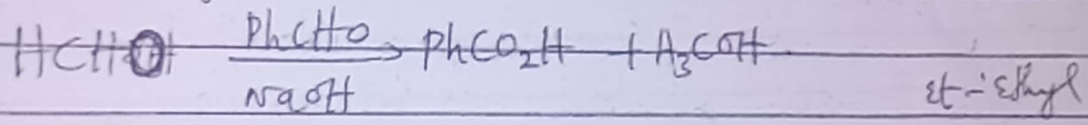
This Aldol condensation can also take place in an acids



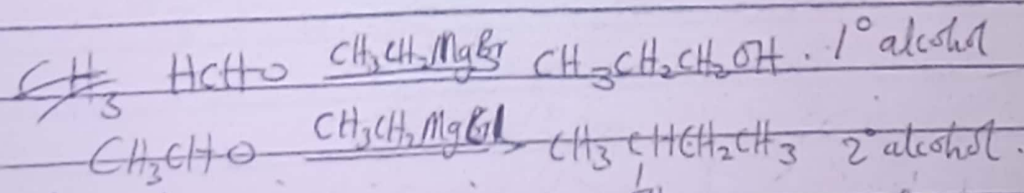
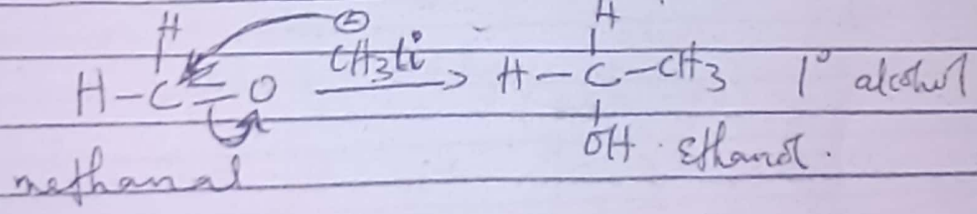
Explains the mechanisms of Aldol condensation using (a) base (b) acids.



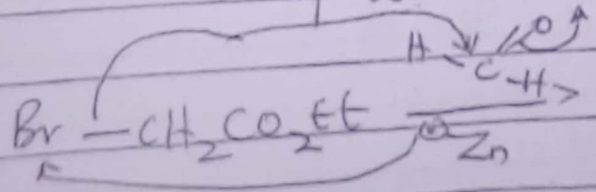
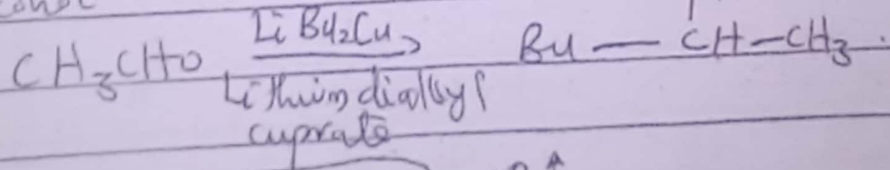
For aldehydes that have no alpha-hydrogen in alkaline media, they are attacked by the hydronide to give an intermediate. Subsequent hydride transfer to another aldehyde it gives a mixture of the acids & alcohol.



Reactions with carbon nucleophiles

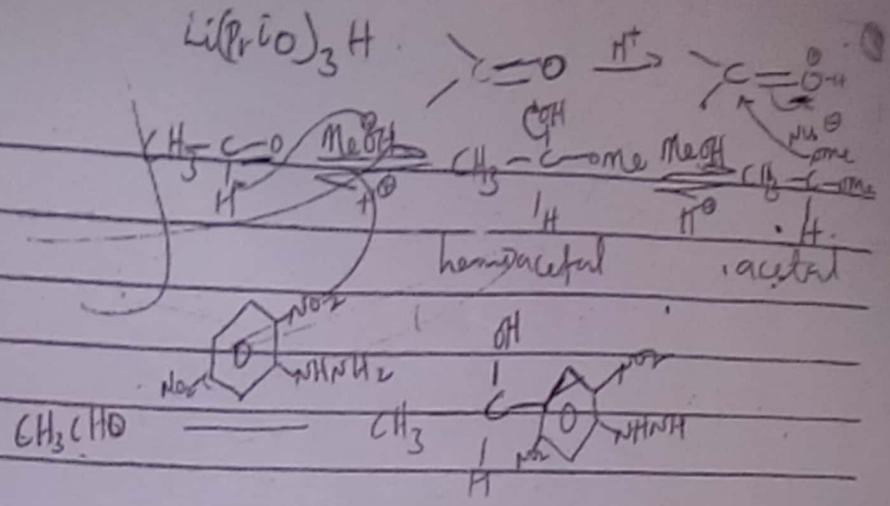


methanal gives primary alcohol while others gives secondary alcohol.

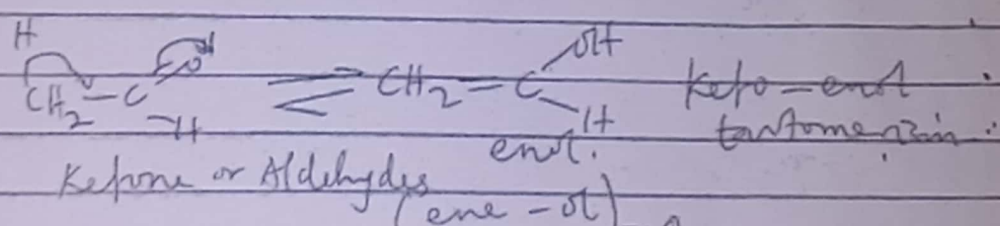
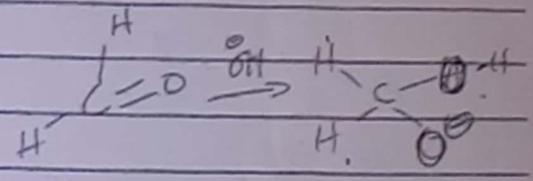
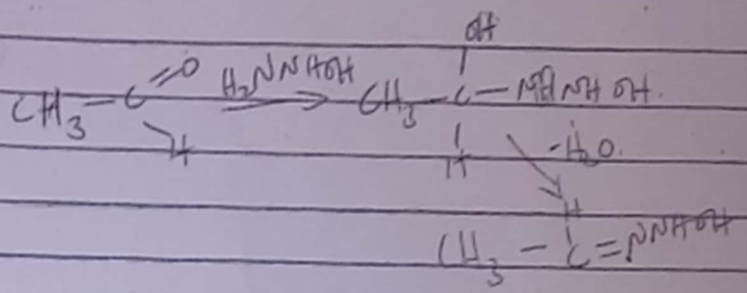


$\xrightarrow{CN^-}$
 $\xrightarrow{CH_3MgBr}$
 \xrightarrow{PhLi}

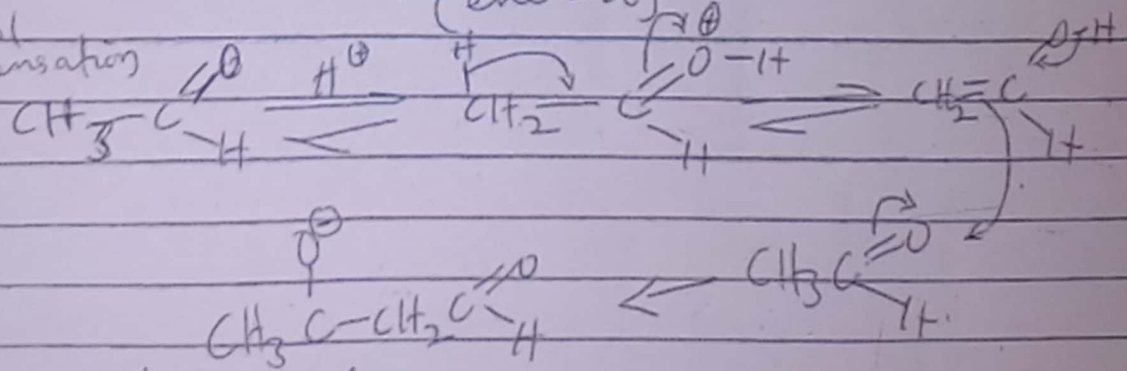
$Li(PriO)_3H$



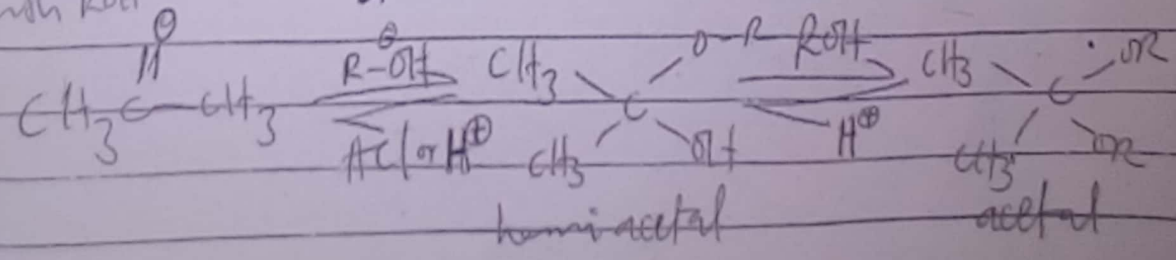
11/11/2002



Aldol condensation



Reaction of Ketones with ROH



Acetals used to protect the carbonyl group.