

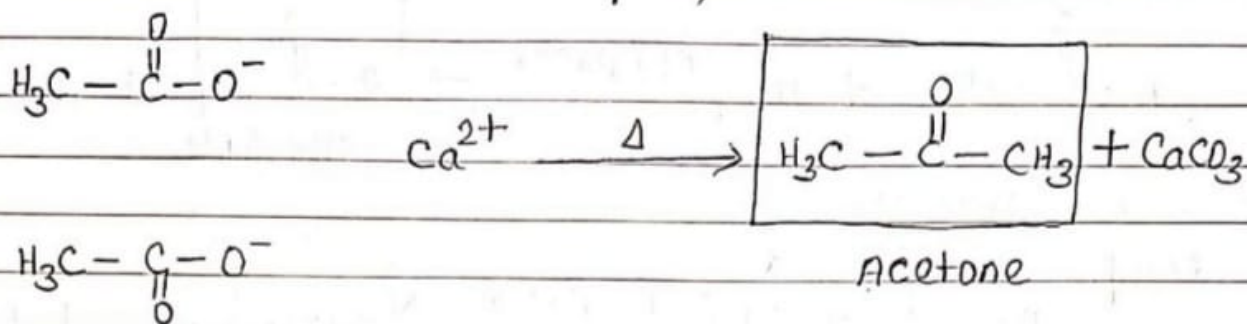
Aldehydes and ketones
(Lecture-4)Degree-I
(Hons.&Sub.)

Preparation

[7]. By Pyrolysis of calcium salts of Acids :-

Symmetrical ketones may be prepared by heating calcium salts of acid at 400°C .

For example ;

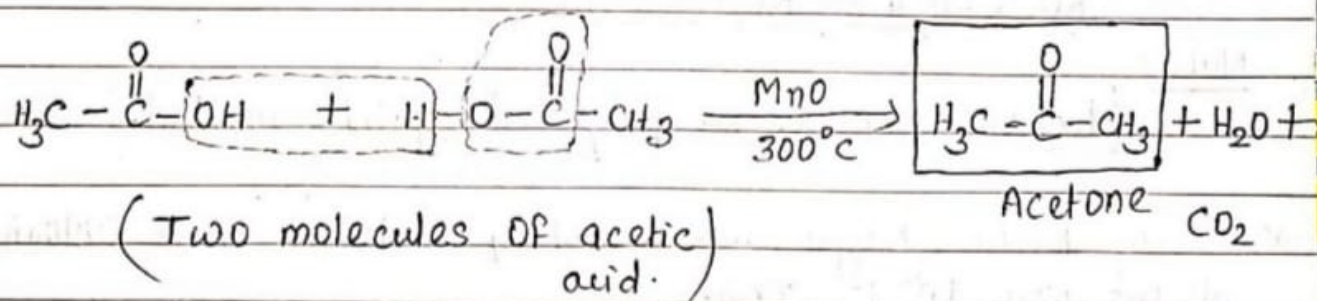
Note :-

Aldehyde can't be prepared by this method.

[8]. Catalytic Decomposition of Acids :-

Symmetrical ketones can also be prepared by passing the vapours of a suitable carboxylic acid over heated MnO or Tl_2O_2 ,

For example ;

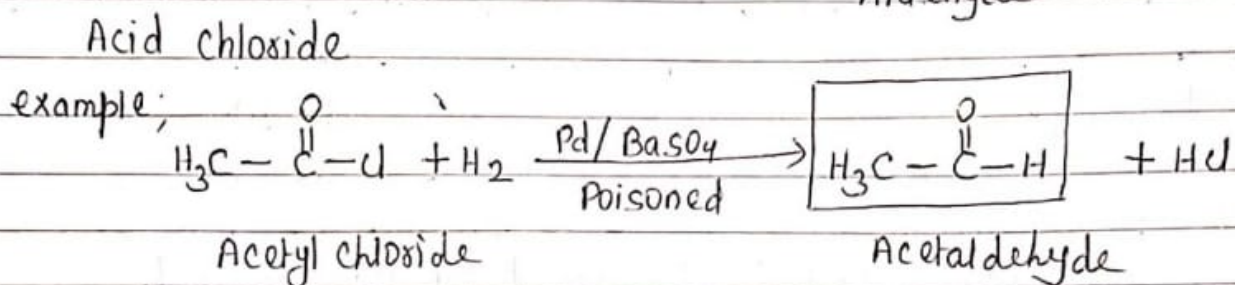
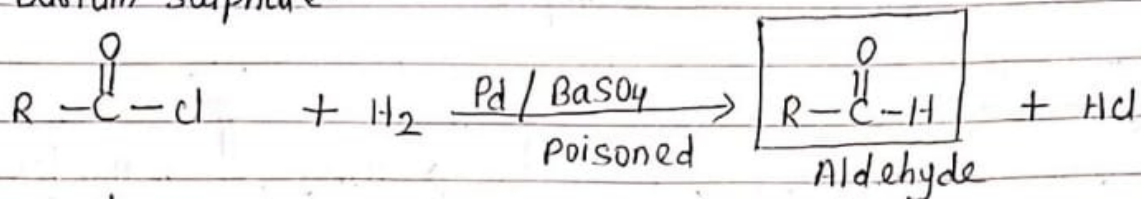
Note :-

Aldehydes can not be prepared by this method.

07-04-2020

9. Reduction of Acid chlorides :-

Aldehydes can be prepared by the hydrogenation of acid chlorides in the presence of palladium supported over barium sulphate.



* Normally the aldehyde would be further reduced to 1° alcohol.

* In this case Pd/BaSO₄ is poisoned with sulphur to deactivate it partially and prevent the reduction of the aldehyde to an alcohol.

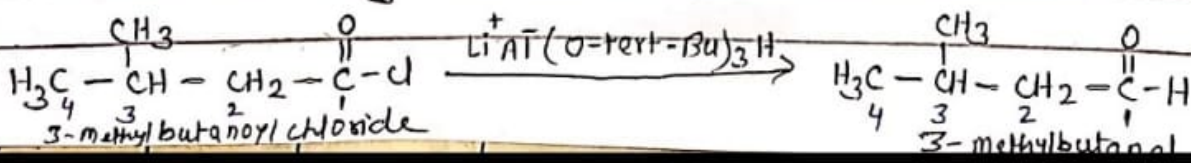
* This reaction is called Rosenmund Reduction.

Note :-

[Ketone can not be prepared by this method.]

* Strong reducing agent like LiAlH₄ reduces acid chlorides all the way to 1° alcohol.

* Lithium aluminium tri (tert-butoxy) hydride is a milder reducing agent that reacts faster with acid chlorides than with aldehydes.

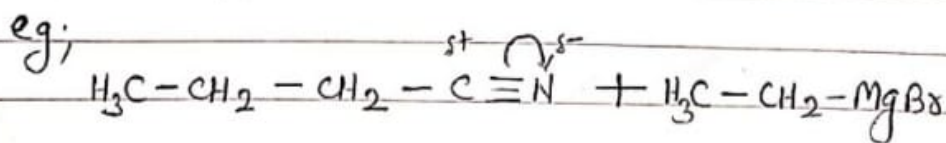
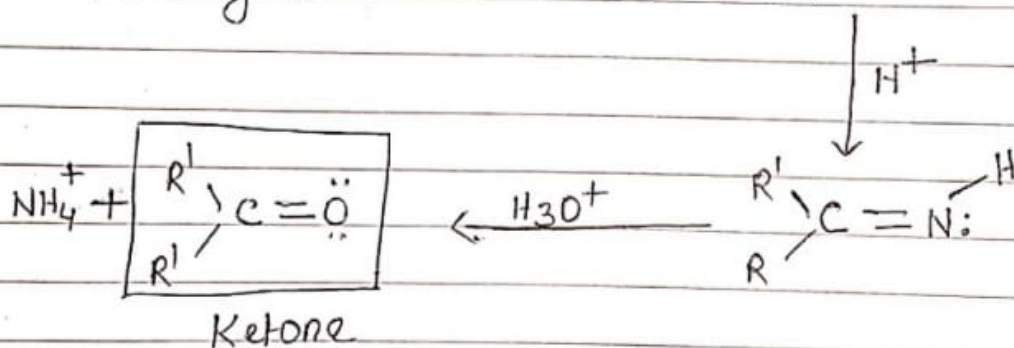
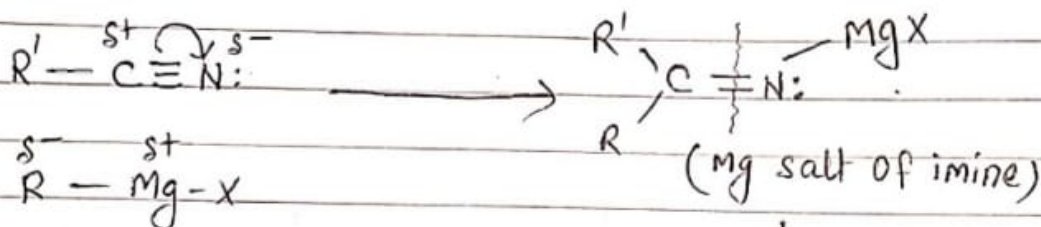


10. From Nitrile using Grignard Reagents:

* A Grignard Reagent or organolithium reagent attacks a nitrile to give the magnesium salt of an imine.

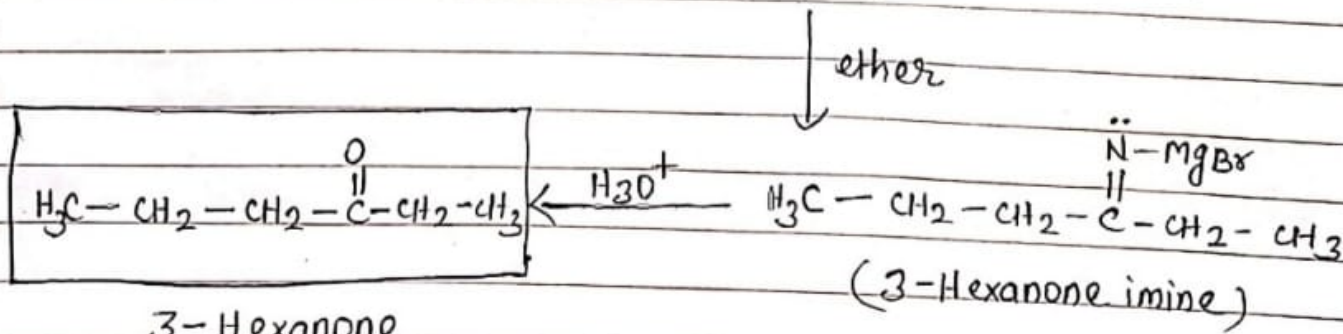
* Acid-hydrolysis of the imine leads to the ketone.

* Note:- The ketone is formed during the hydrolysis after any excess Grignard reagent has been destroyed, thus the ketone is not attacked.



Butanenitrile

Ethyl magnesium bromide



To be continued in next lecture...