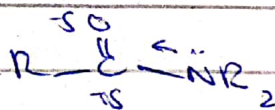
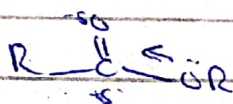
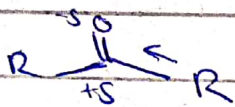
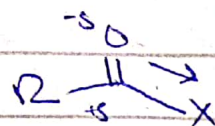


it depends upon nature of carbonyl which compare electrophilicity



electrophilicity
increase upward



v. strong
electrophile
but not used
in Enolate chemist

2^o chances ← Aldol (2^o 6^o electrophilicity 3^o)
= Use

so Aldehyde wants to go to Aldol.

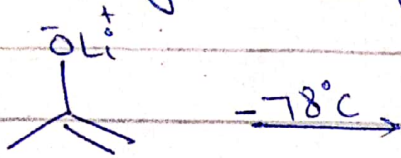
E α-alkylation of aldehyde is difficult.

so to form such conditions that carbonyl remain Nu but its electrophilicity is as small as small (can be neglect) controlled it.

! when we take carbonyl first in flask and add base drop wise then carbonyl that form enolate (Nu) after reacting with base start to react with carbonyl (E) in beaker, so to avoid this first take base in beaker then add carbonyl dropwise so that Base convert it into Enolate (Nu) then it does not found any other carbonyl (E) to react & not give aldol.

But in 2nd case somewhat reversibility only.

* mostly we study lithium enolate.



low temp to control reversibility.

these are highly unstable enolate.

v. low temp require. if temp increases then it goes to reversibility.

We want to make carbonyl to remain Nu but its Electrophilicity not remain. this phenomenon is called **masking**. for this purpose

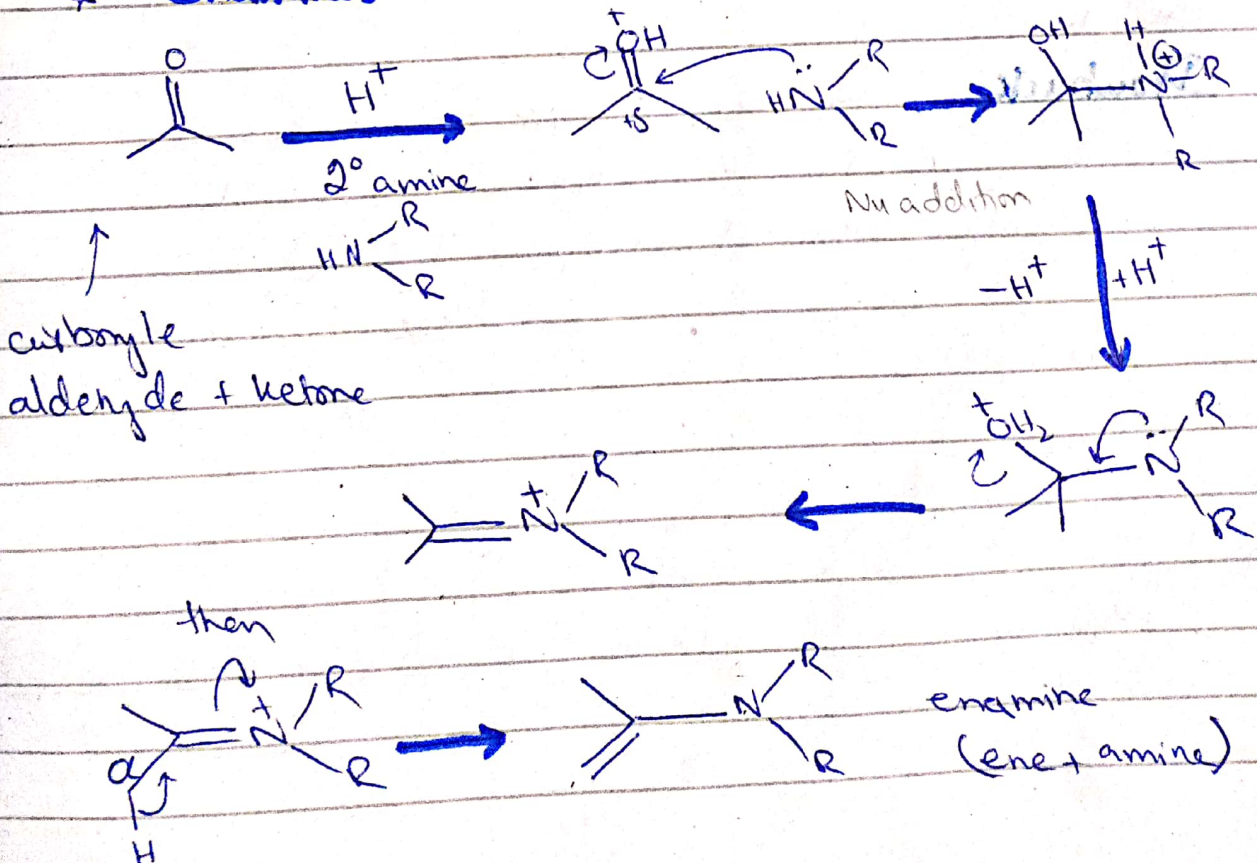
Specific enolate equivalent:-

- 1) enamines
- 2) silyl enol ethers
- 3) Aza-enolates

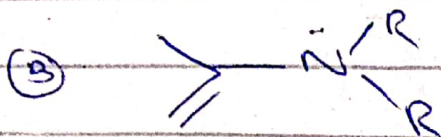
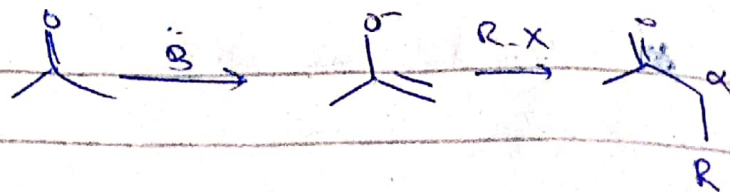
purpose to get α -alkylation & control aldol condensation

* Enamines

protonation to increase electrophilicity

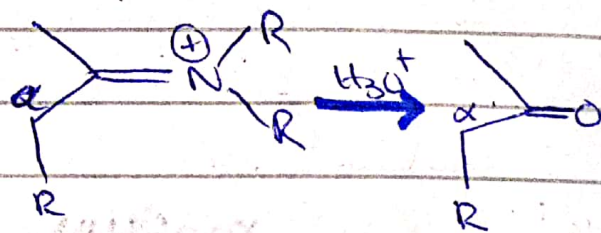
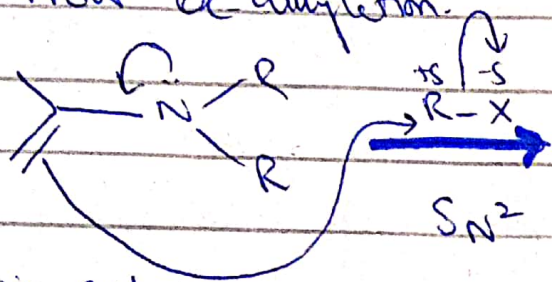


if we form enolate



enamine is just like enolate

Now α -alkylation.



this act as
Nu but poor
electrophile so
in this way we
control its reactivity

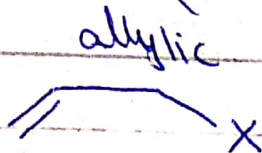
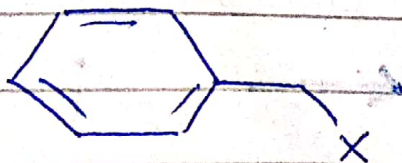
we mask it to avoid aldol condensation & Reaction goes to α -Alkylation

-this is done that our reaction goes only α -Alkylation
Aldol not out.

Drawback \rightarrow we have to done many steps.

(B) is weak Nu than (A) enolate so it can react only strong Electrophile (R-X)

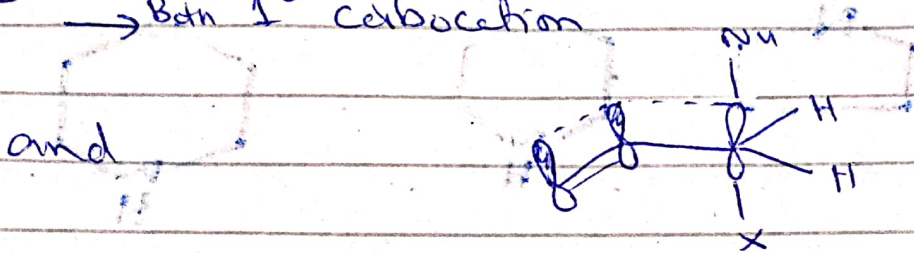
benzylic



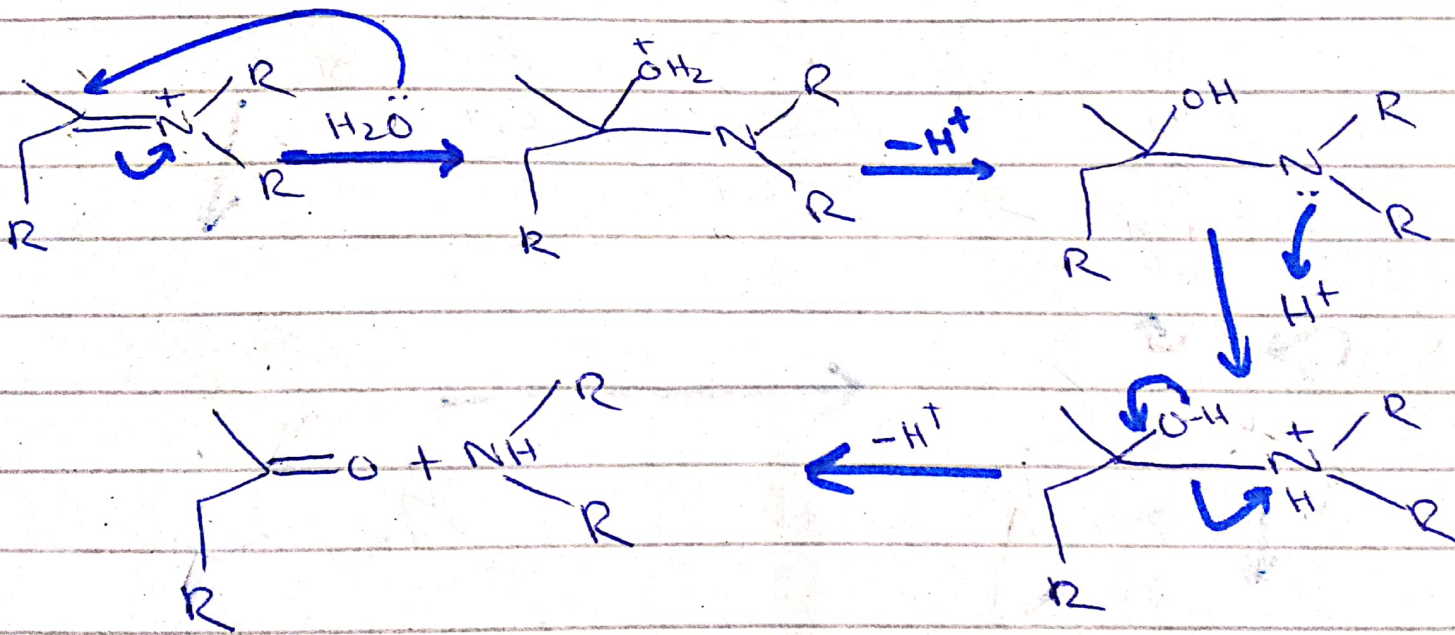
Both are good Electrophile for both S_N^1 & S_N^2

$S_N1 \rightarrow$ +ve charge Resonance stabilized

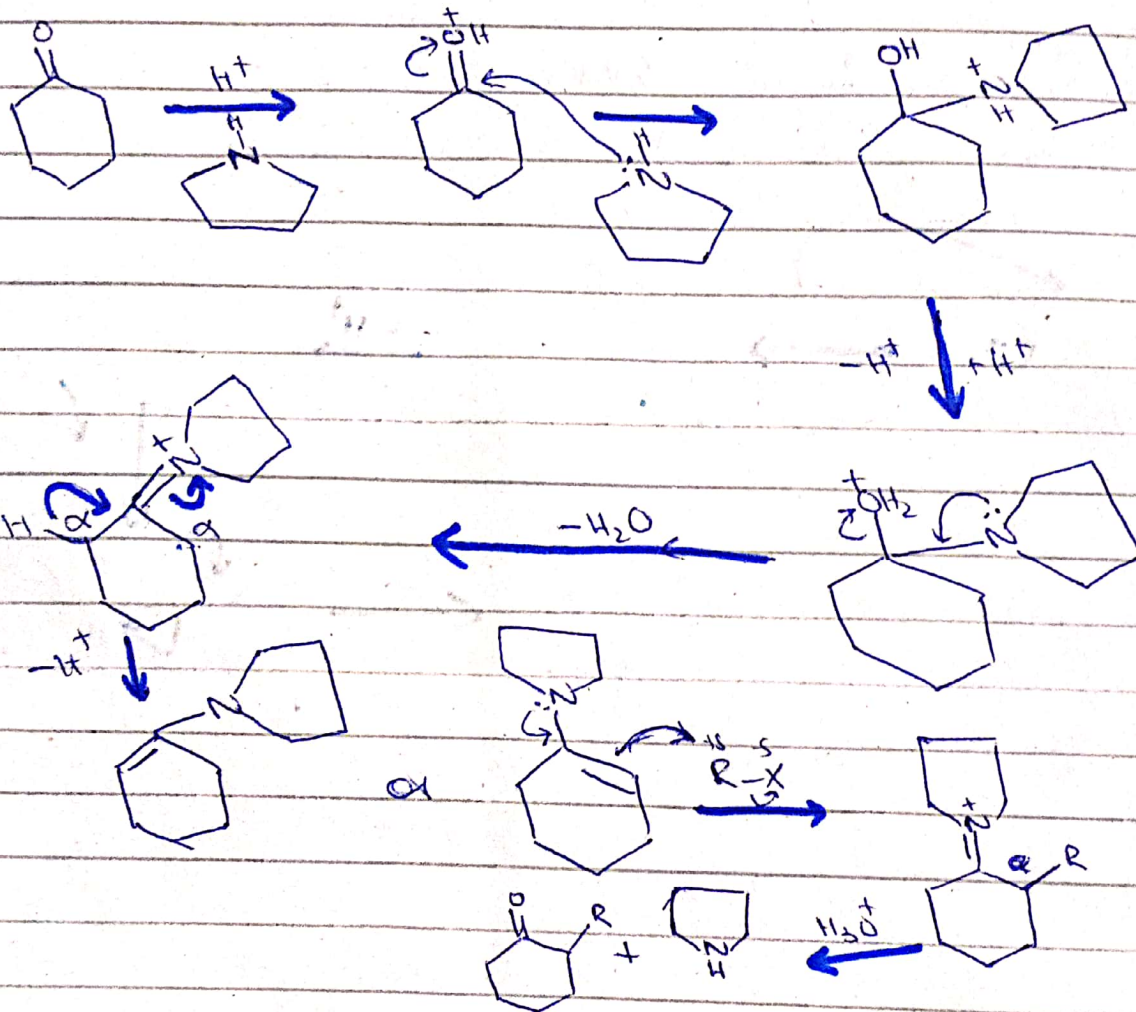
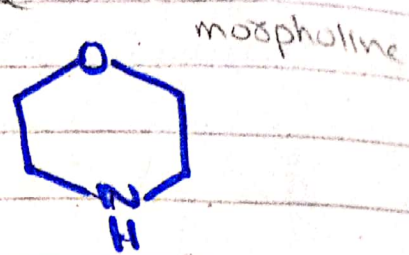
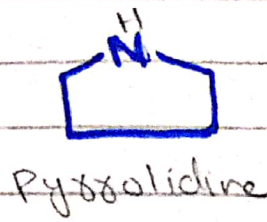
$S_N2 \rightarrow$ Both 1° carbocation



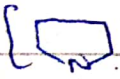

Benzilic is more ~~stable~~ and allylic halide.
for S_N2 we require 1° carbocation ($R^+ - X$) it should be 1°

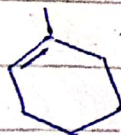
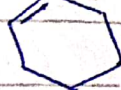


actually 2° amine that are taken prefer cyclic



cyclic system prefer upon open 2° amine to avoid involvement of allylic group (R)

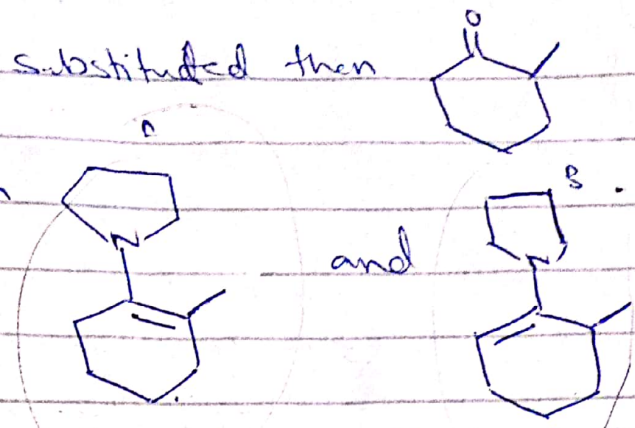
cyclic system [ + ] open 2° amine

 + ] open 2° amine

Openly allyl group can hindered site of enolate and R group can be larger than hindered so much but ring does not cause hindrance so prefer.

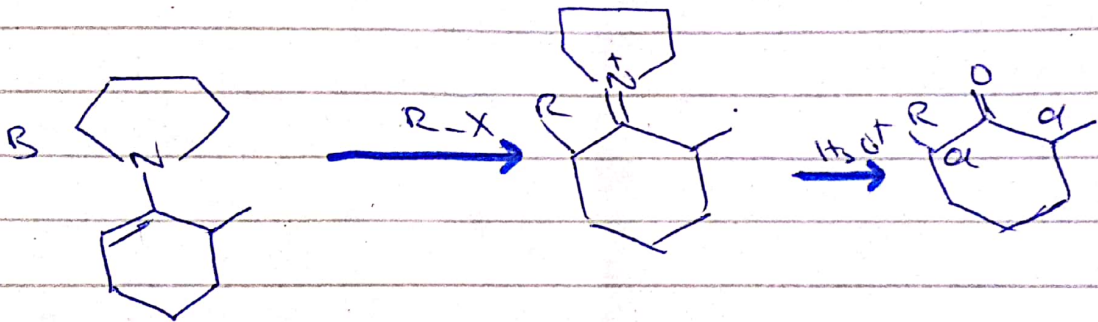
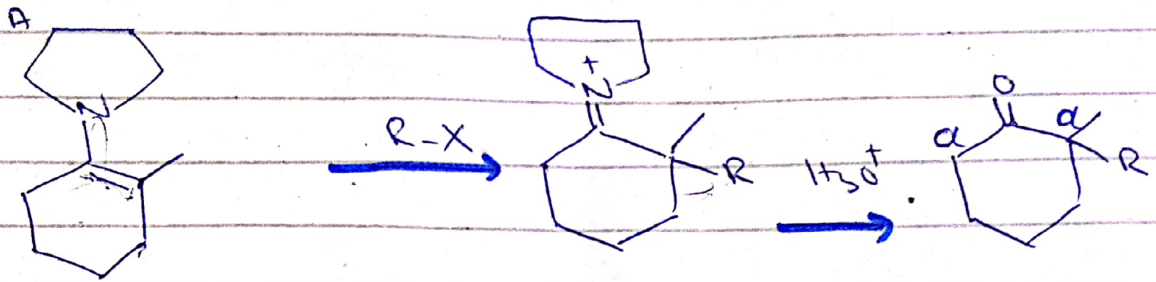
if carbonyle is substituted then

two product form



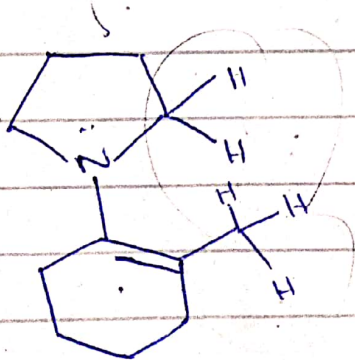
T.C Thermodynamically controlled

K.C Kinetically controlled

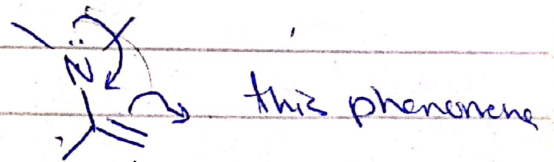


which one of two product prefer?

T.E



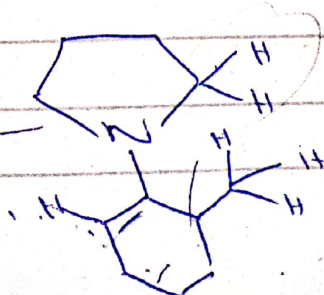
Planer structure



out.

presence of R group
can disturb planarity.

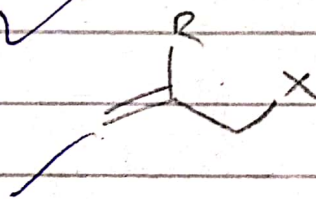
K.C



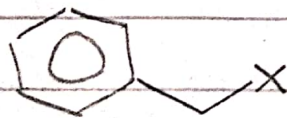
→ kinetically controlled favoured due to less steric hindrance on the side of enolate.

→ due to more steric hindrance on side of enolate which can disturb its planarity - thermodynamically controlled is ~~not~~ less favoured.

Enamine can be used only with allylic halides ✓



benzyl halides ✓



α halo carbonyl ✓

