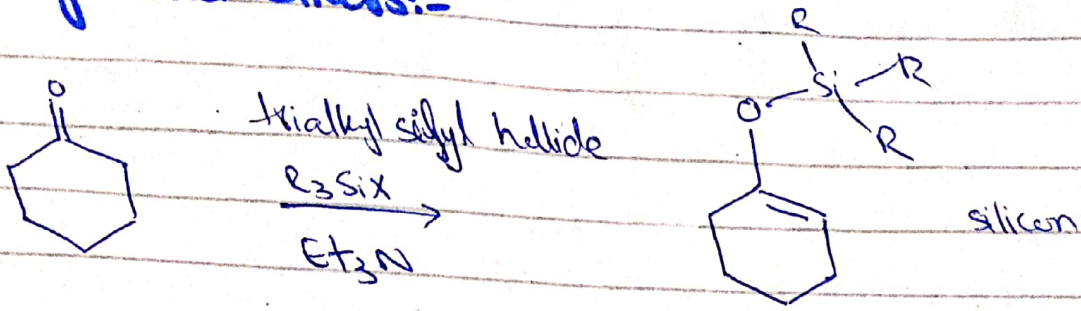


Silyl enol ethers:-



R_3SiX most common

Me_3SiX trimethyl silyl halide

Bu_3SiX tributyl silyl halide

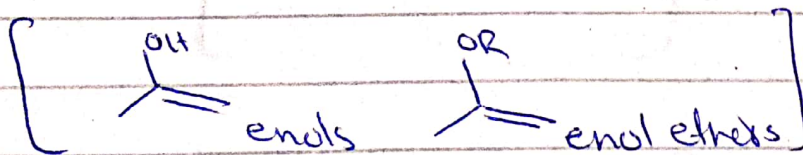
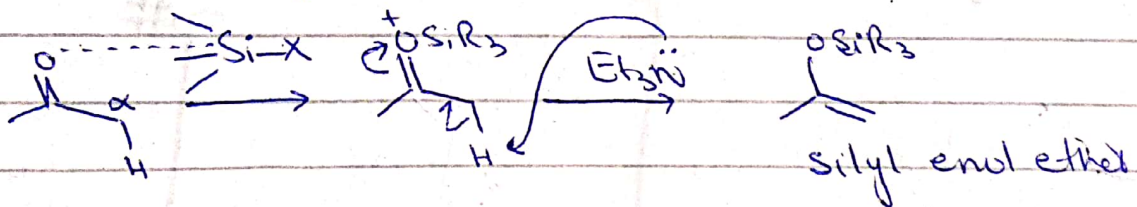
Silicon are oxophilic (oxygen loving)

Si e^- deficient O e^- enrich.

Carbonyl \rightarrow ketone & aldehydes



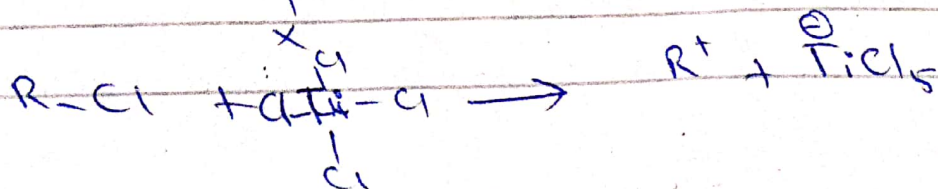
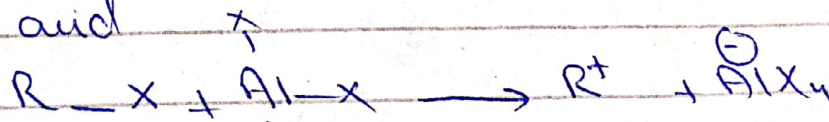
Requirements of Mechanism



Silyl enol ether are poor Nu & poor Electrophile

so we use Lewis acid (to generate electrophile)

Lewis acid

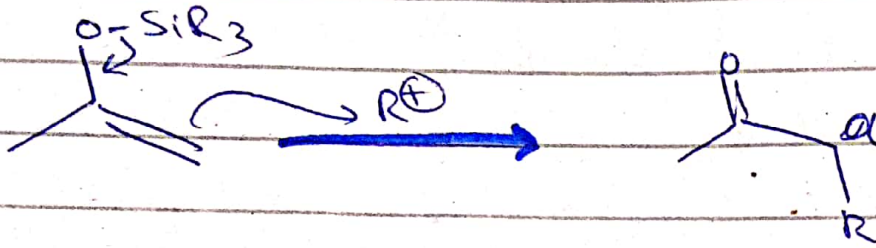


Silyl enol ether is good Nu so it can not remove X from alkyl halide (R-X) so we produce E electrophile (R⁺) by Lewis acid so it undergoes S_N1

better Electrophile is 3° carbocation.

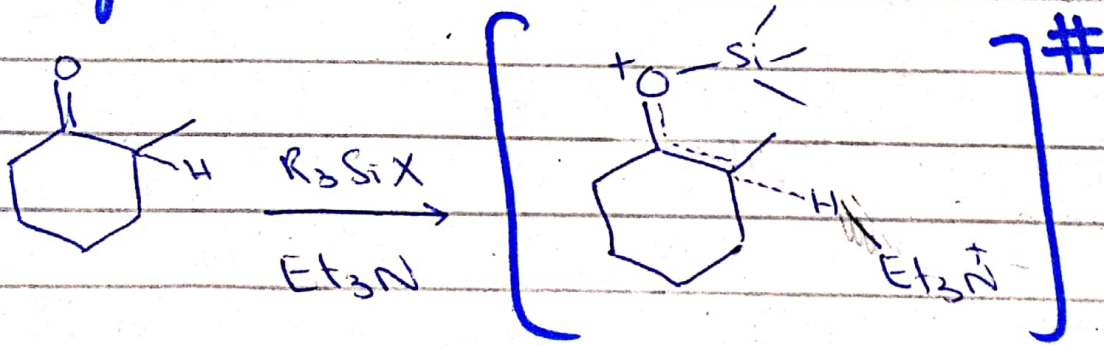
Carbocation for S_N1

3°, benzylic, allylic



this reaction is only one which is possible for tertiary carbocation.

Asymmetrical

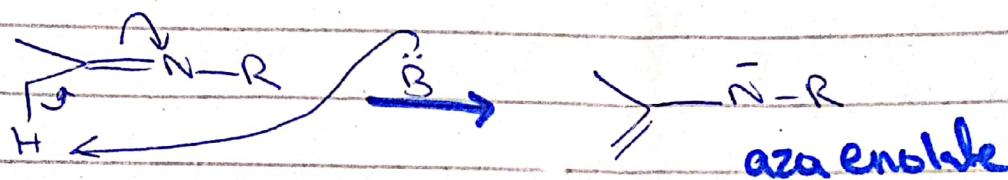
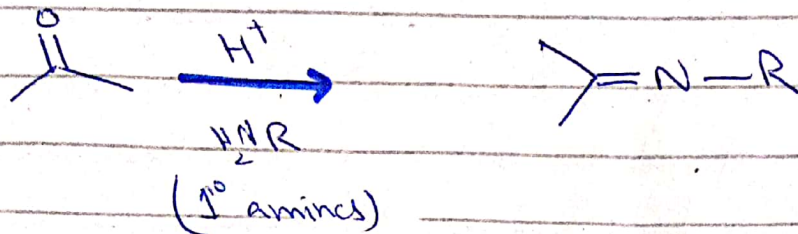


cationic nature transition state.

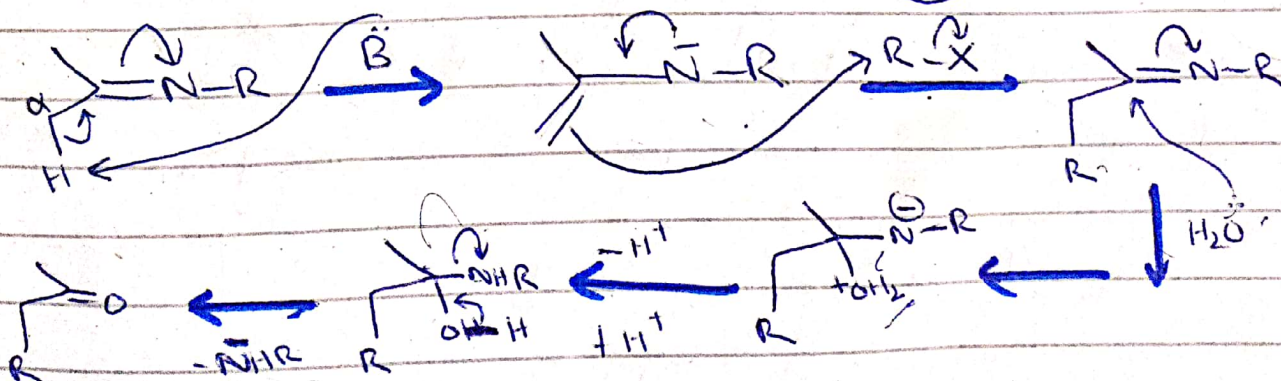
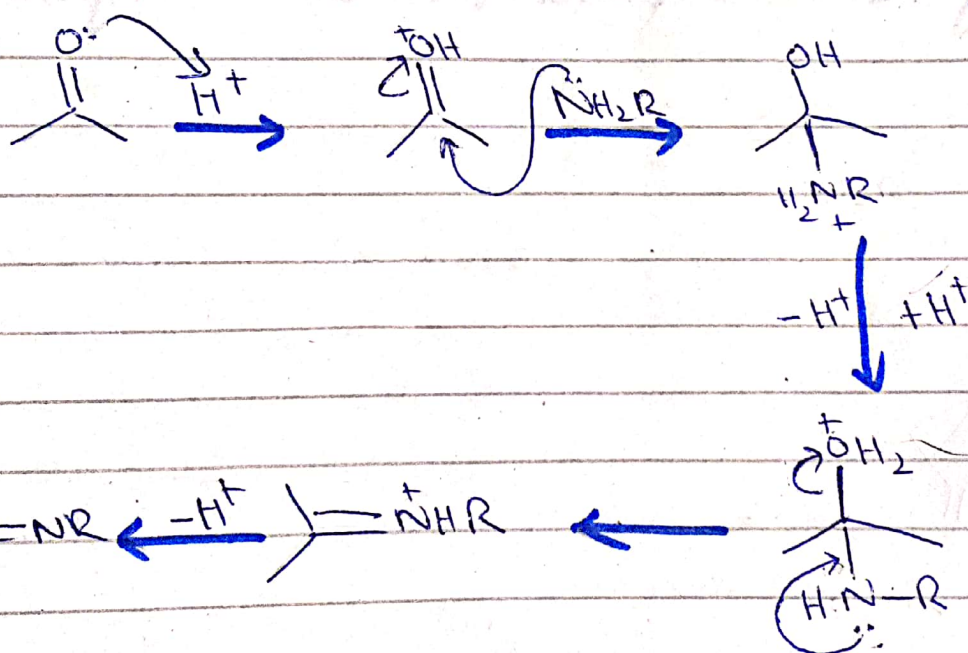
it will be favoured by substitution at α -carbon so in this way thermodynamic product favoured bcz R group at ortho which is e⁻ donating grp so somewhat e⁻ donating effect of R group compensate the charge (e⁻ deficiency) produce on O & N

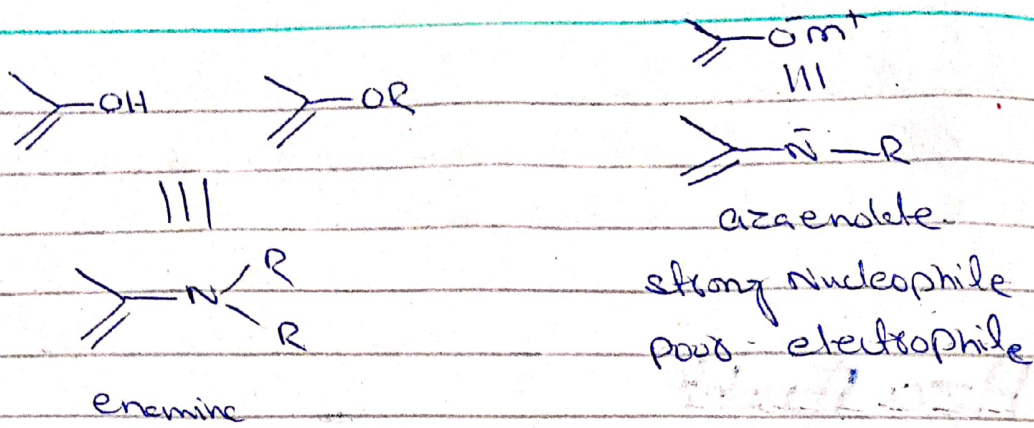
In Both enolate (Enamines & silyl enol ethers)
they give 1 product preferably

Aza Enolate



Mechanism:-



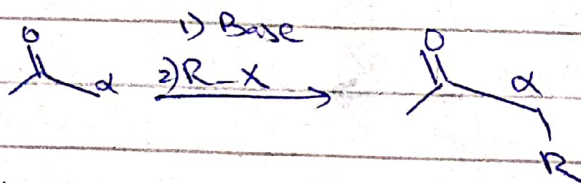


So aza enolate generally used it is good for all type of alkyl halide (R-X) for 1°, 3° and also for 2° halide.

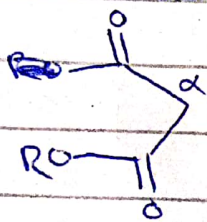
issue of Regio selectivity is same in this two isomers form

But according to reactivity it is good enolate.

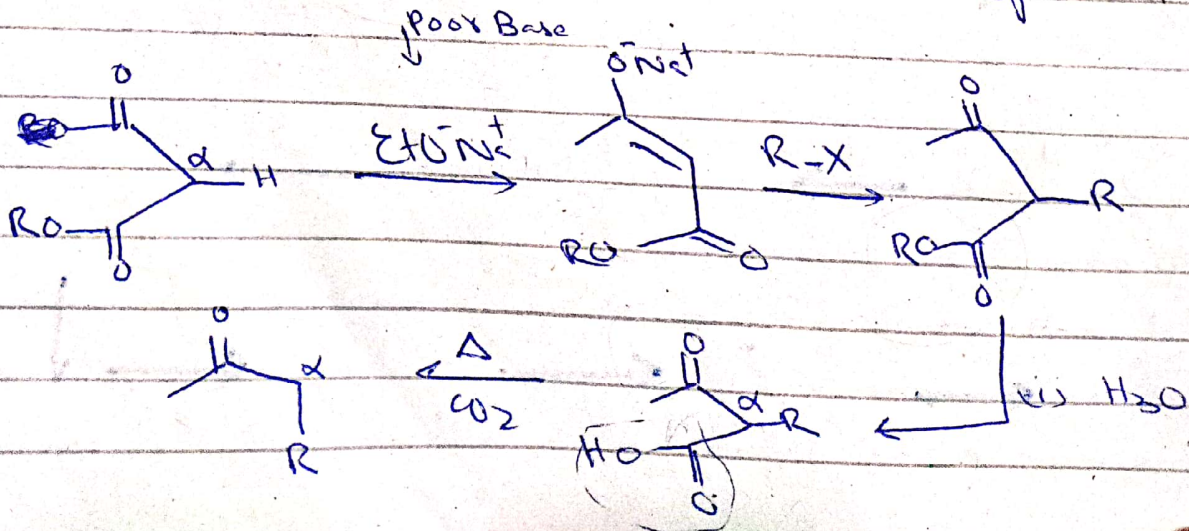
Why ester is prefer for active methylene?



in this we require strong Base to remove α hydrogen acetoacetic ester.



to remove that α hydrogen which is more acidic and easily form enolion so to control this is easy.



purpose of ester is act as activator on α carbon and at then end they are hydrolyzed then decarboxylation to remove it.

ester they are synthetically equivalent of carbonyl

