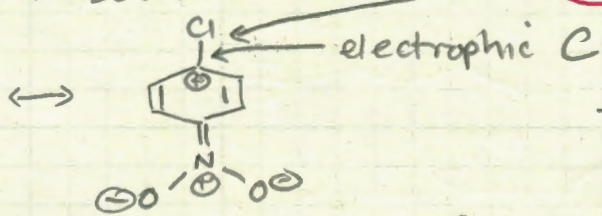
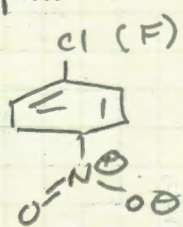


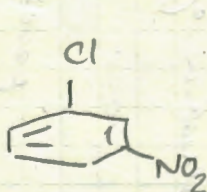
CNAS) Nucleophilic Aromatic substitution.



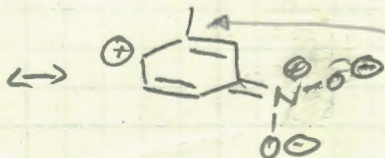
FNUG



EWG in para position helps



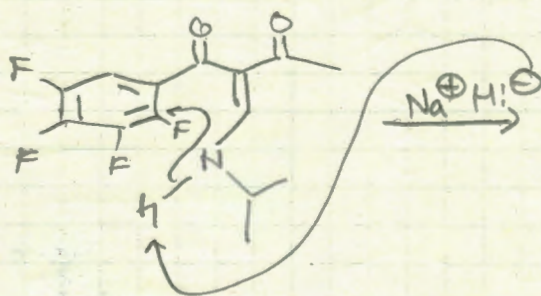
Cl (Leaving Grp)



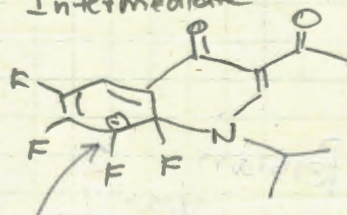
NOTE! NO₂ does not make this carbon more electropositive! when at meta position!

Learning by Doing

EWG can speed the NAS rxn by induction!

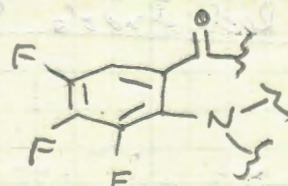
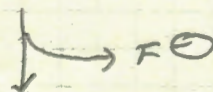


Intermediate

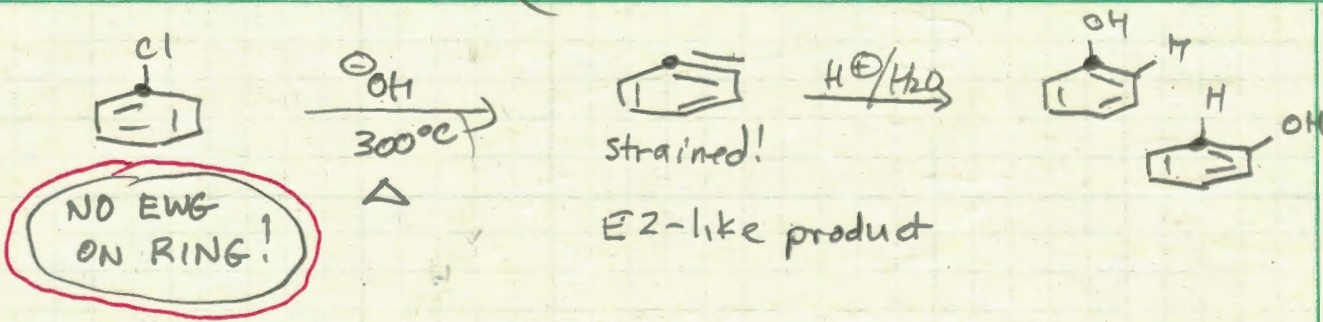


Res str

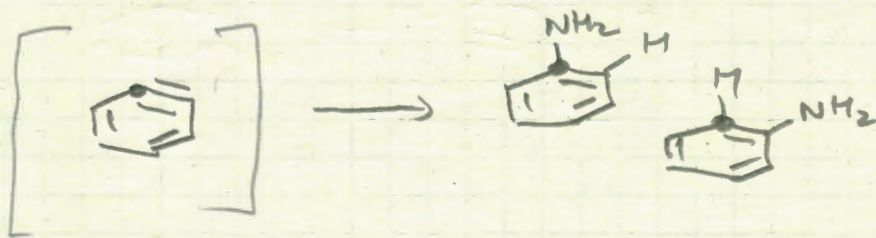
(-) chrg stabilized inductively by EW F atom.



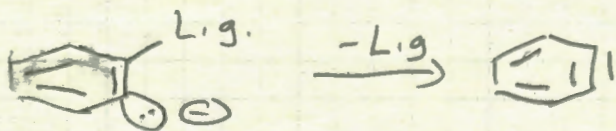
Product



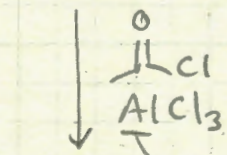
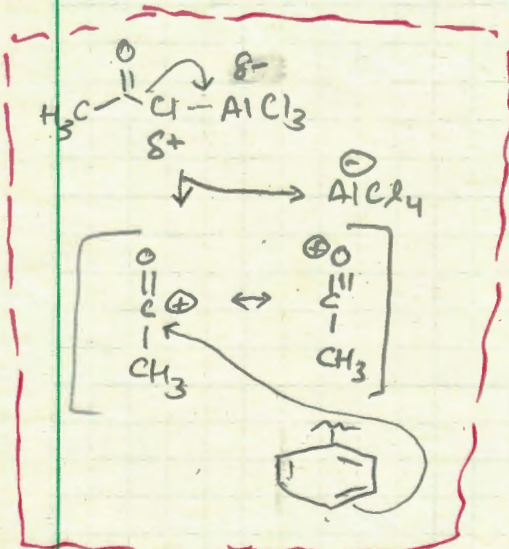
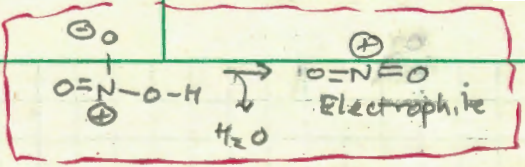
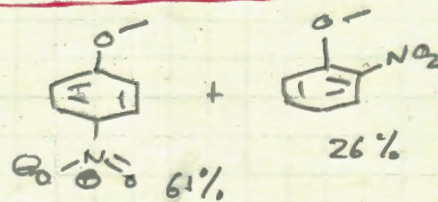
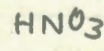
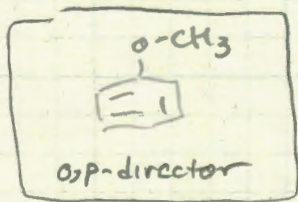
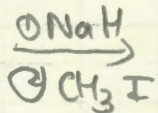
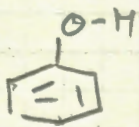
- ① NH_2^- , NH_3
- ② H^+ neutralization



VIA E1(Cb) conjugate base!



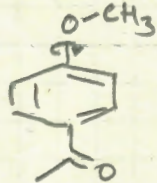
Learning by doing Phenol reactivity



Periodic Table

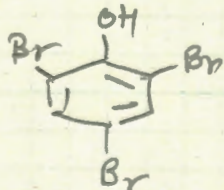
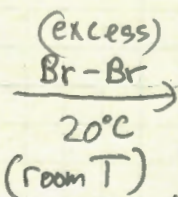
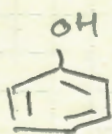
B	C	N
Al	Si	P

Al can become tetraivalent!



sterically directed to para

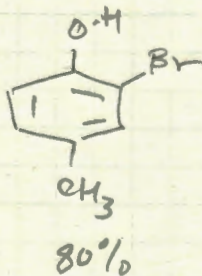
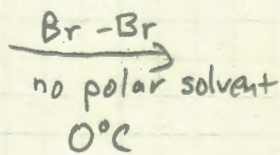
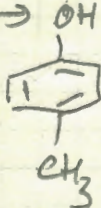
mnemonic "FriedAl" - "Claffs Acylation"

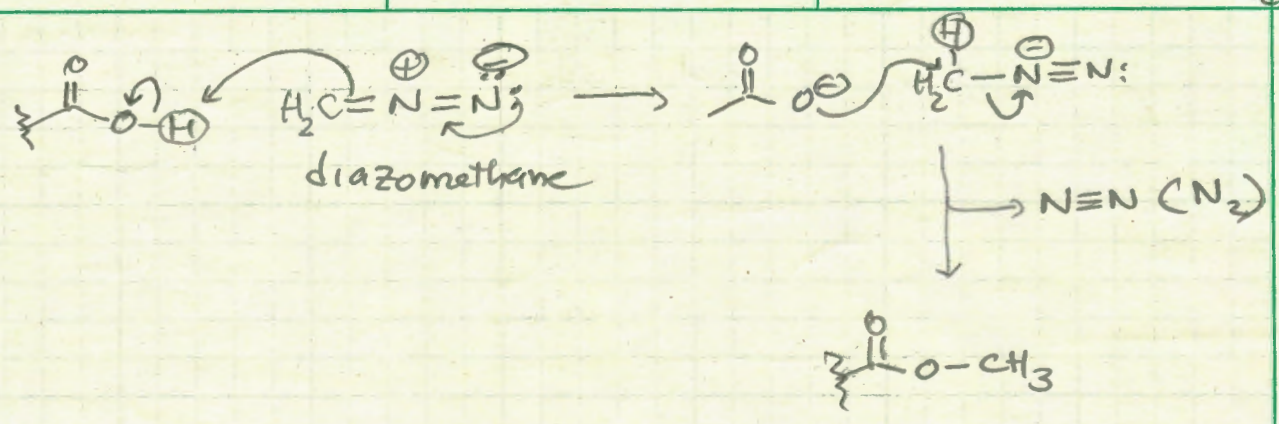


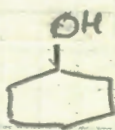
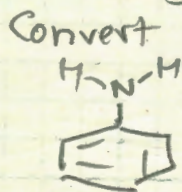
in Polar solvent

Rem: S^+ S^-
 $\text{Br} \oplus \text{Br}$
 instantaneous

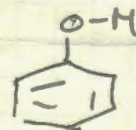
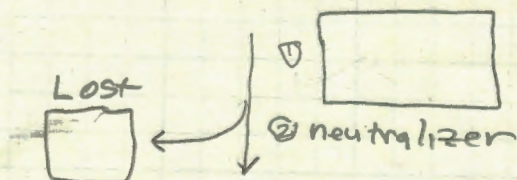
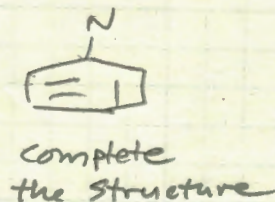
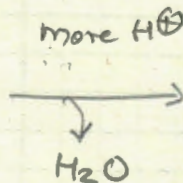
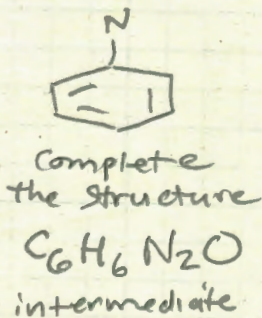
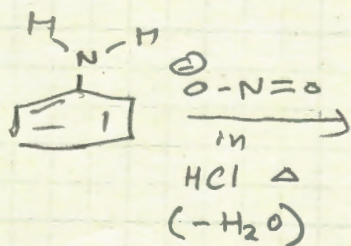
Stronger o,p-director





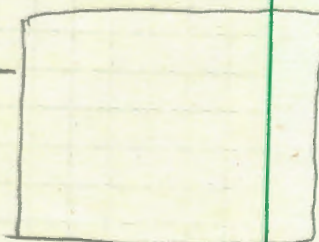
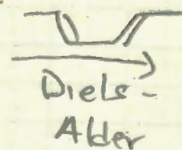
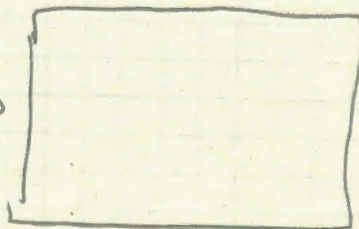
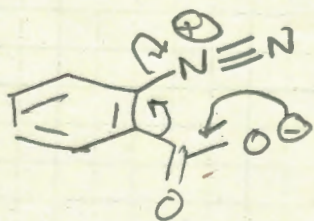


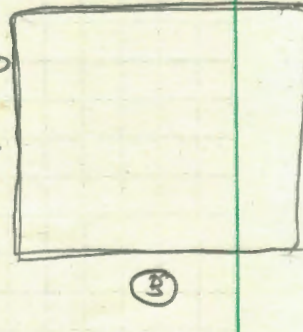
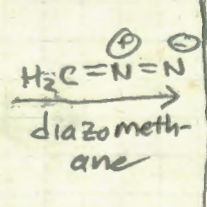
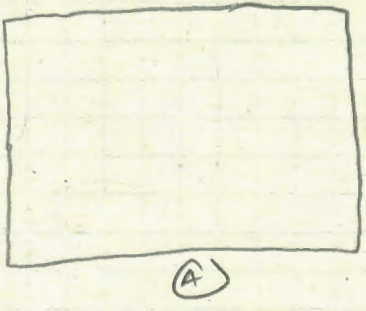
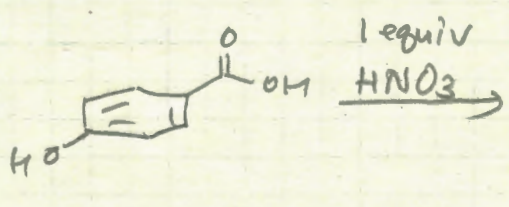
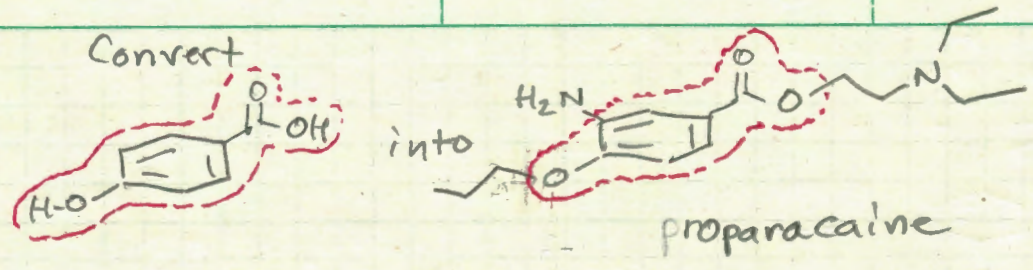
How have we learned to make 'N' a good Lig.?



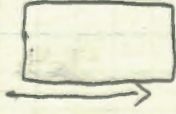
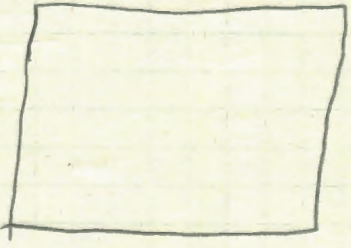
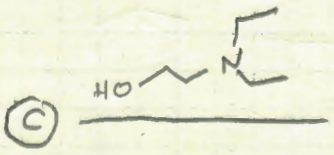
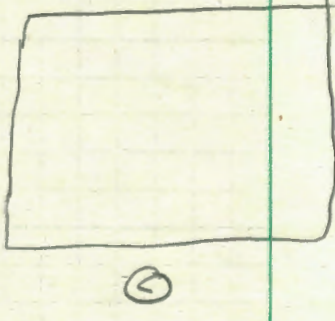
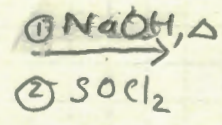
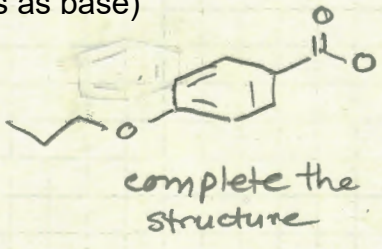
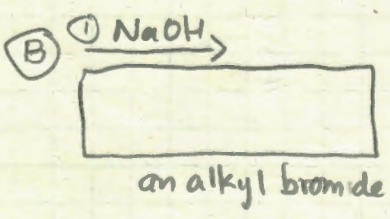
-1 if formal charges are missing where needed

Follow the Arrows



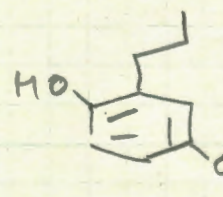
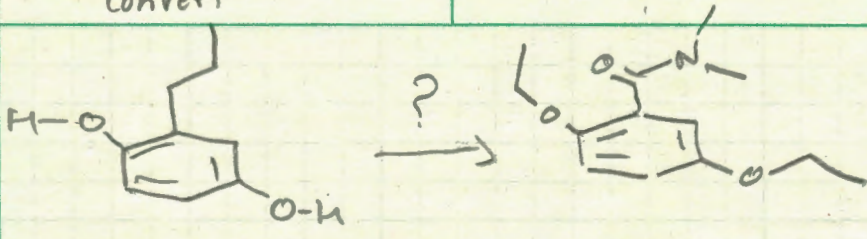


OR 1) NaH (where -H: acts as base)

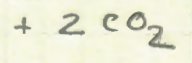
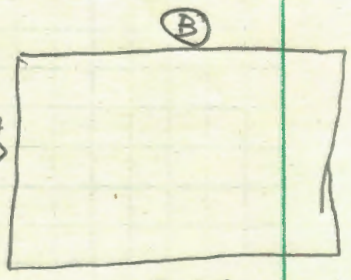
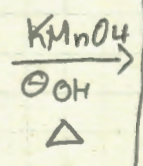
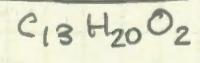
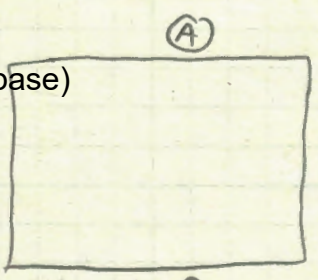
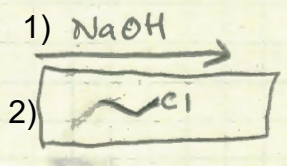


Proparacaine

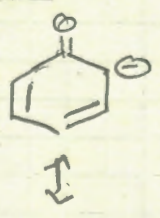
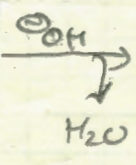
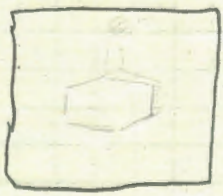
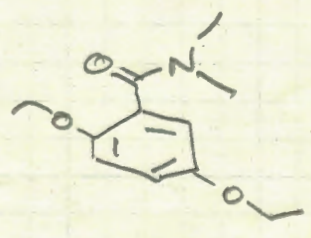
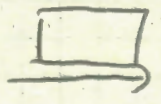
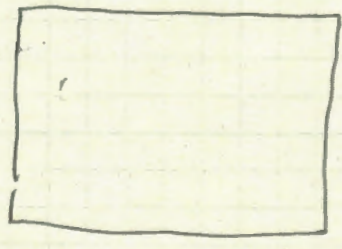
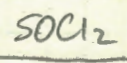
convert



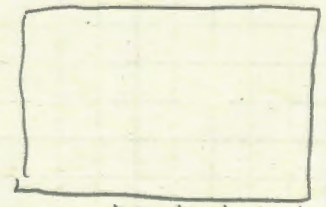
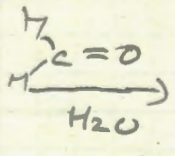
OR 1) NaH (-H: acts as base)



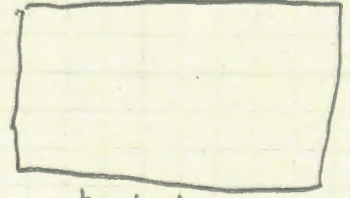
(B)



Complete res. structure



neutral cpd



neutral cpd