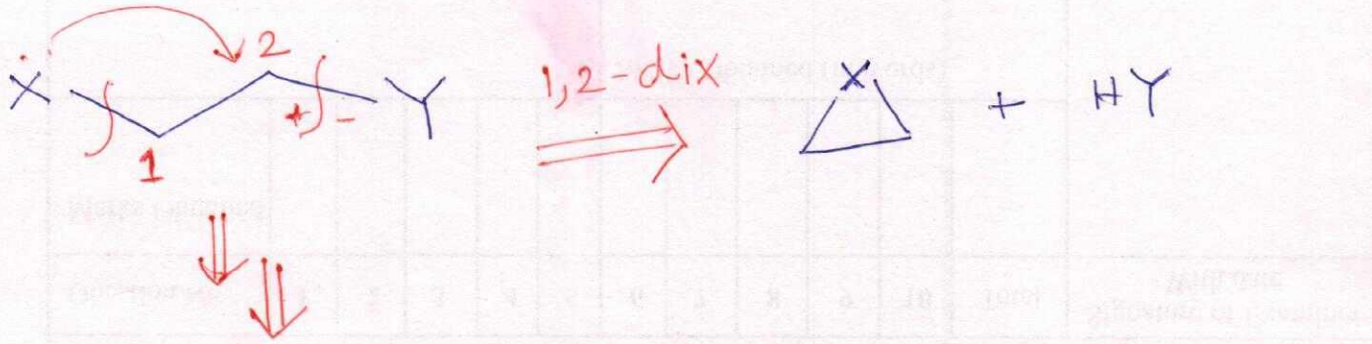
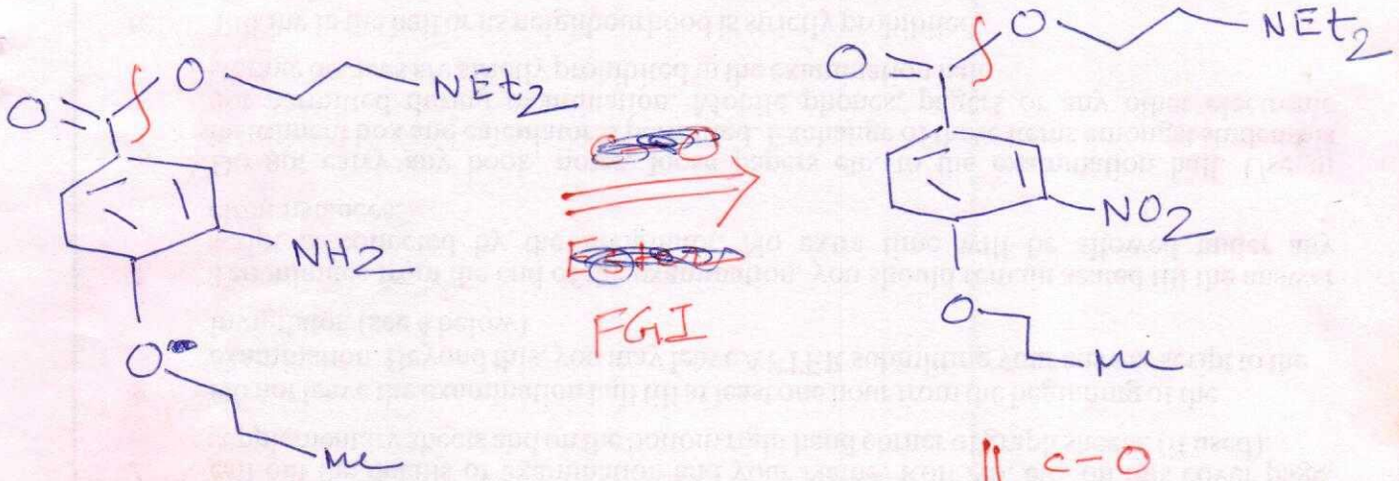
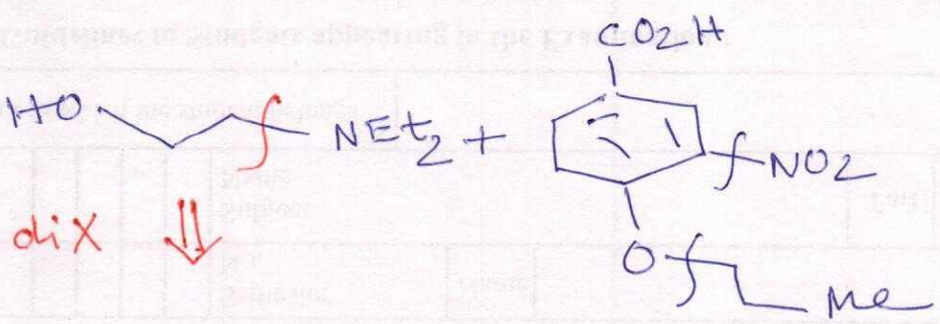
1,2- di- functionalized compounds:

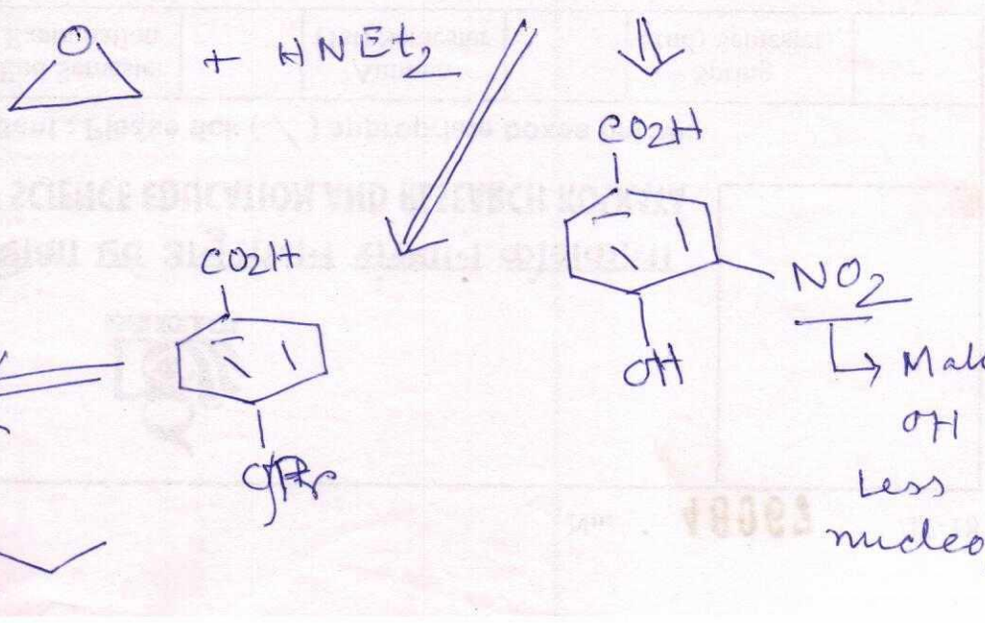


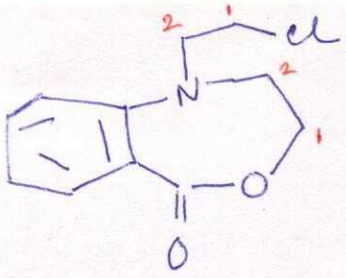
Two times one group disconnection



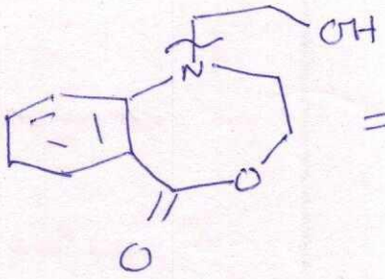
C-O Ester

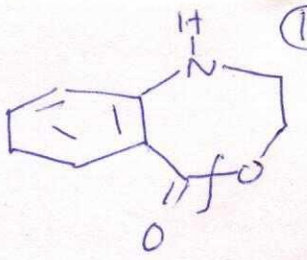




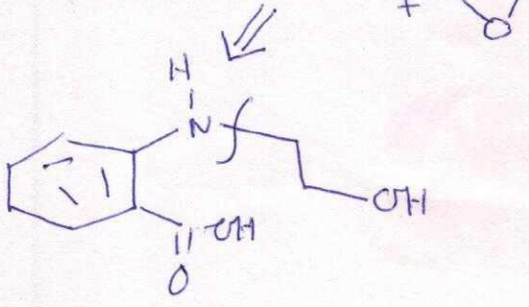


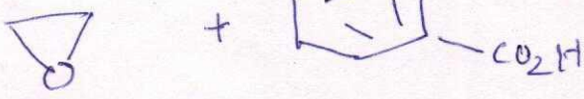
FGI

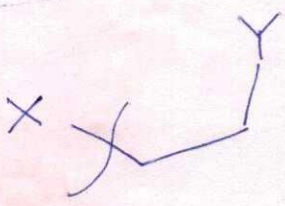


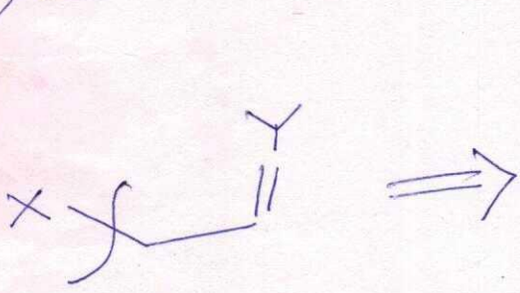


Anti-tumour activity

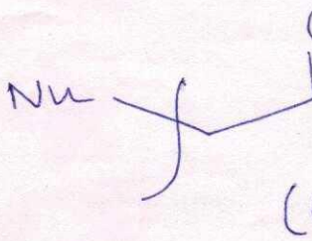




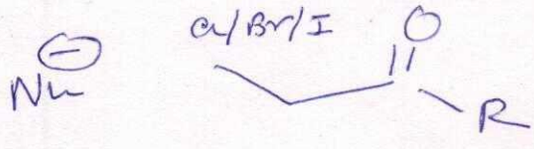




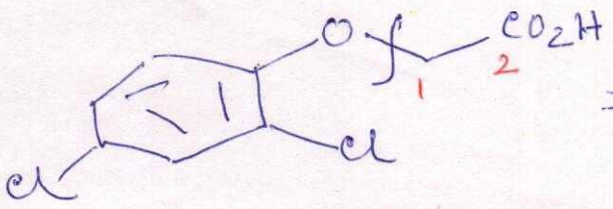
Enhancing the reactivity of this synthon



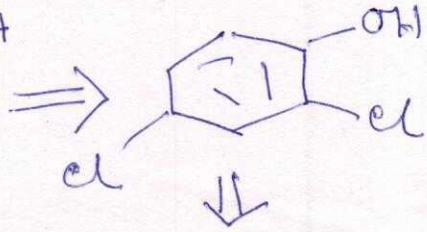
1,2-diX

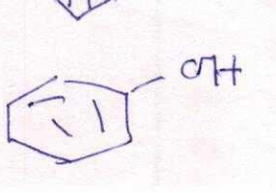


(carbonyl acid Ester cyano)

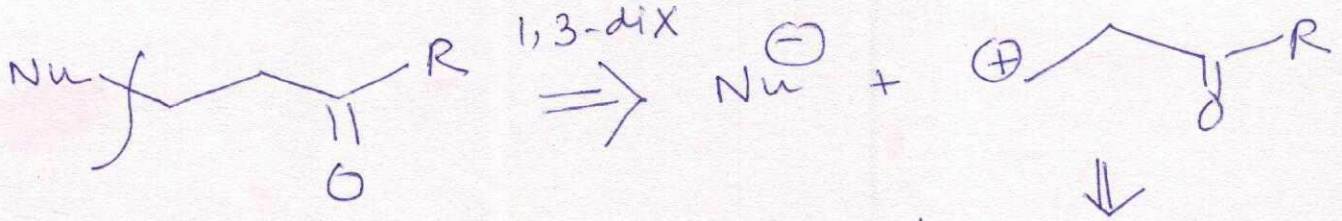


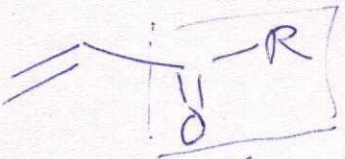
Pesticide

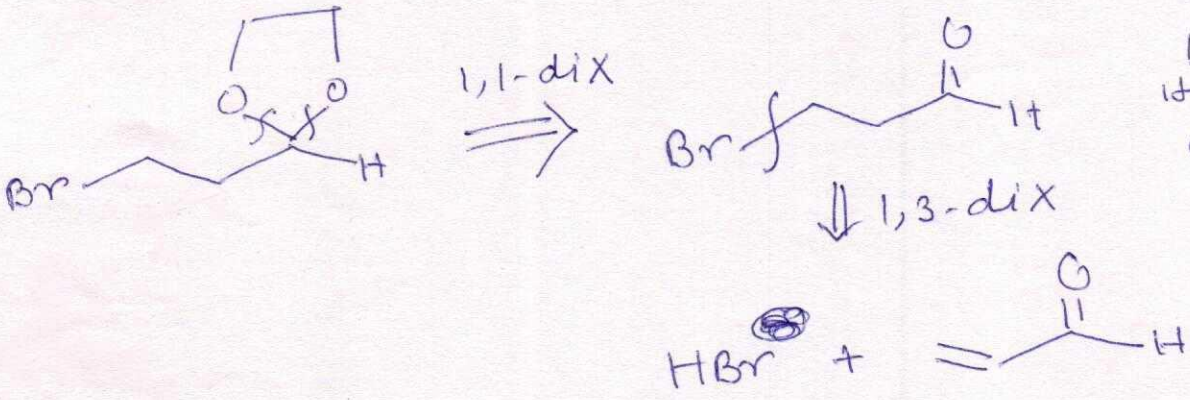


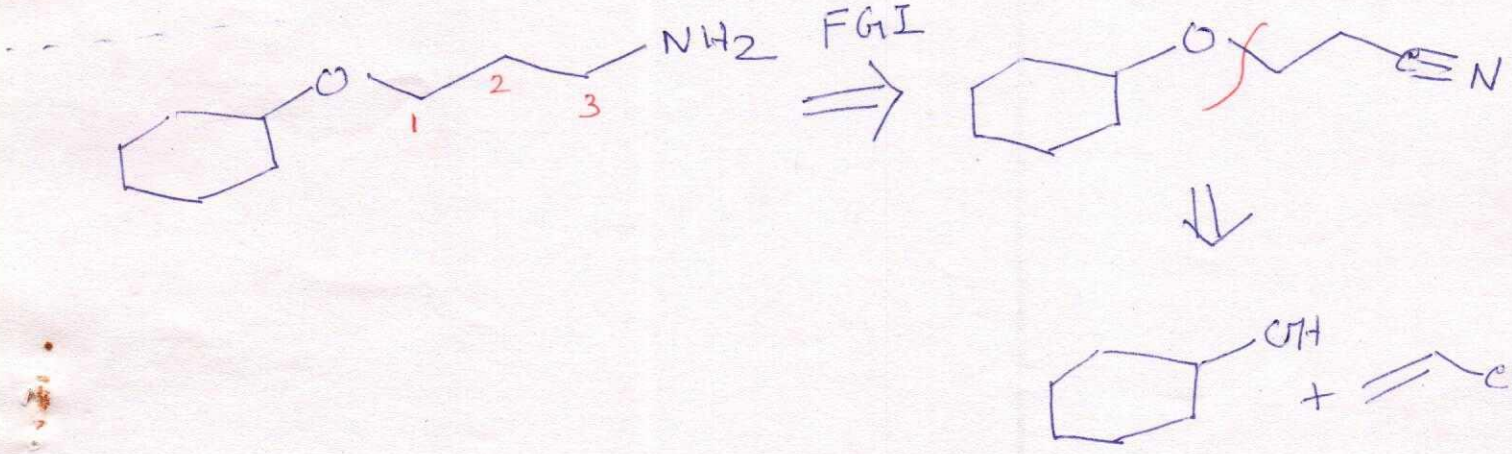


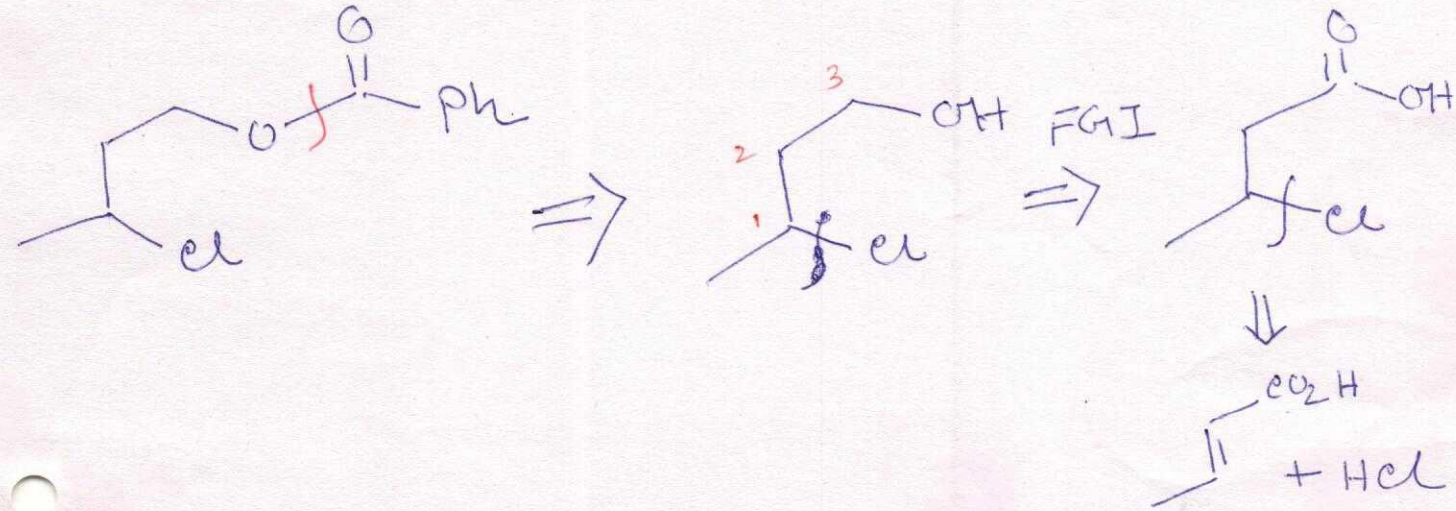
1,3- Difunctionalized Compounds:



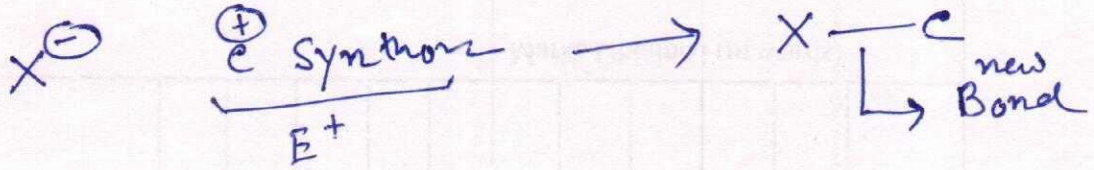


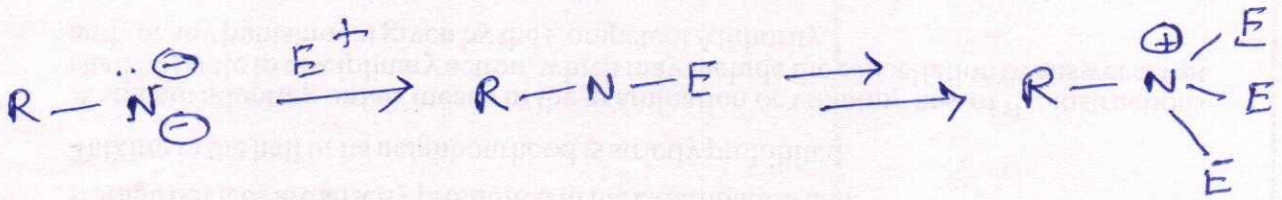


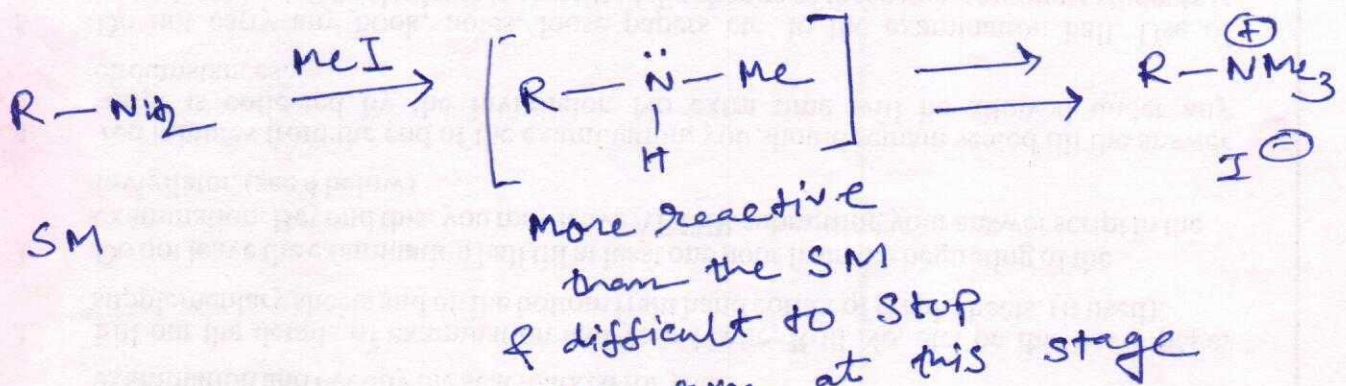




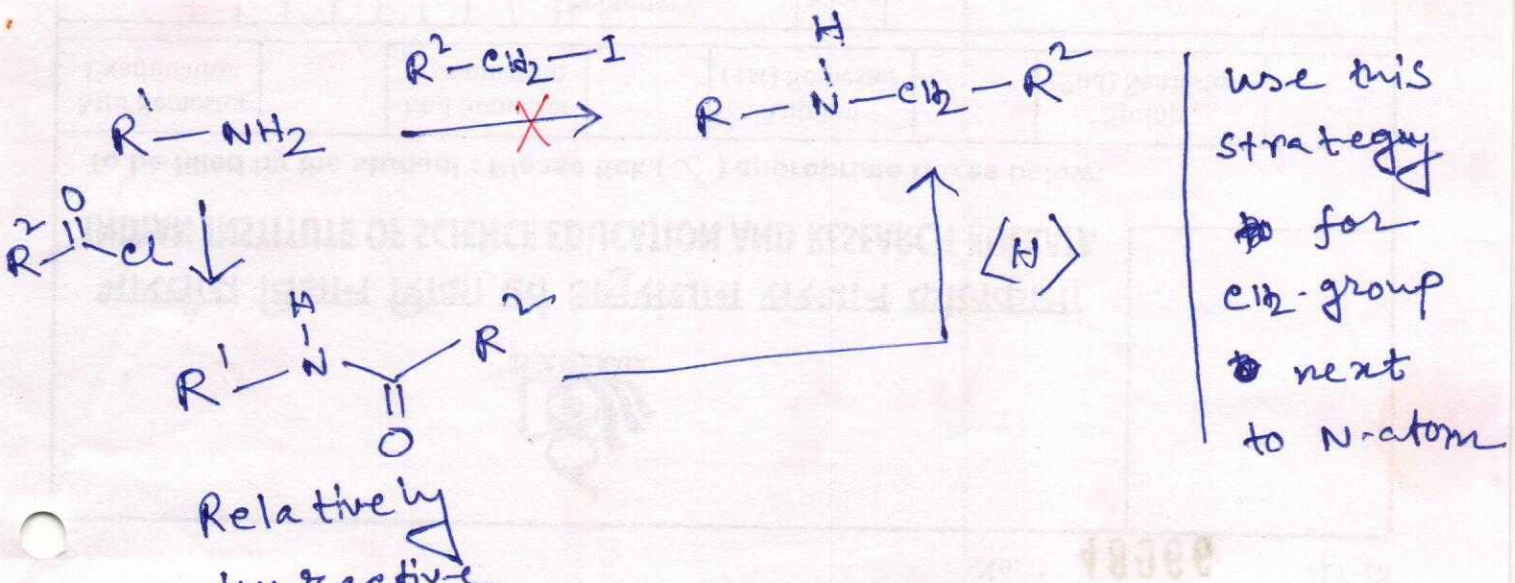
Amine Synthesis:

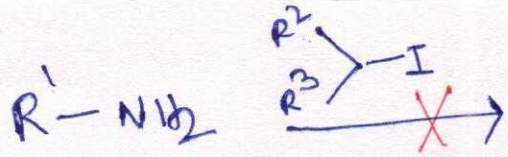


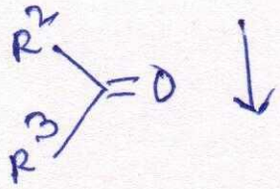


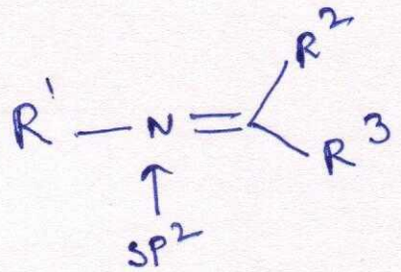


Guideline: Avoid alkyl halides & use instead electrophiles, which give relatively unreactive pdts.

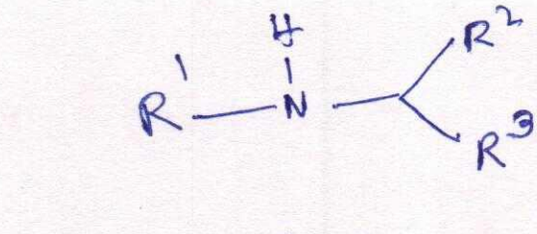


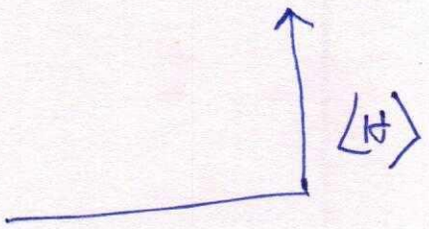






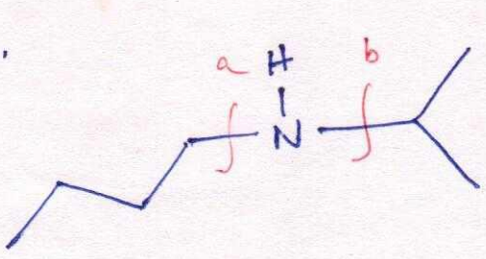
Less reactive

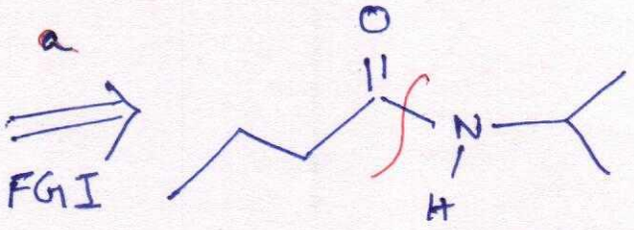


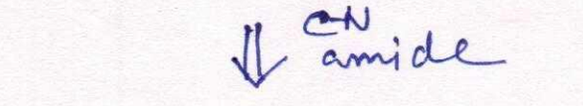


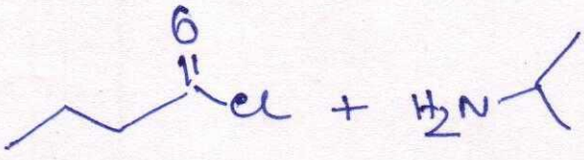
use this strategy for amines with branched chain

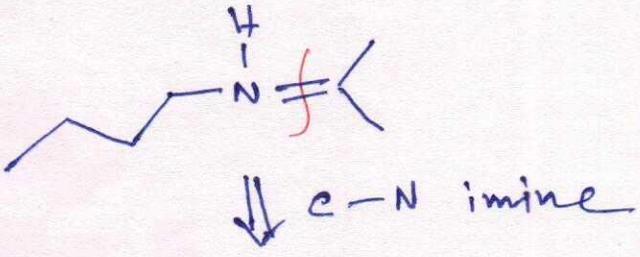
Eg.

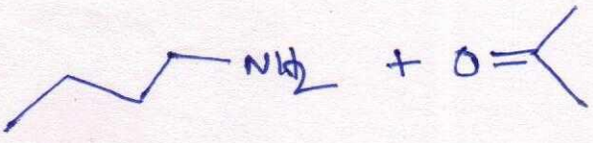




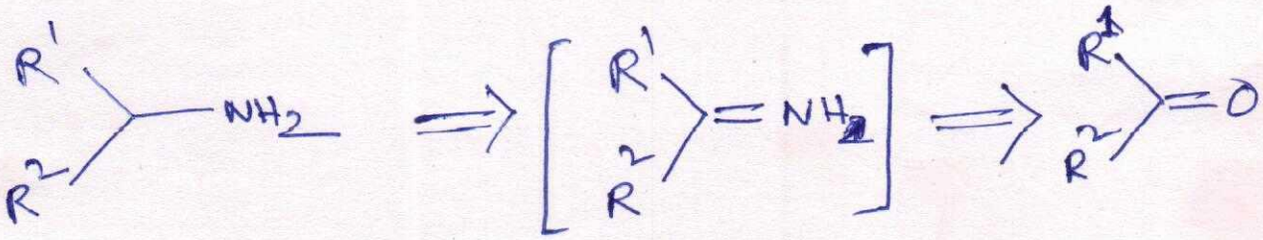




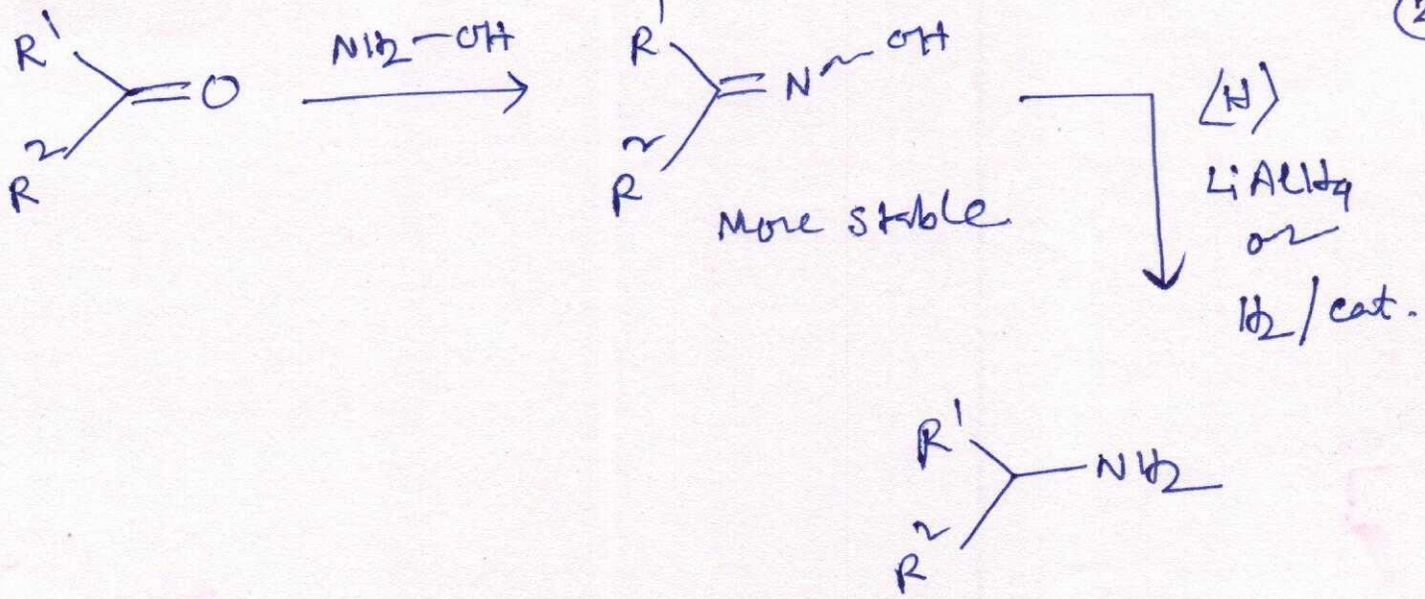


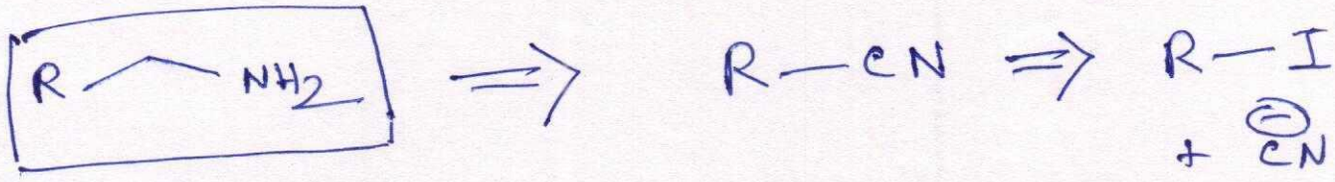


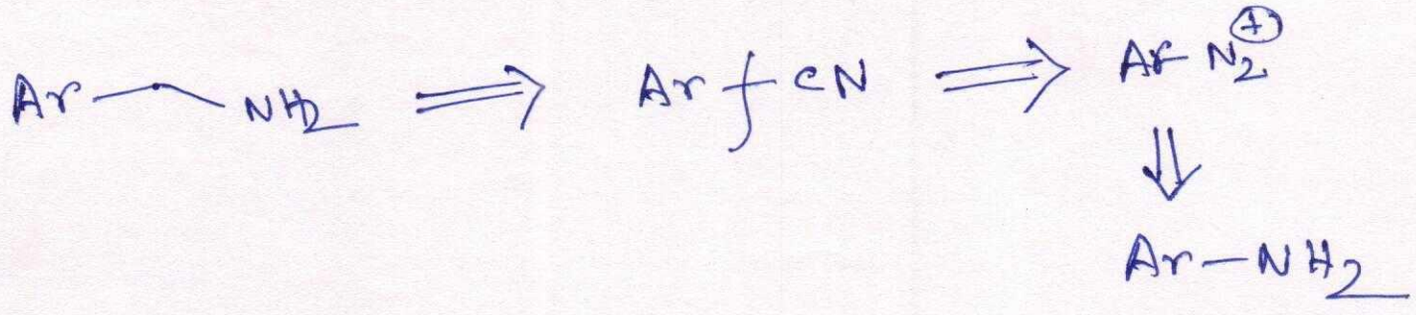
Primary amines. $R-NH_2$

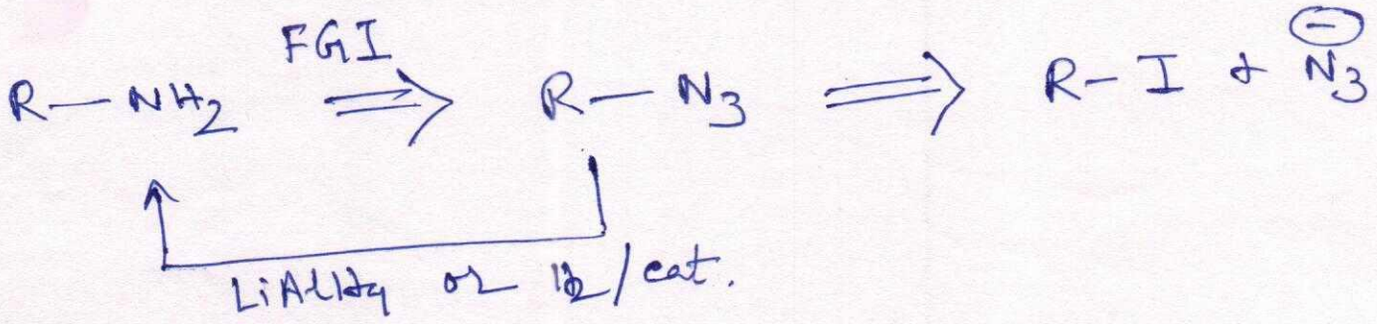


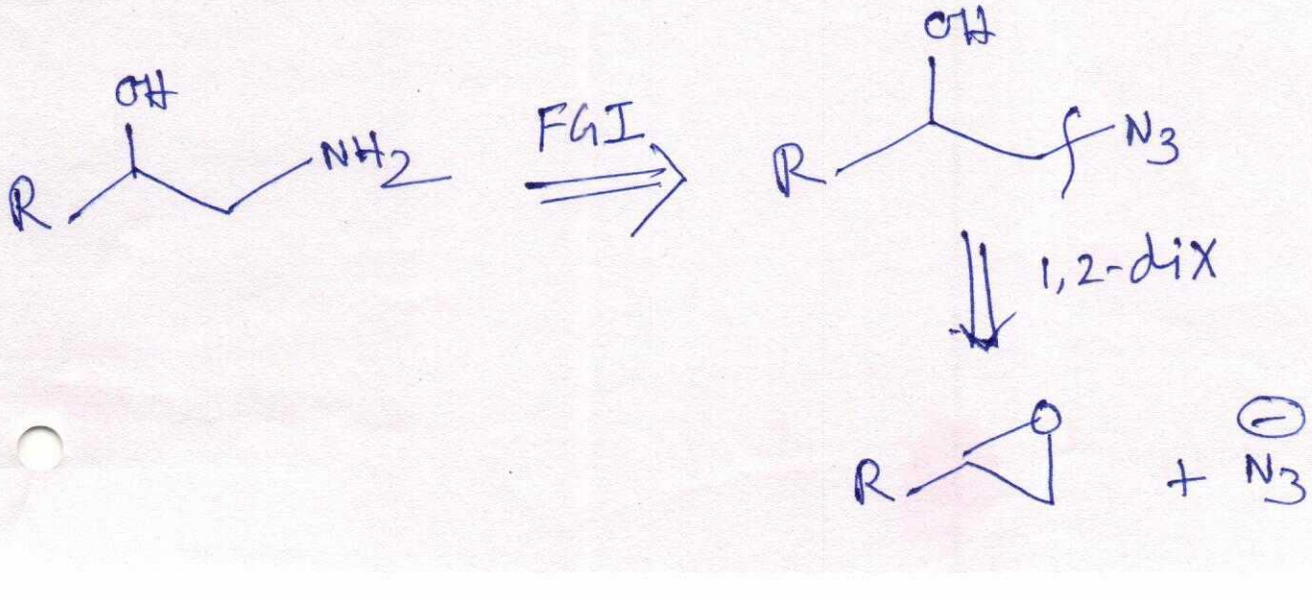
* Show Forward synthesis unstable

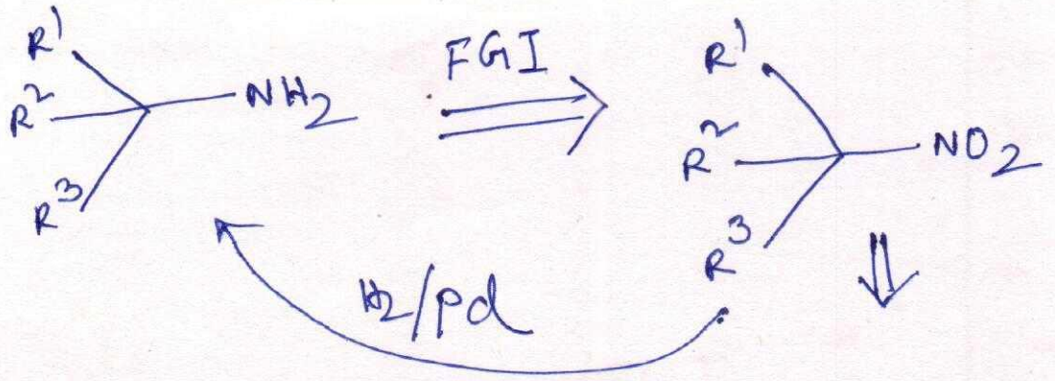

NH2–OH
More stable
[N]
LiAlH4
or
H2/cat.

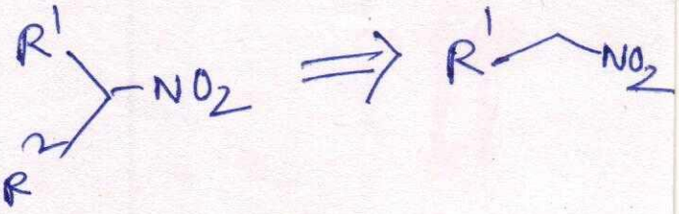

R—CN
R—I
+ CN

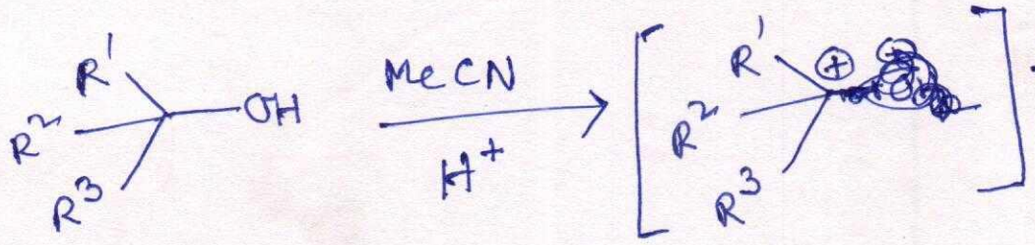

Ar—NH2
Ar—CN
Ar—N2
Ar—NH2


FGI
R—NH2
R—N3
R—I + N3
LiAlH4 or H2/cat.

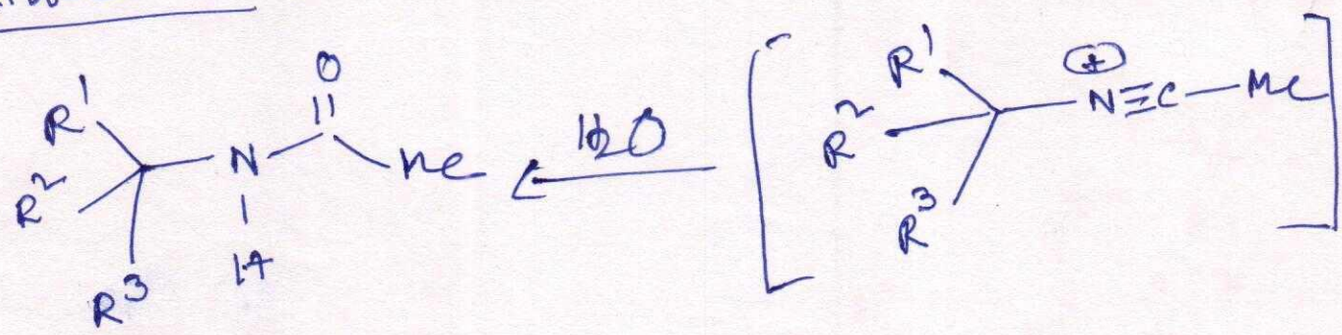

FGI
1,2-diX
+ N3

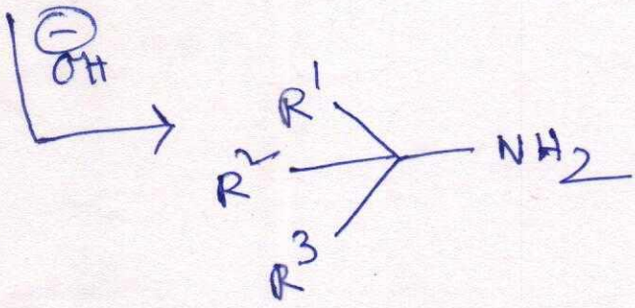

FGI
NH2
NO2
H2/Pd

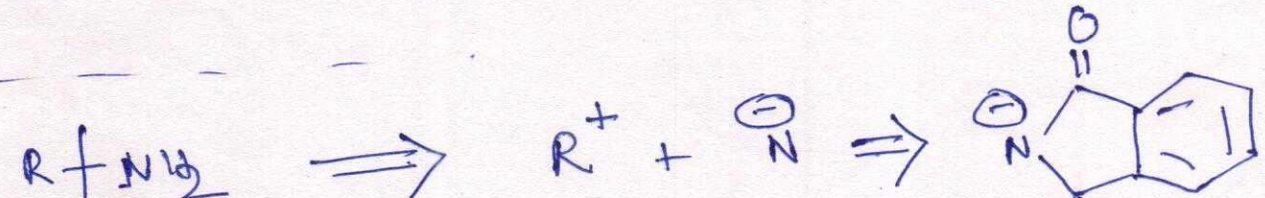

NO2
NO2

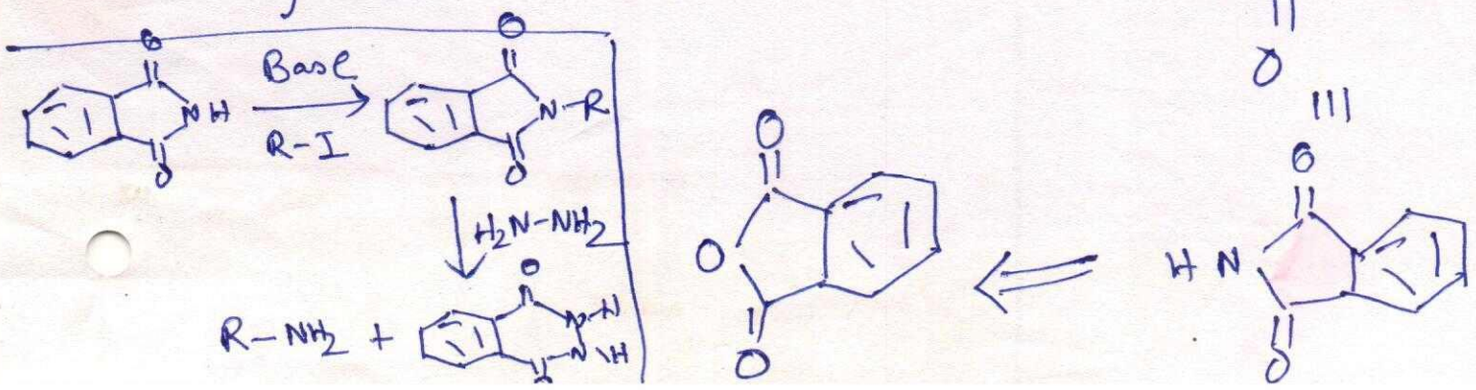

OH
MeCN
H+
MeCN:

Ritter Rxn:


H2O
Me
NH


OH
NH2


NH2


Base
R-I
H2N-NH2
R-NH2 +