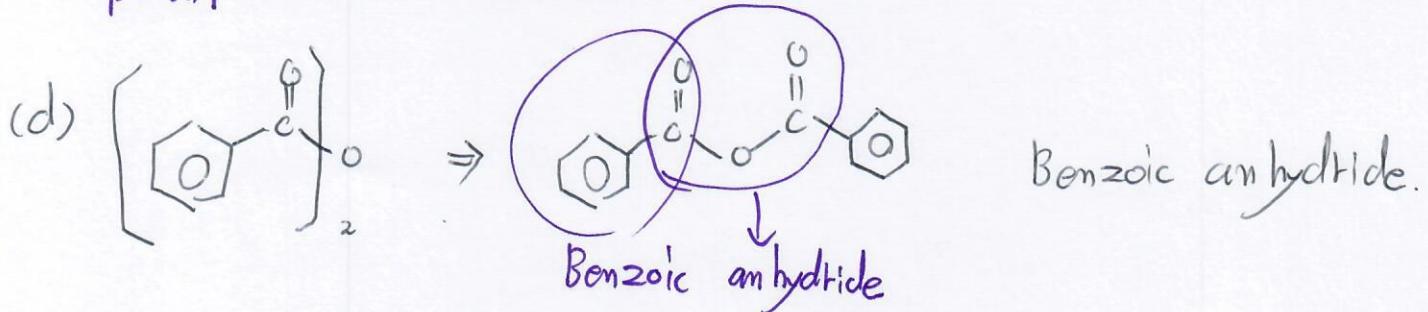
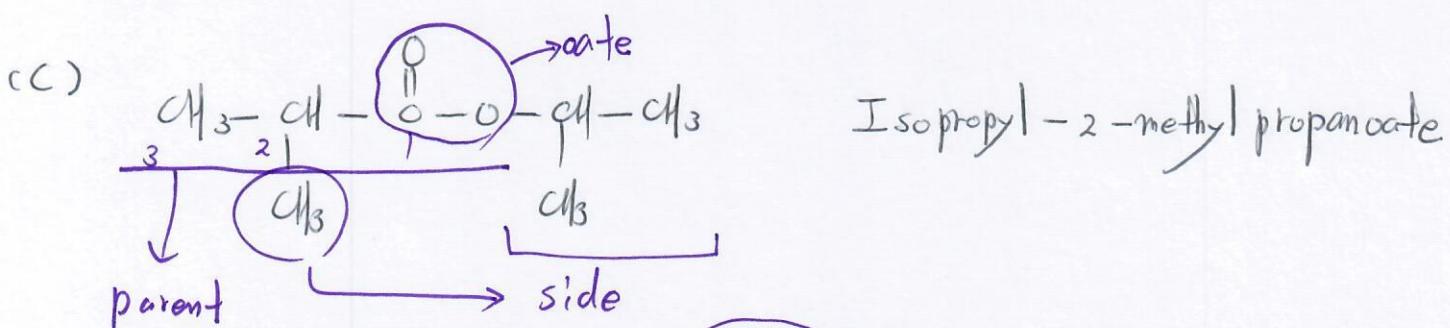
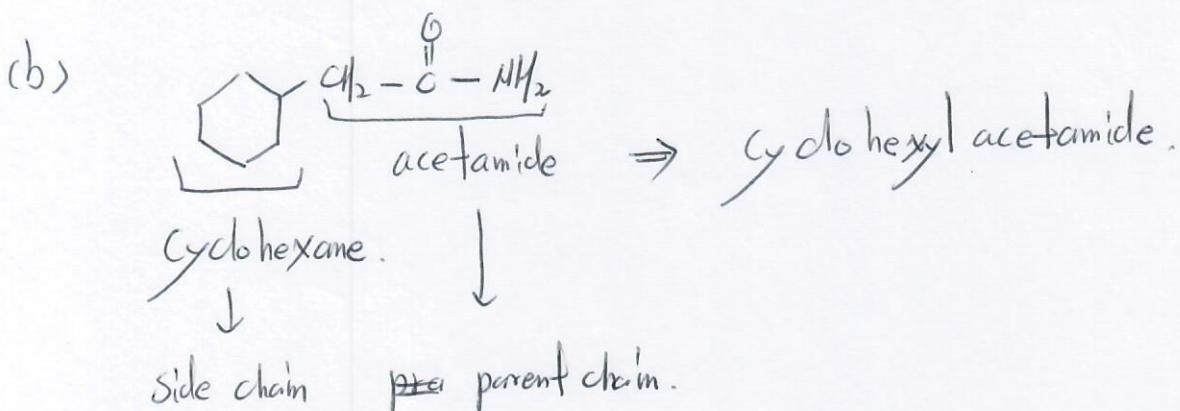
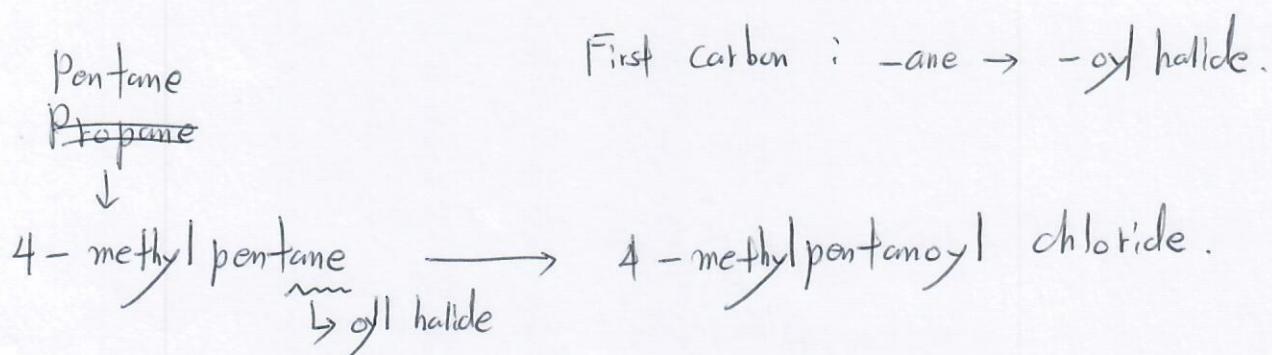
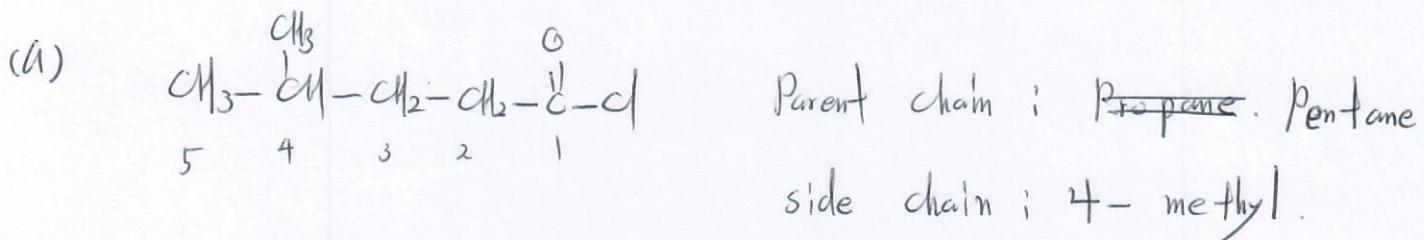
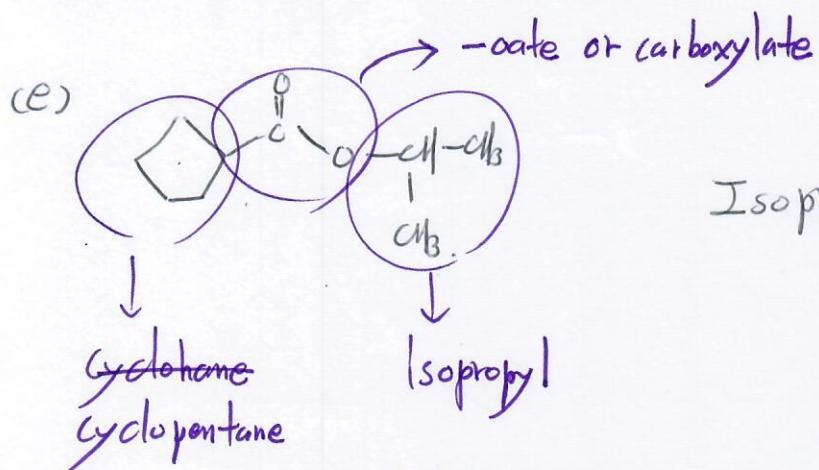


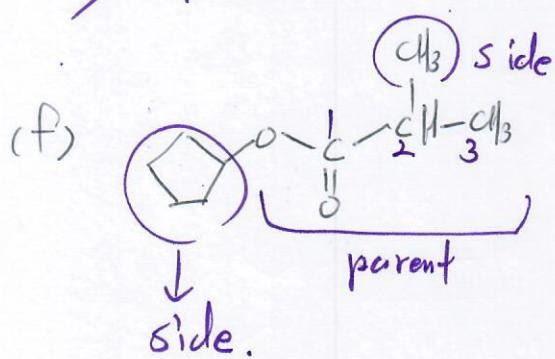
problem 21-1-1



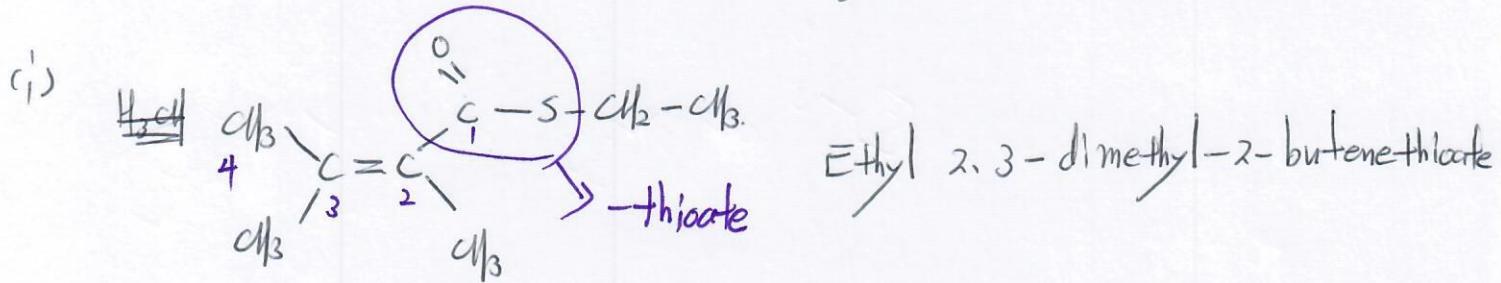
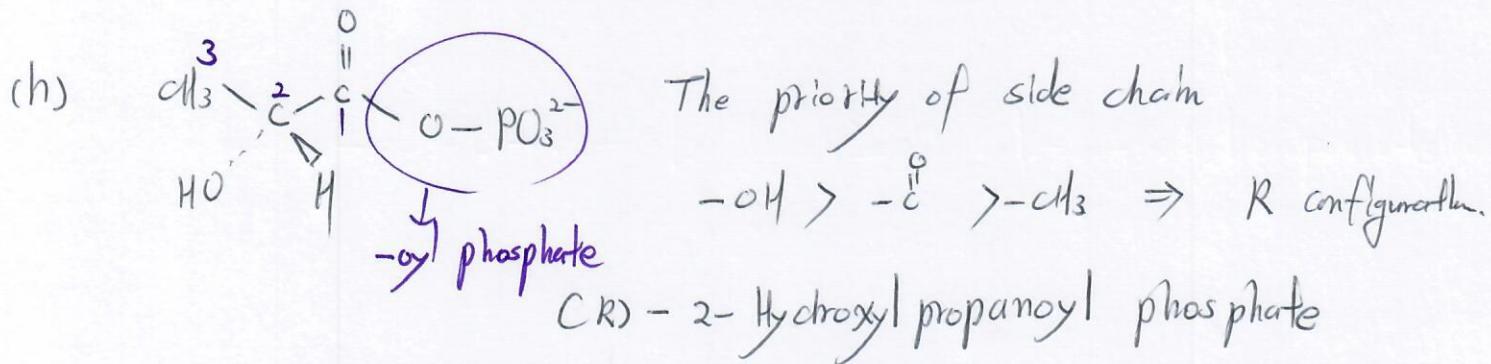
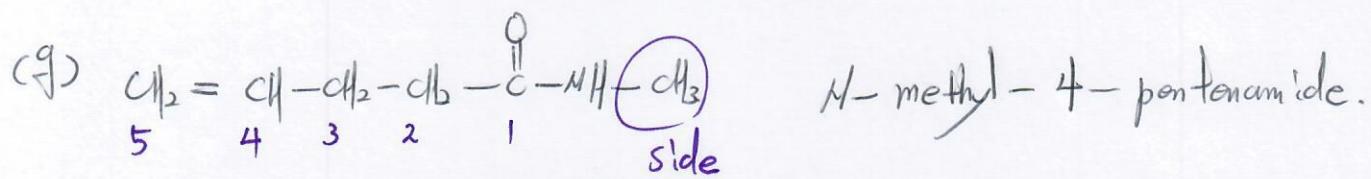
Problem 21-1-2



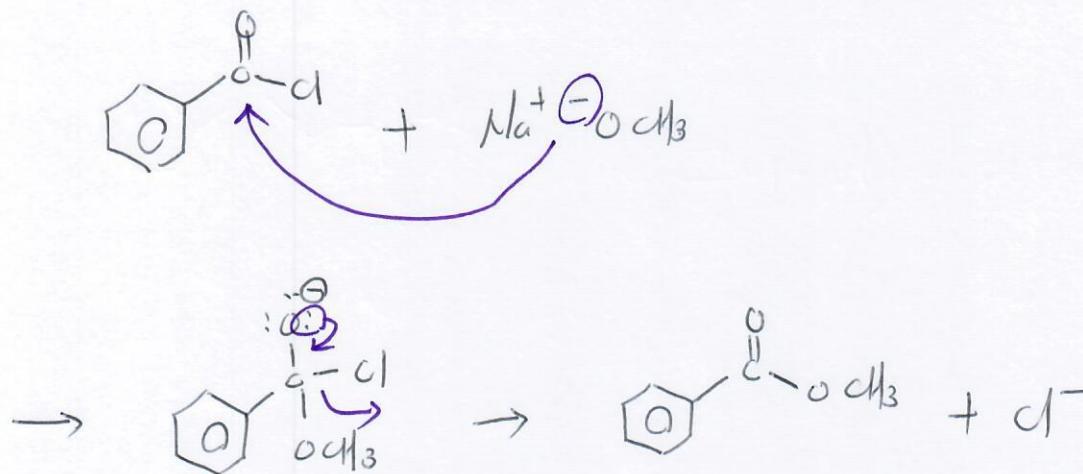
Isopropyl cyclopentane carboxylate.



cyclopentyl-2-methyl propanoate



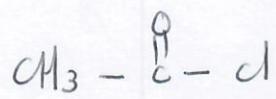
problem 21-3



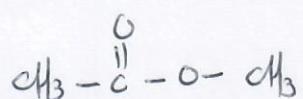
S_N2 mechanism

Problem 21-4.

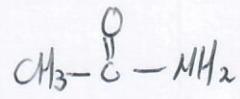
(a)



Acid chloride

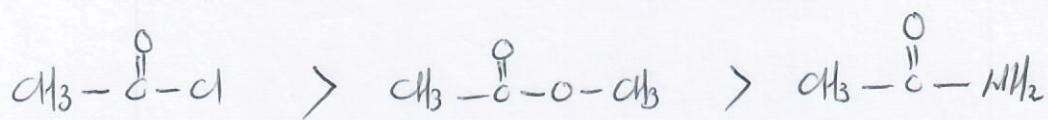


acid anhydride

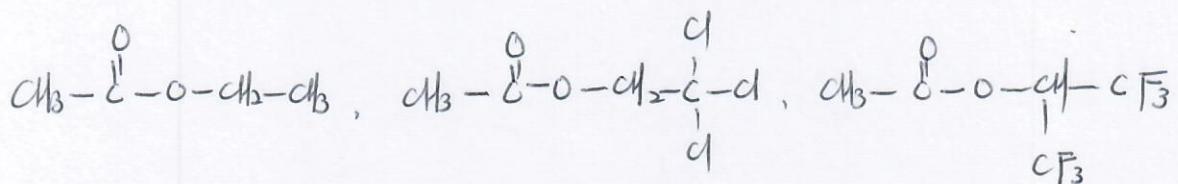


Amide

The reactivity



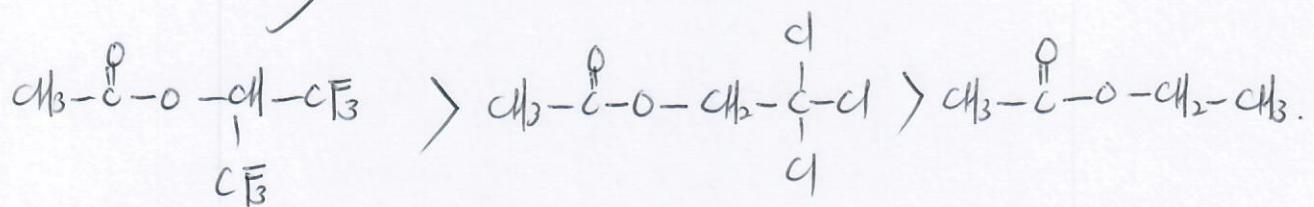
(b)



The negativity of F is higher than Cl.

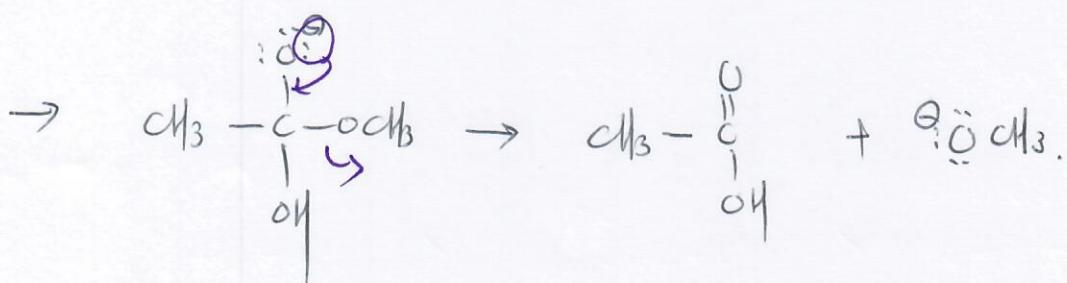
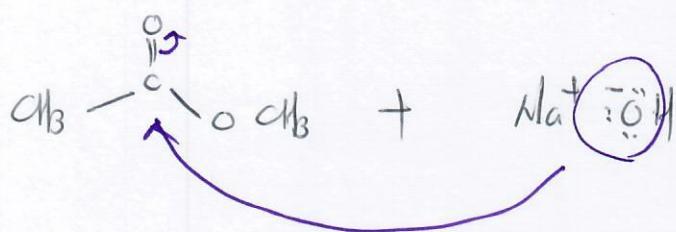
The F is strongly electron-withdrawing groups.

The reactivity

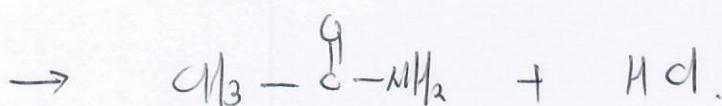
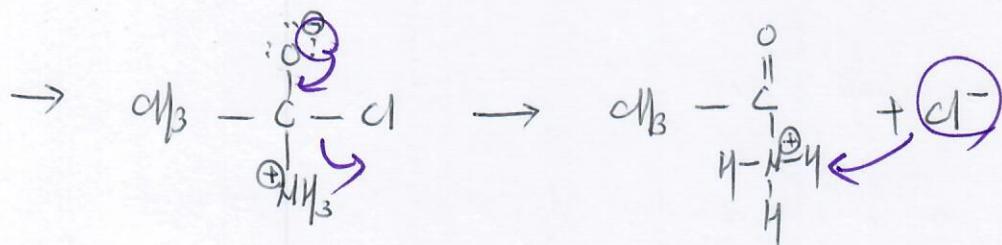
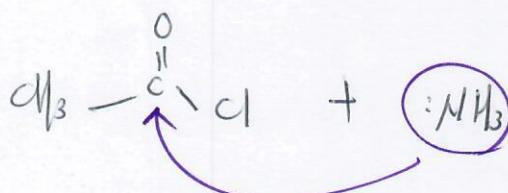


Problem 21-5. -

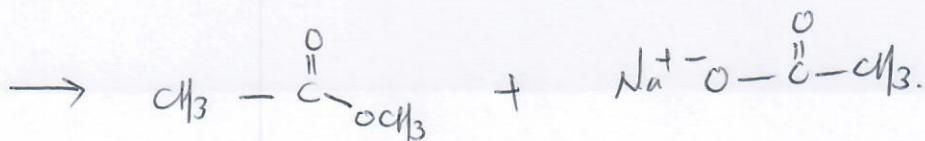
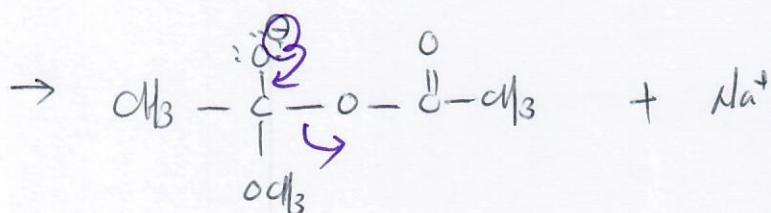
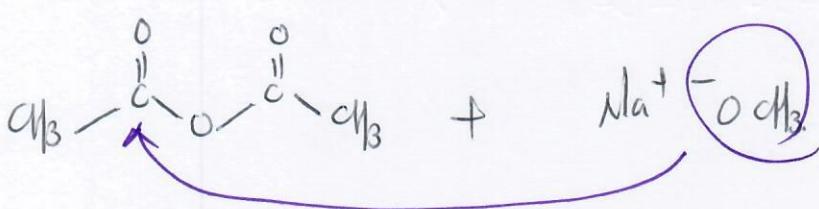
(a)



(b)

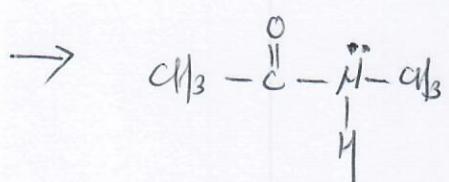
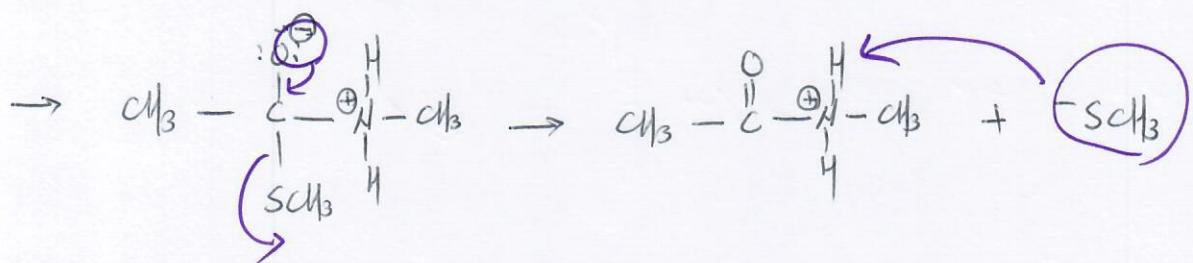
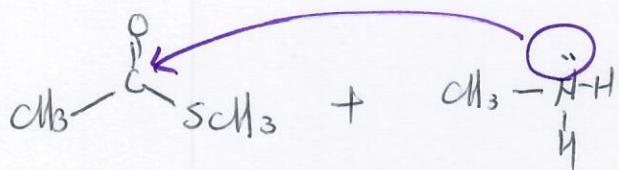


(c)



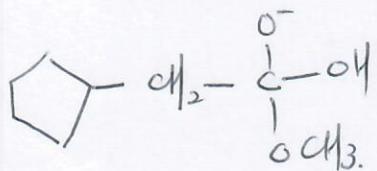
problem 21-5-2

(d)

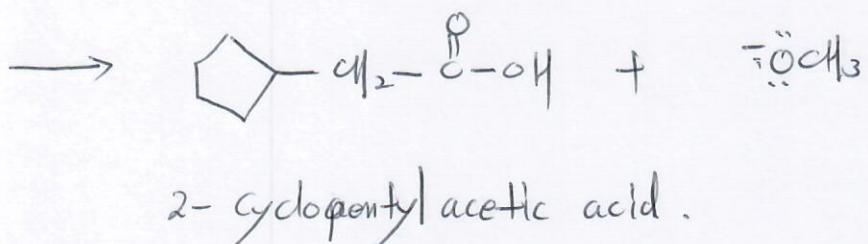
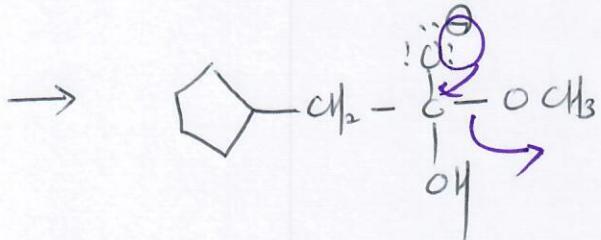
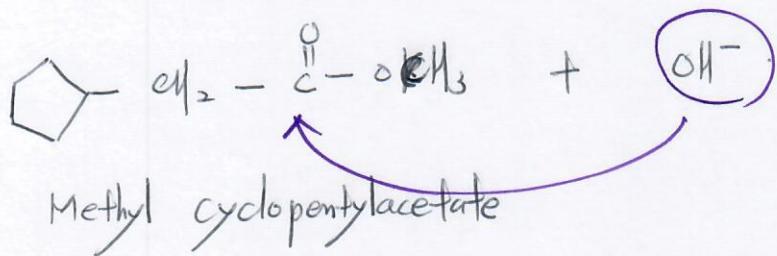


problem 2 1 - 6.

The intermediate structure.

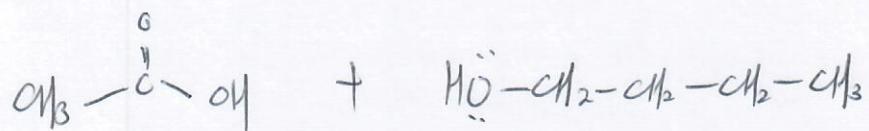


Starting Material.



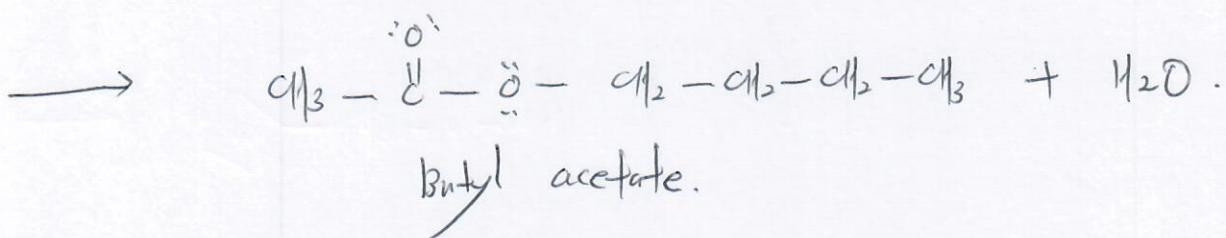
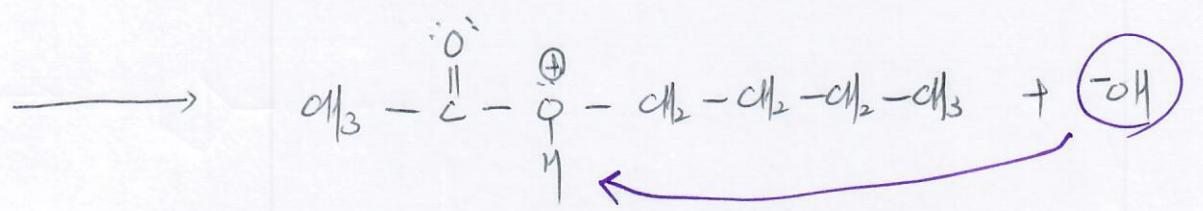
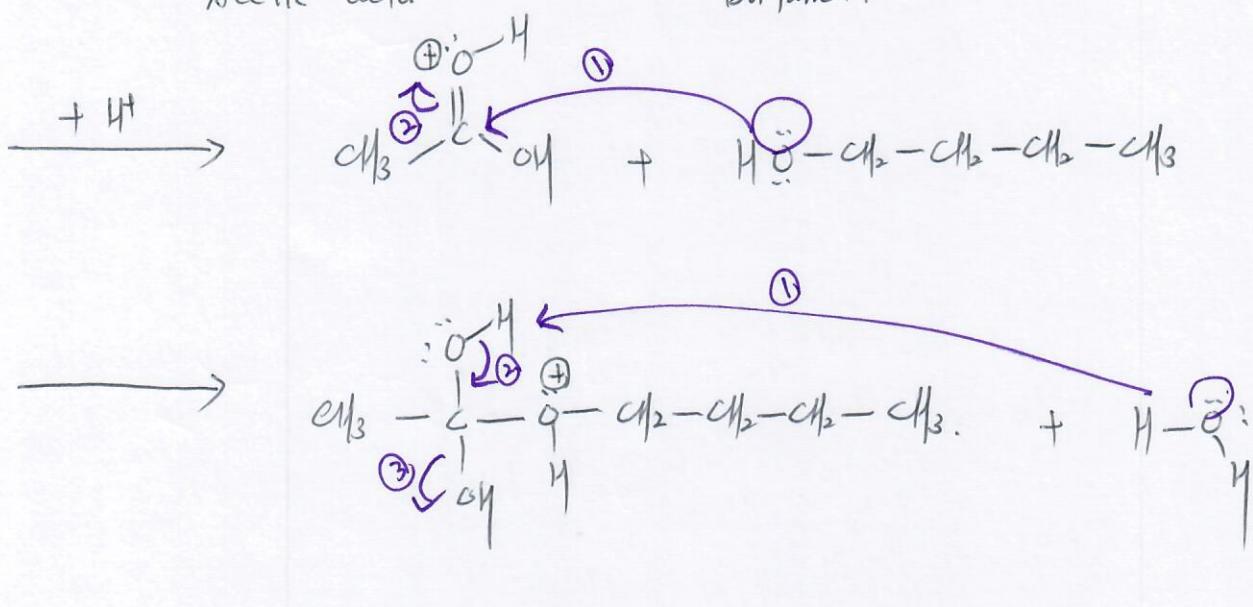
Problem 21-7 -

(a)



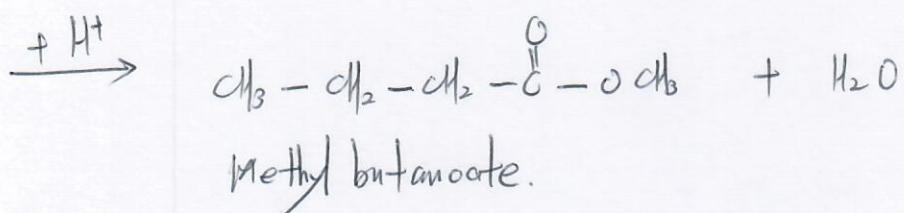
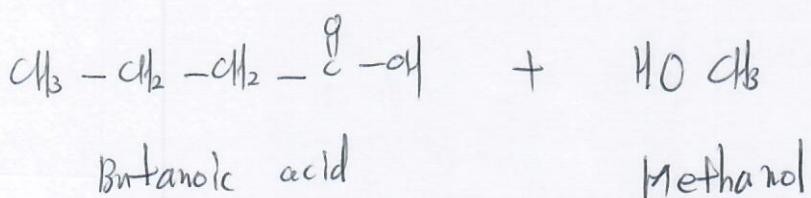
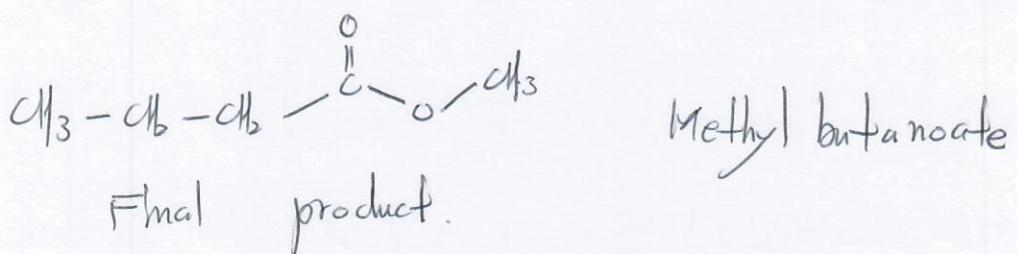
Acetic acid

Butanol.

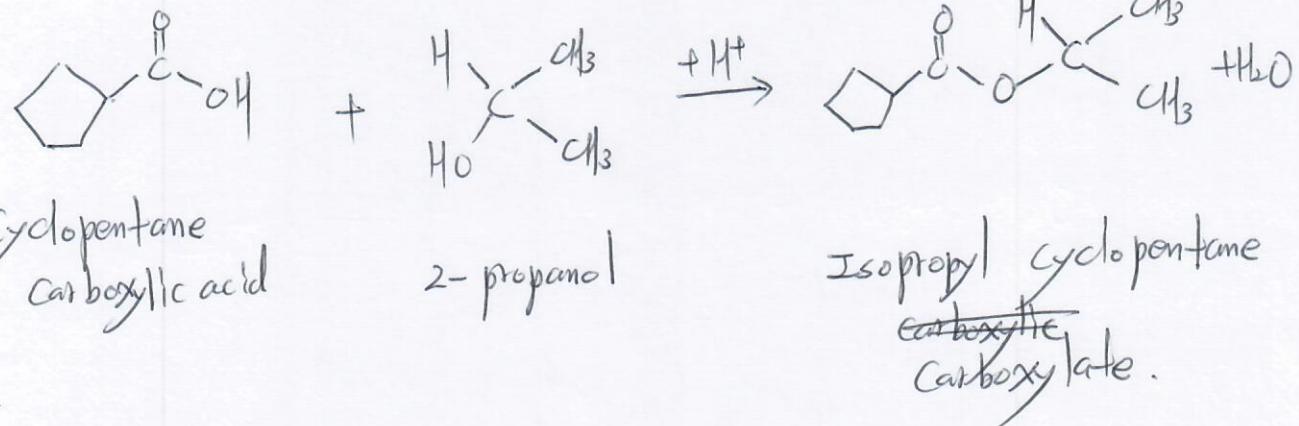


Problem 21-7-2

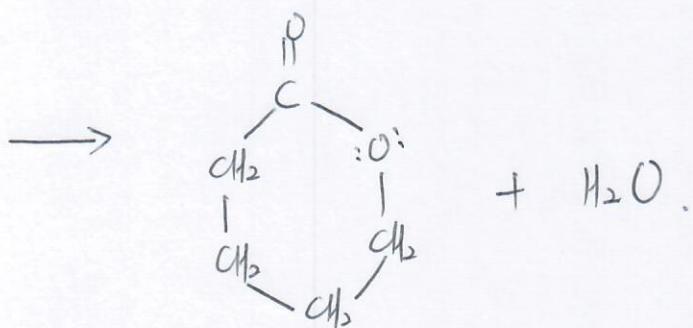
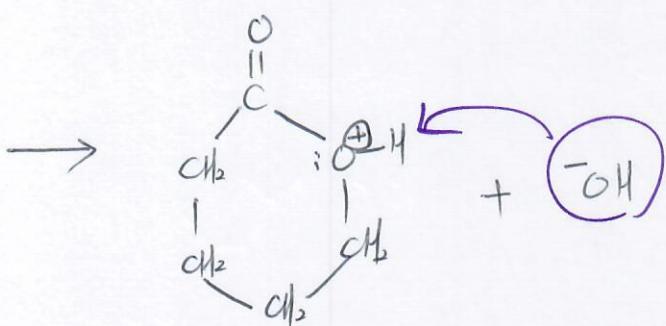
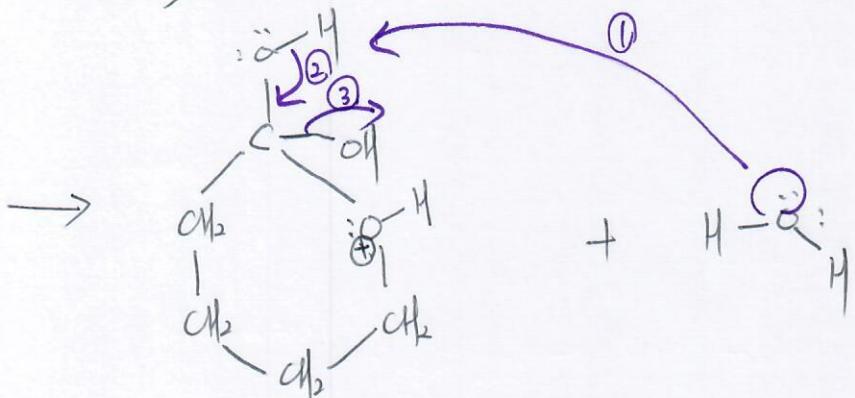
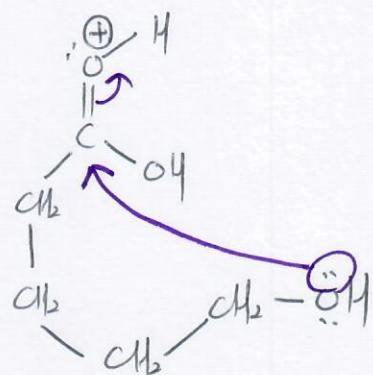
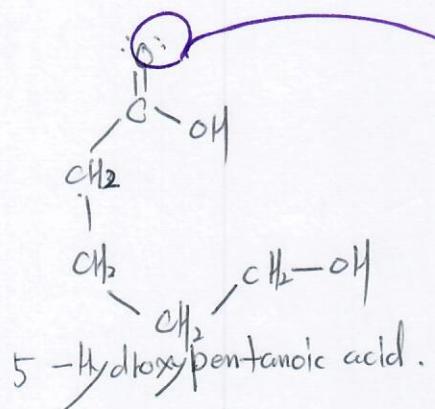
(b)



(C)

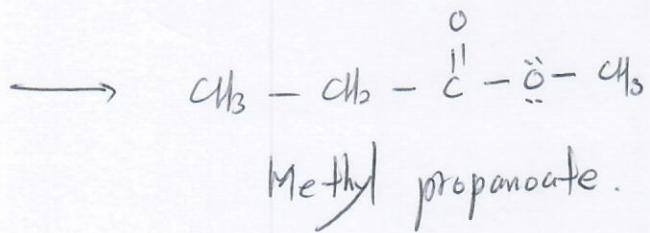
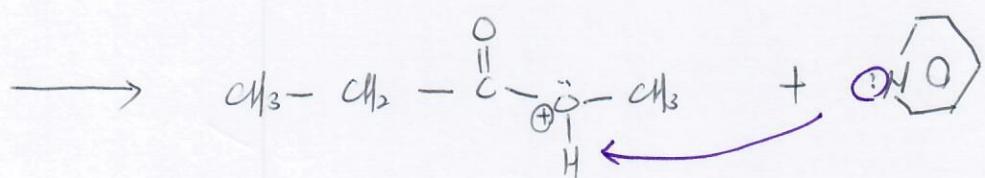
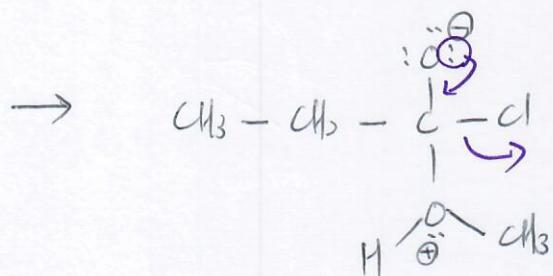
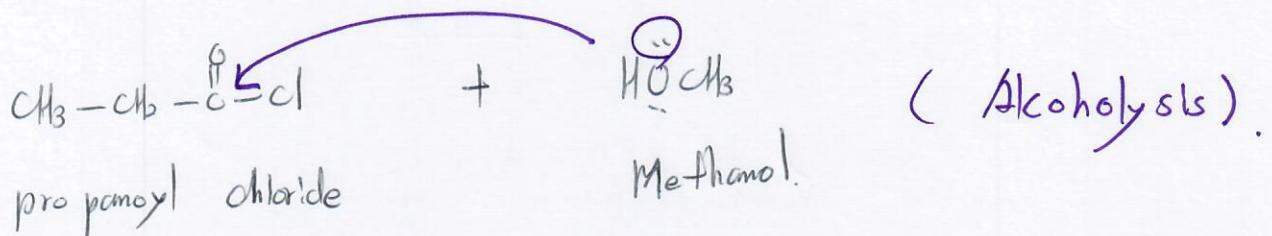
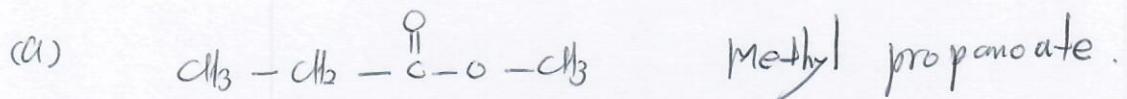


problem 21-8.

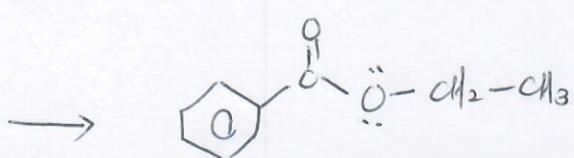
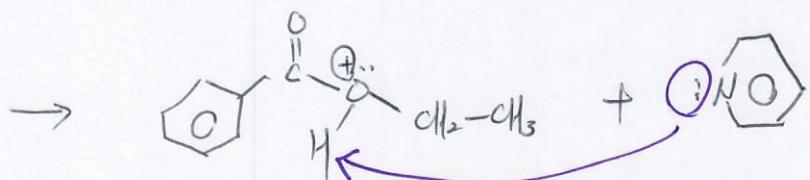
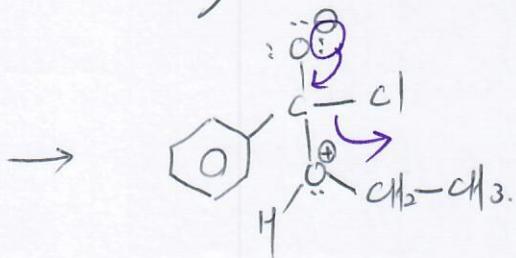
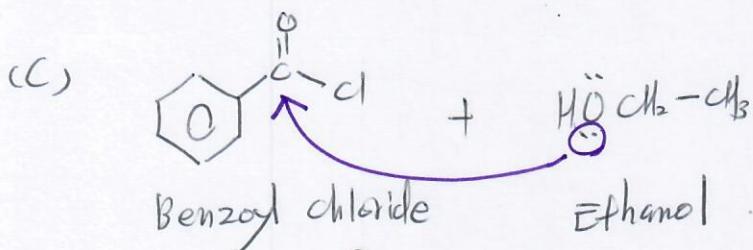
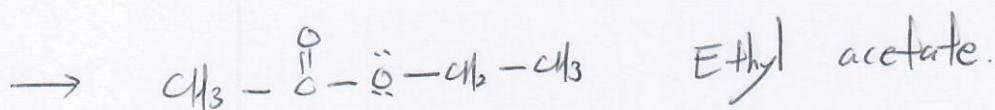
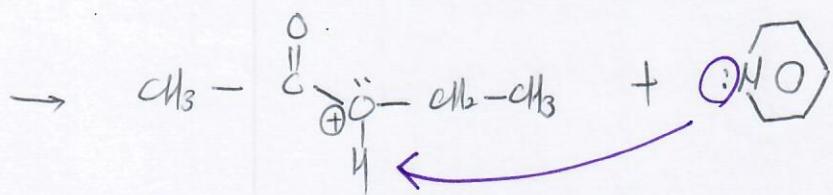
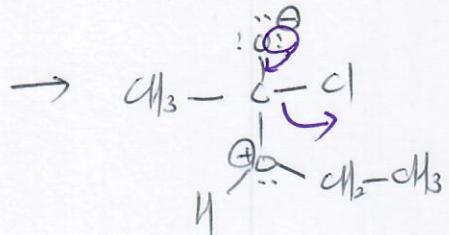
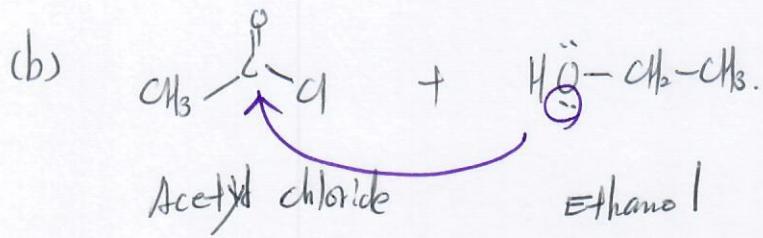


Lactone

problem 21-9.-



problem 21-9-2

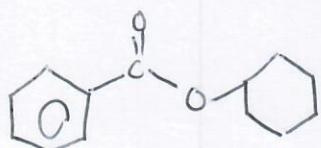


Problem 21-10.

Fischer esterification rxn.

Synthesis of ester from a carboxylic acid and an alcohol under the acid catalyst.

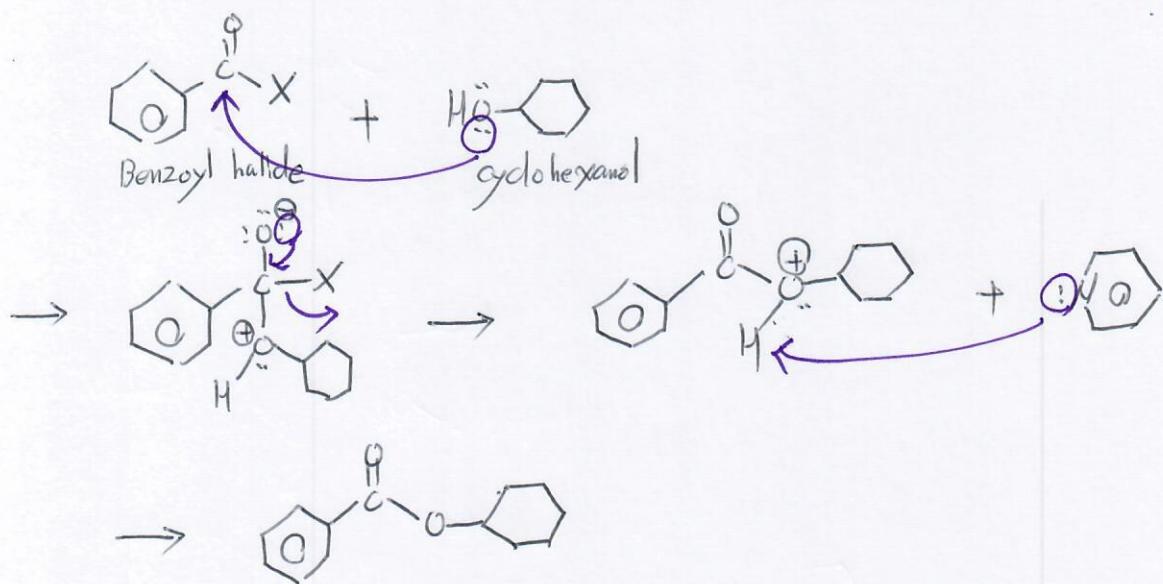
~~OH~~ Methanol, ethanol, propanol, and butanol are used



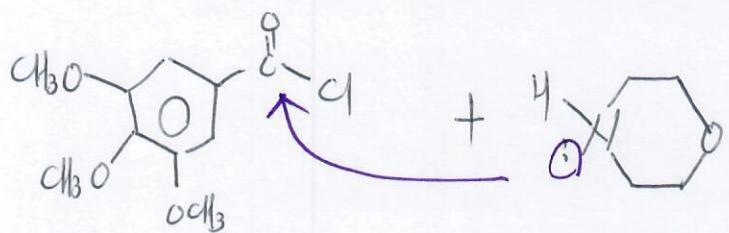
cyclohexyl
benzoate

This structure does not have a methyl, ethyl, propyl, or butyl group.

Alcoholysis.

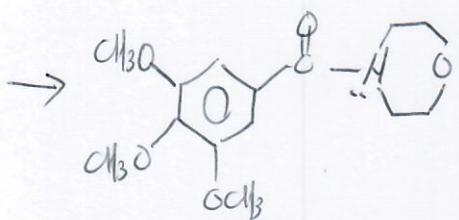
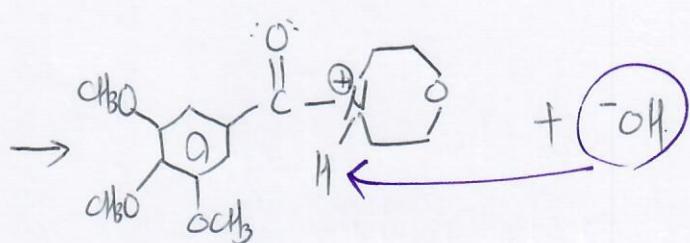
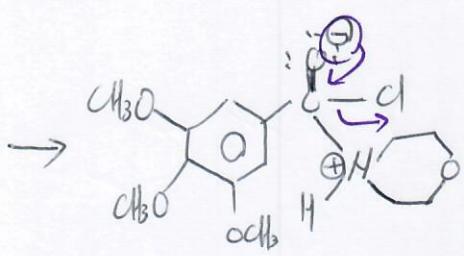


Problem 21-11.



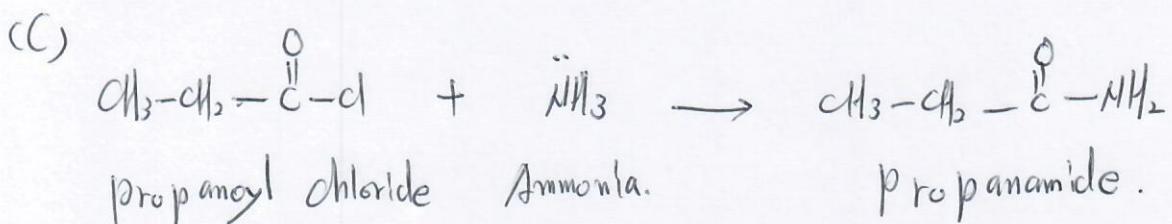
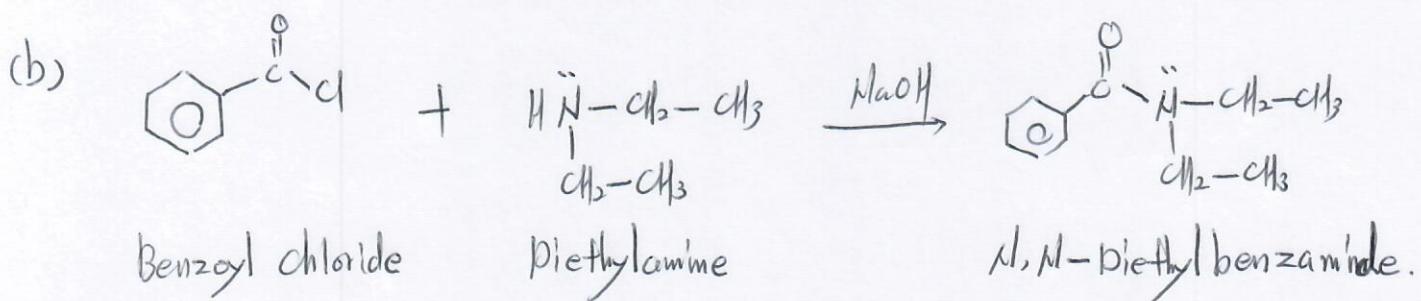
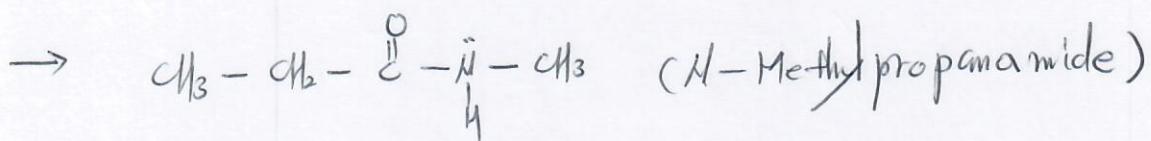
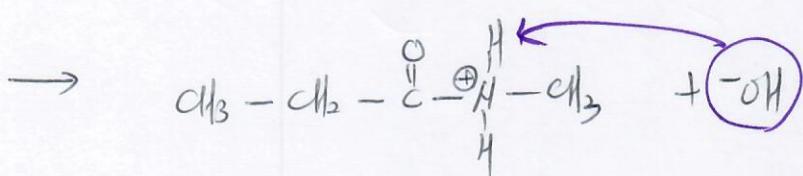
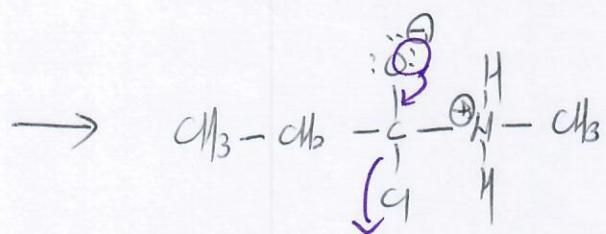
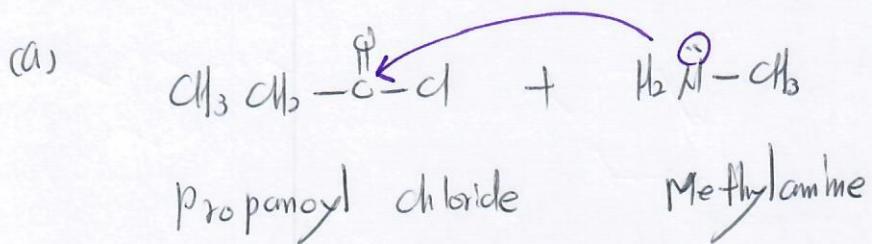
3,4,5-Tri-methoxy
benzoyl chloride

Morpholine.

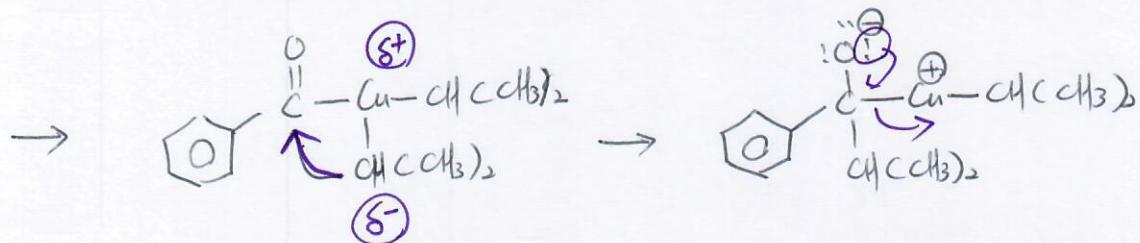
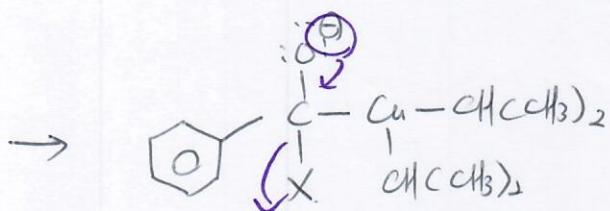
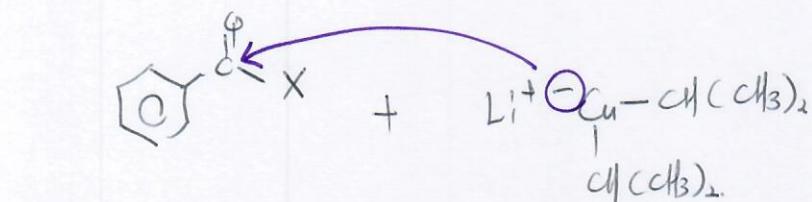
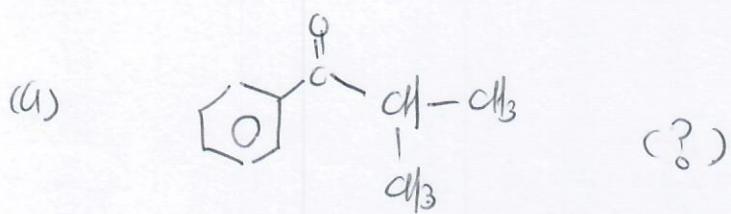


(Tri-metozime) (Aminobutols)

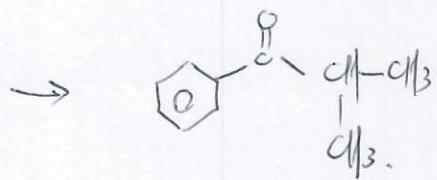
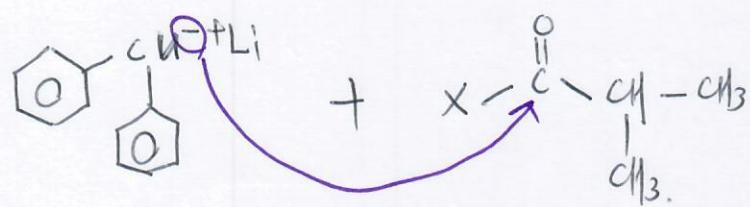
Problem 21-12



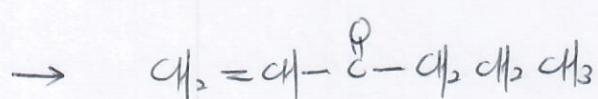
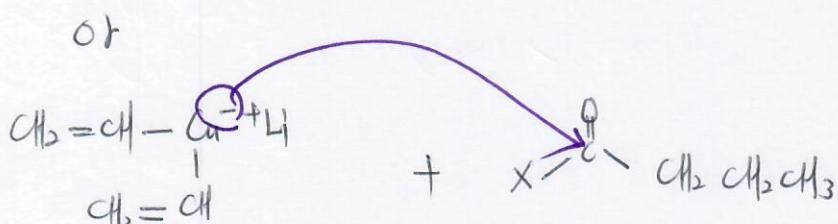
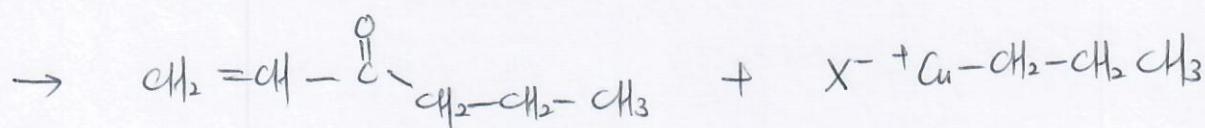
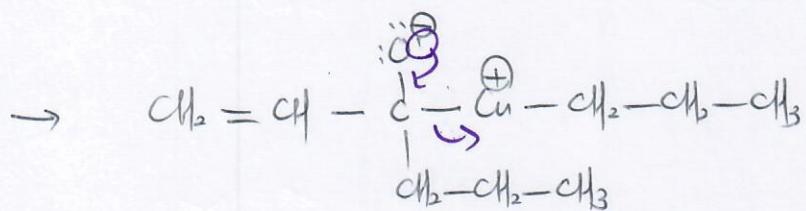
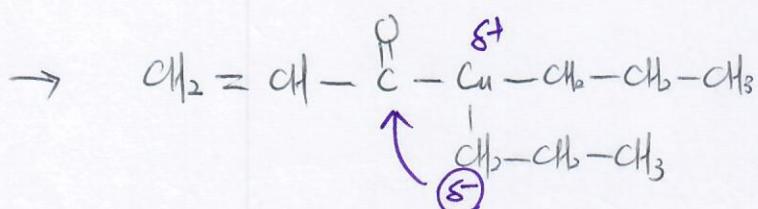
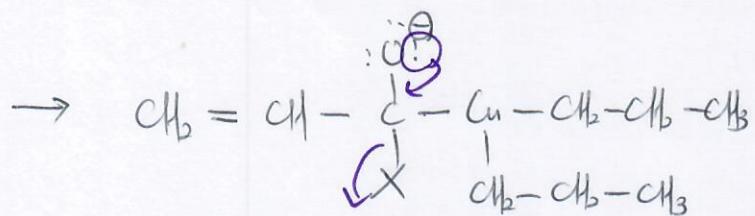
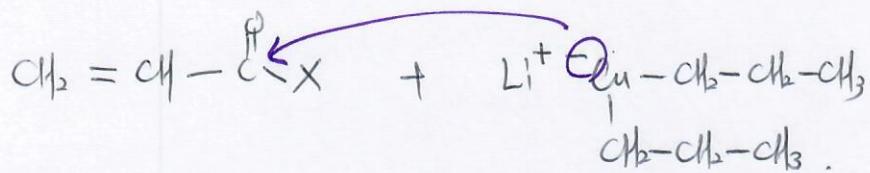
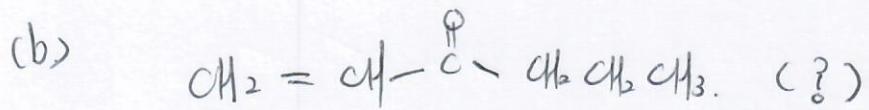
problem 21-13 -1



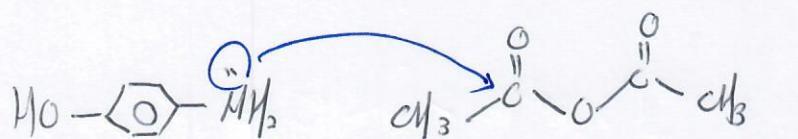
or



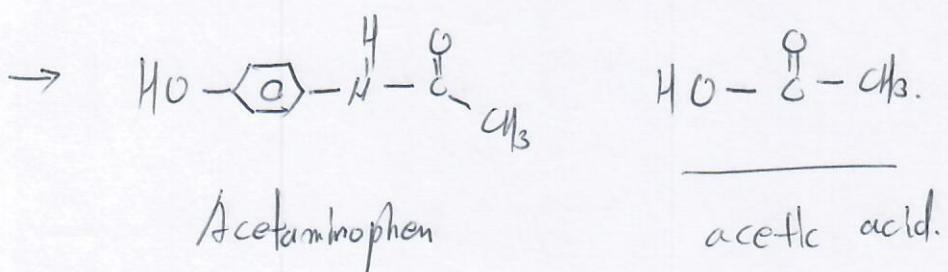
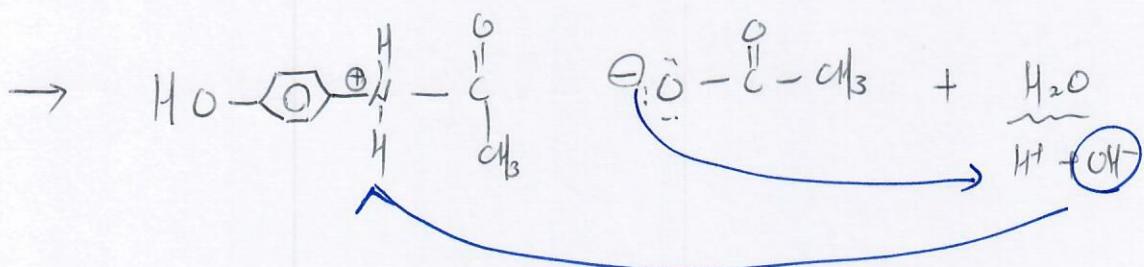
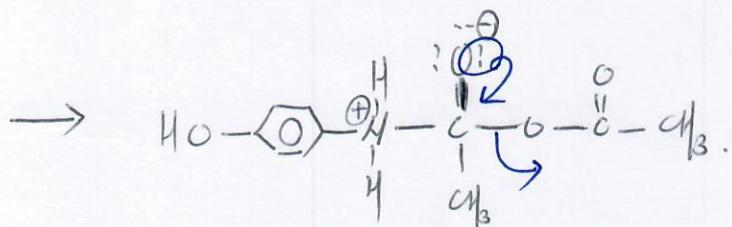
problem 21-13-2



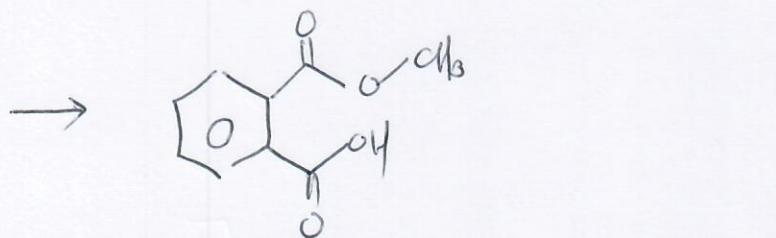
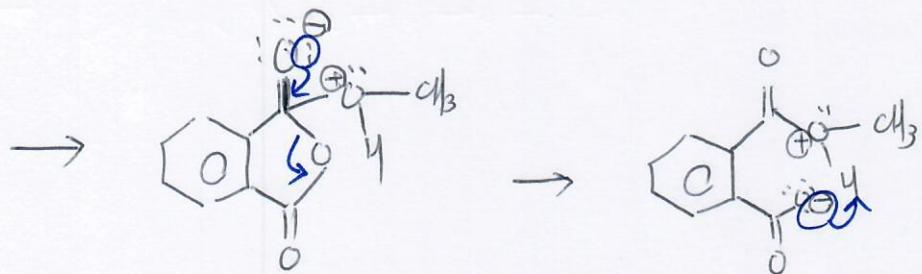
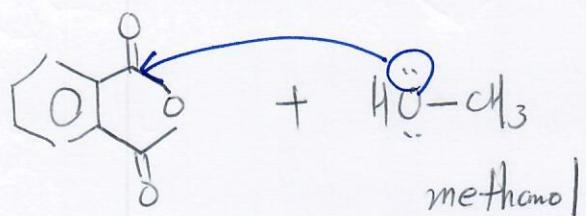
problem 21-14



p-hydroxyaniline Acetic anhydride.

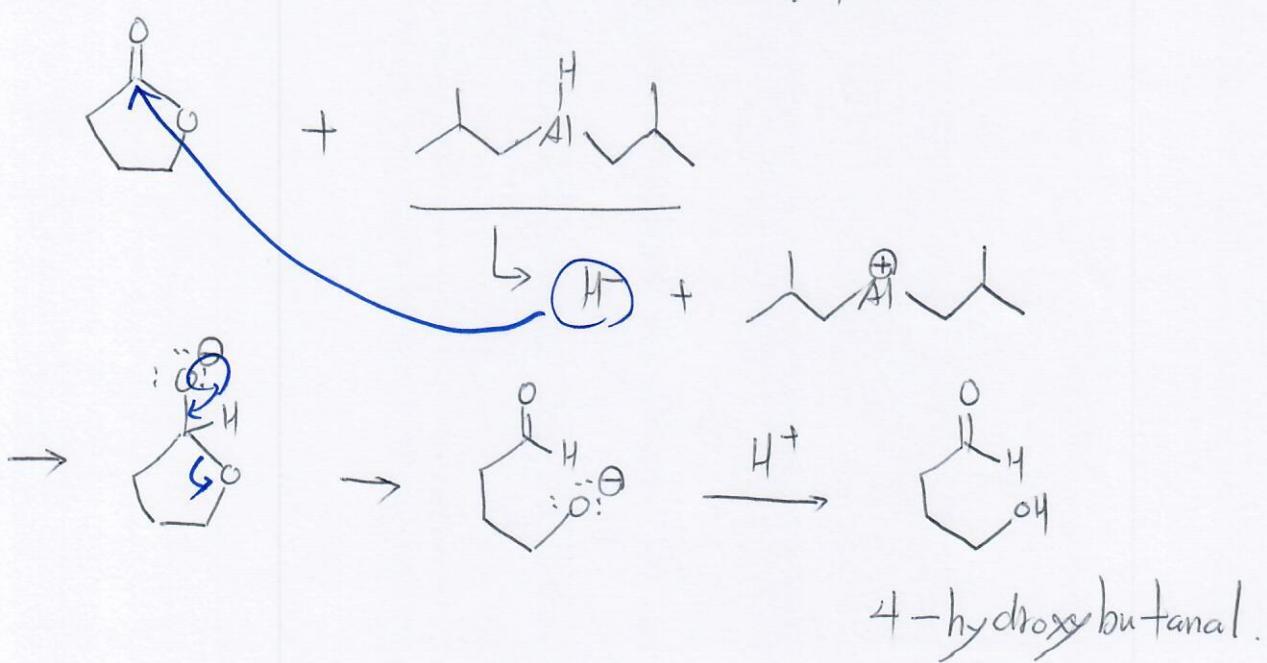
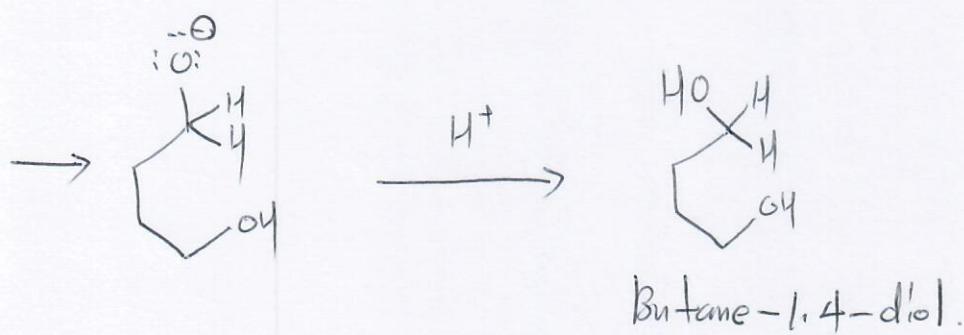
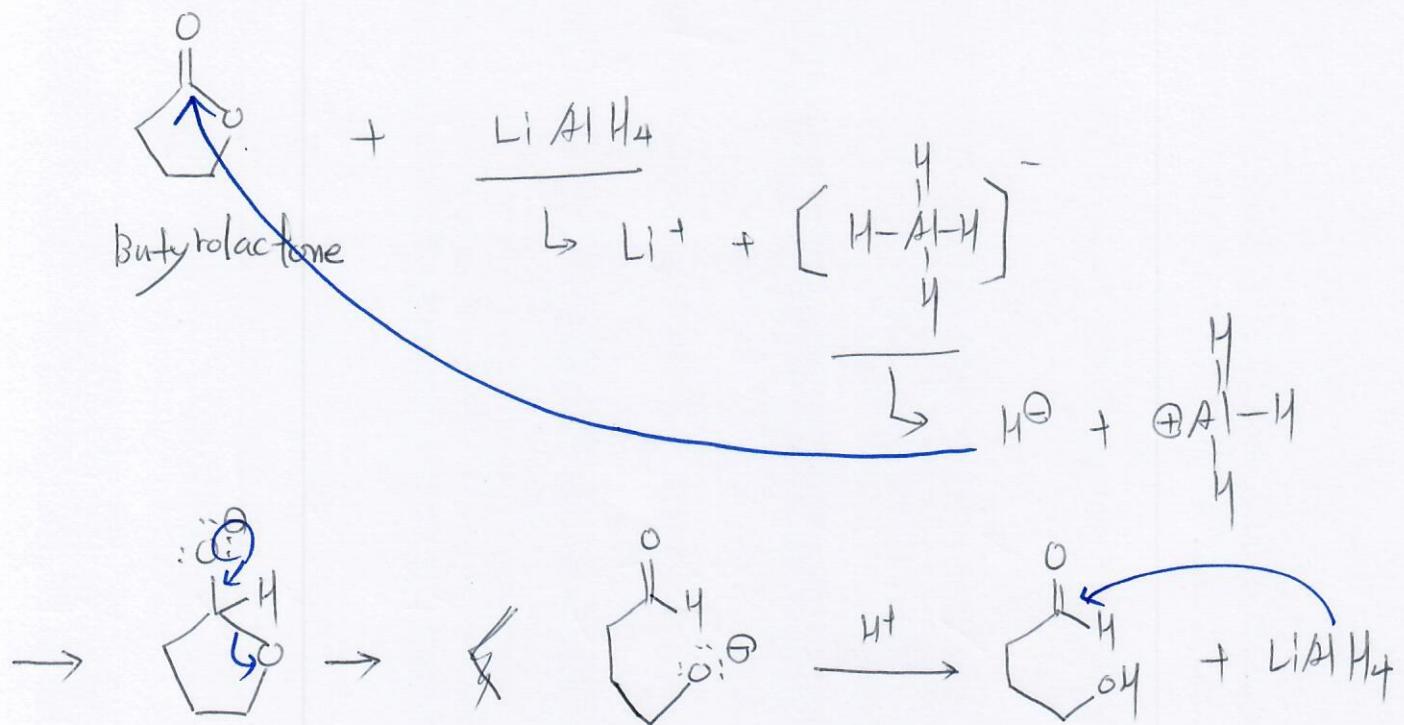


problem 21-15

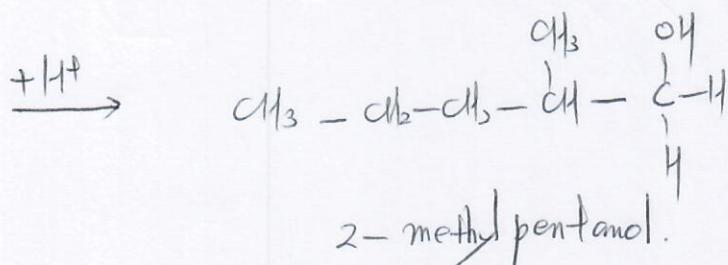
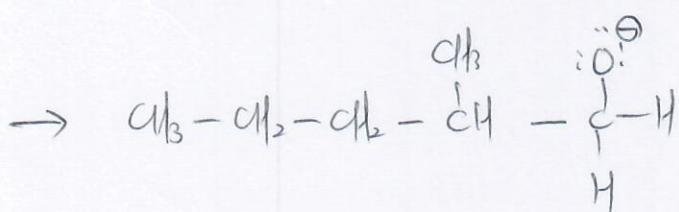
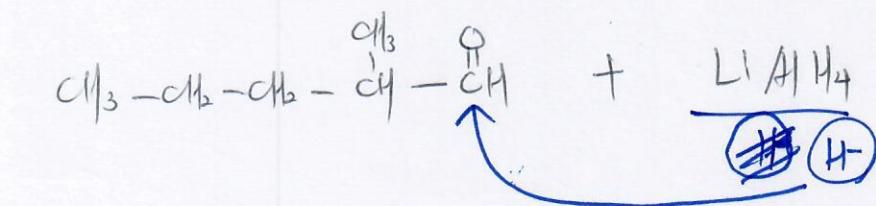
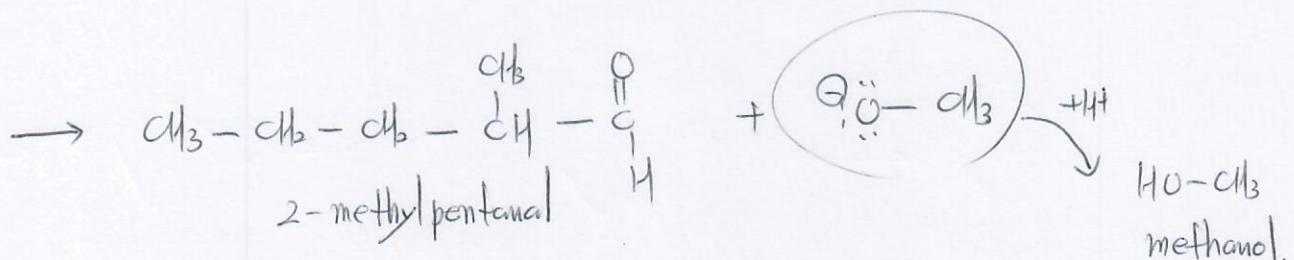
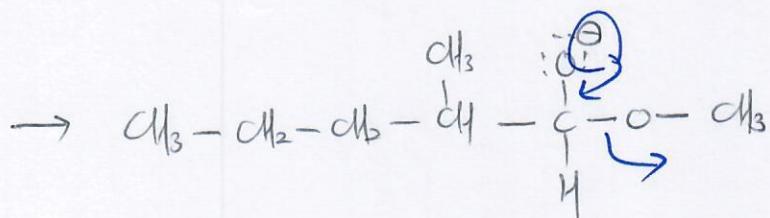
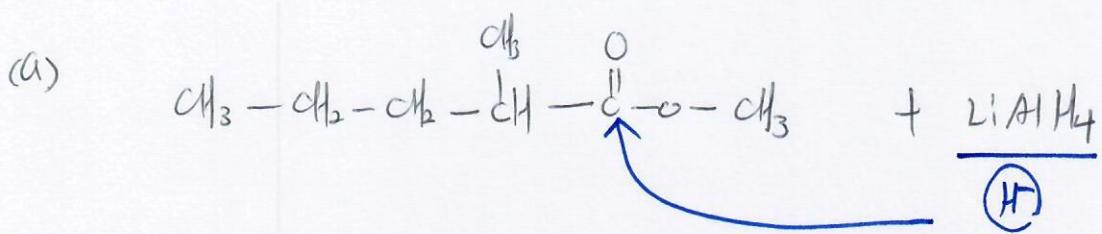


2-methoxy carbonyl benzolic acid.

problem 21 - 17

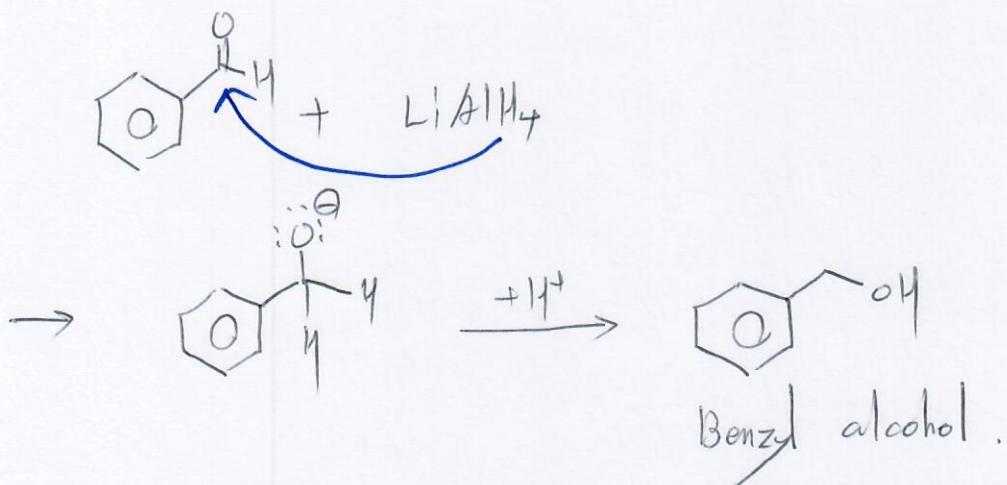
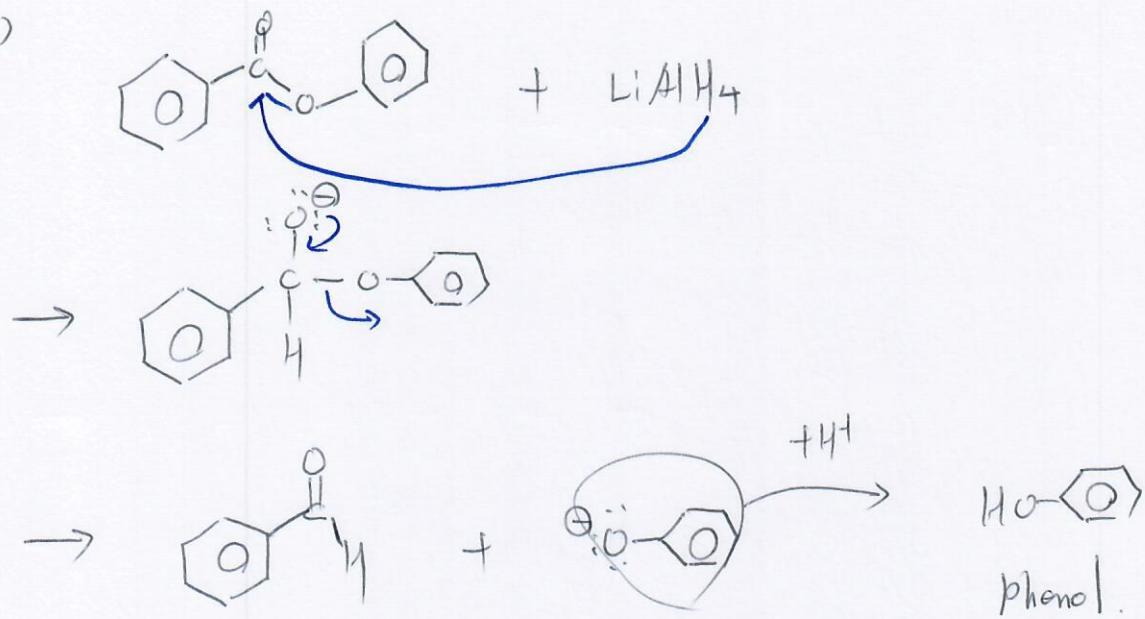


problem 21-18 -1

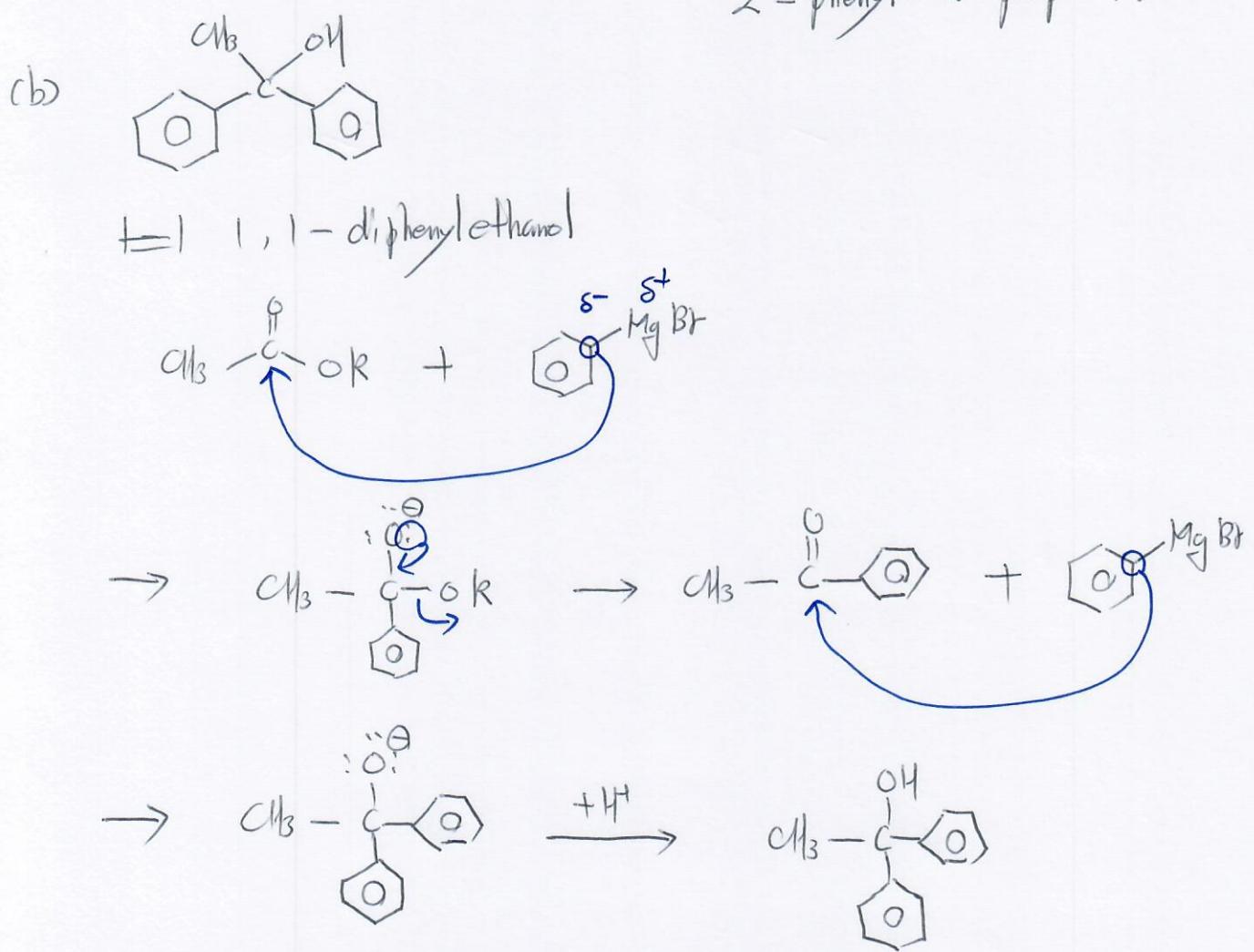
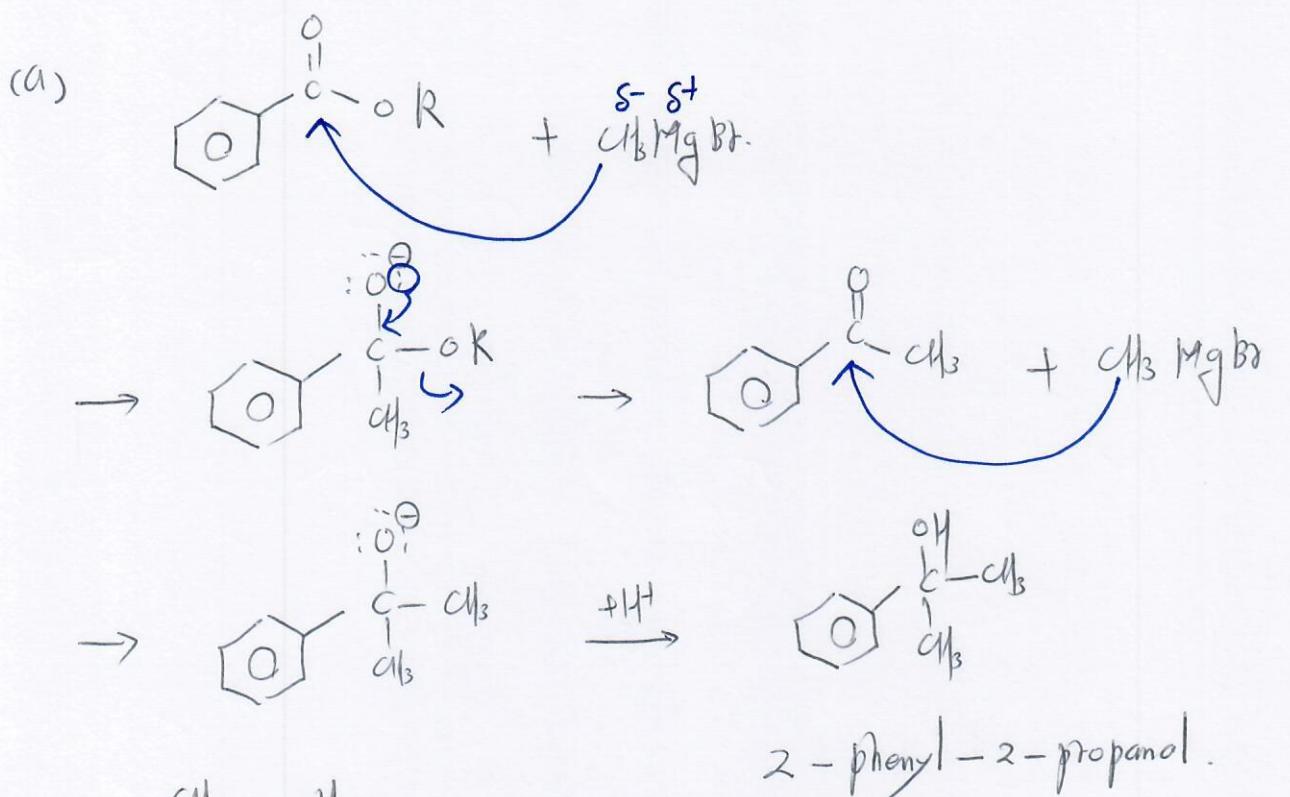


problem 21-18-2

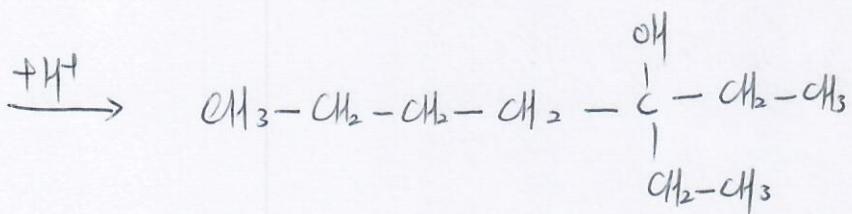
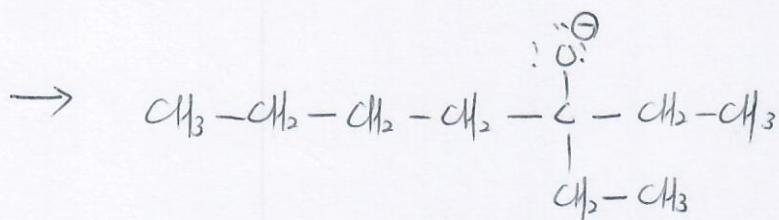
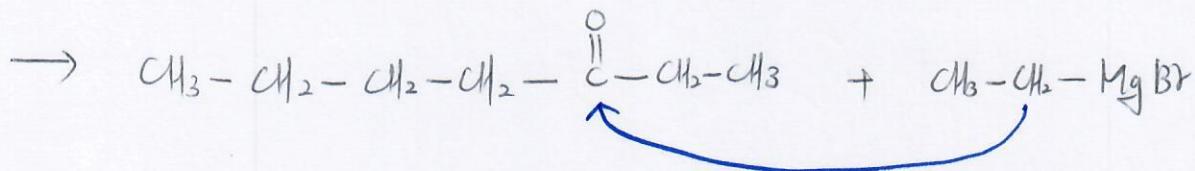
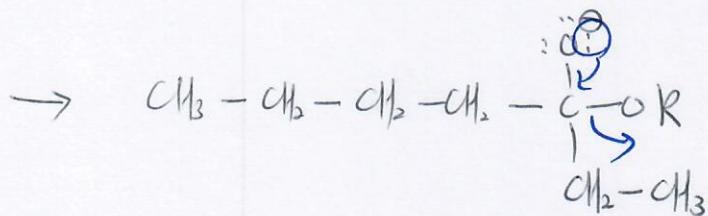
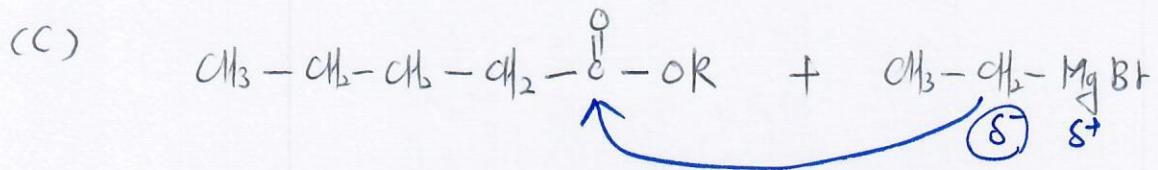
(b)



problem 21-19 -

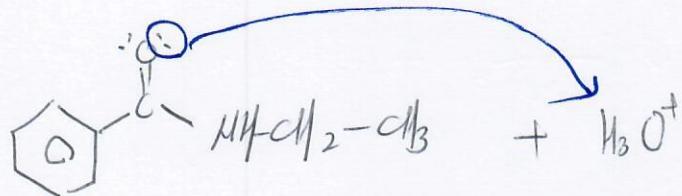


Problem 21-19-2

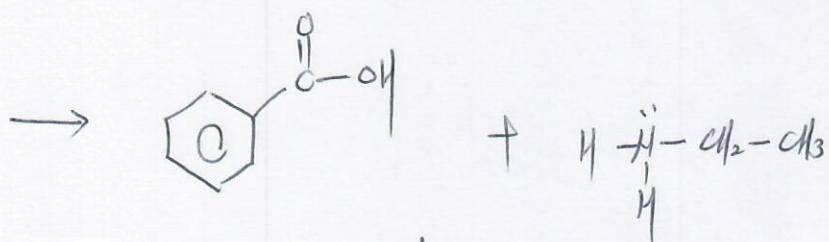
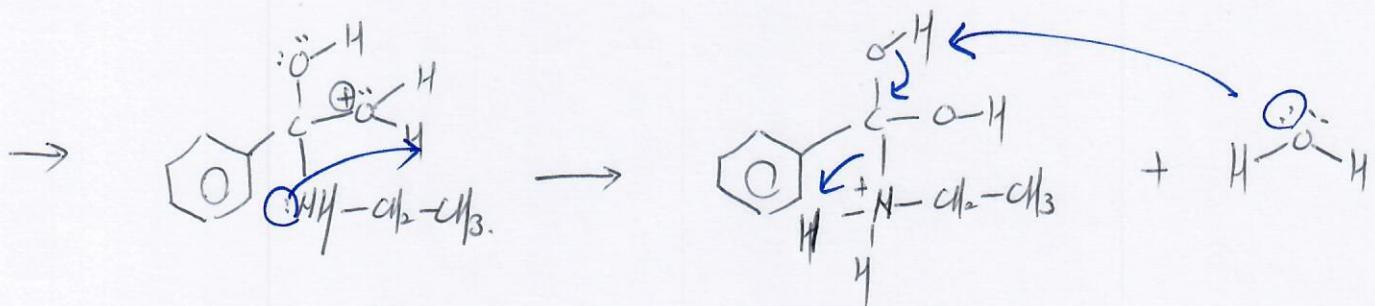
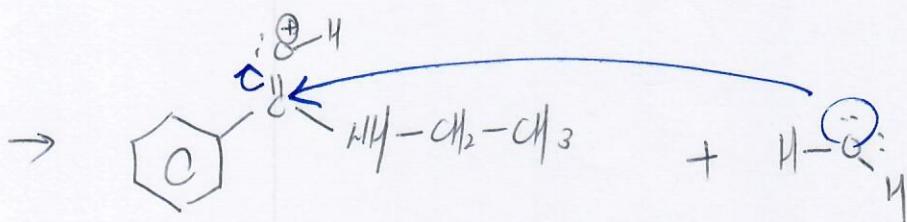


Problem 21 - 20. -

(a)

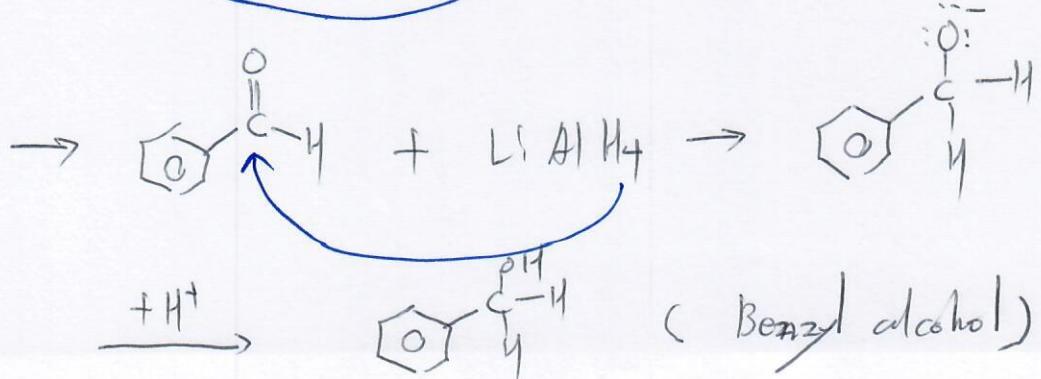
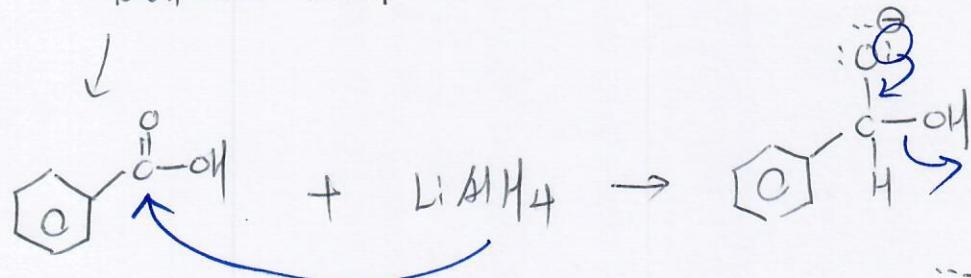


N-Ethylbenzamide



Benzoic acid

(b)



(Benzyl alcohol)

Problem 21-20-2.

