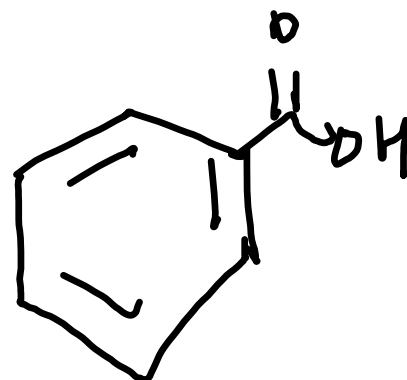
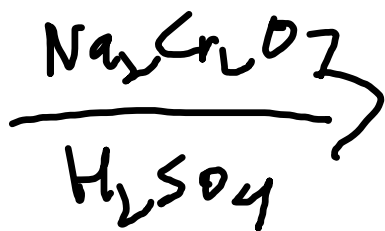
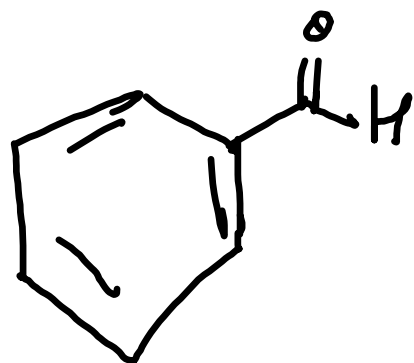


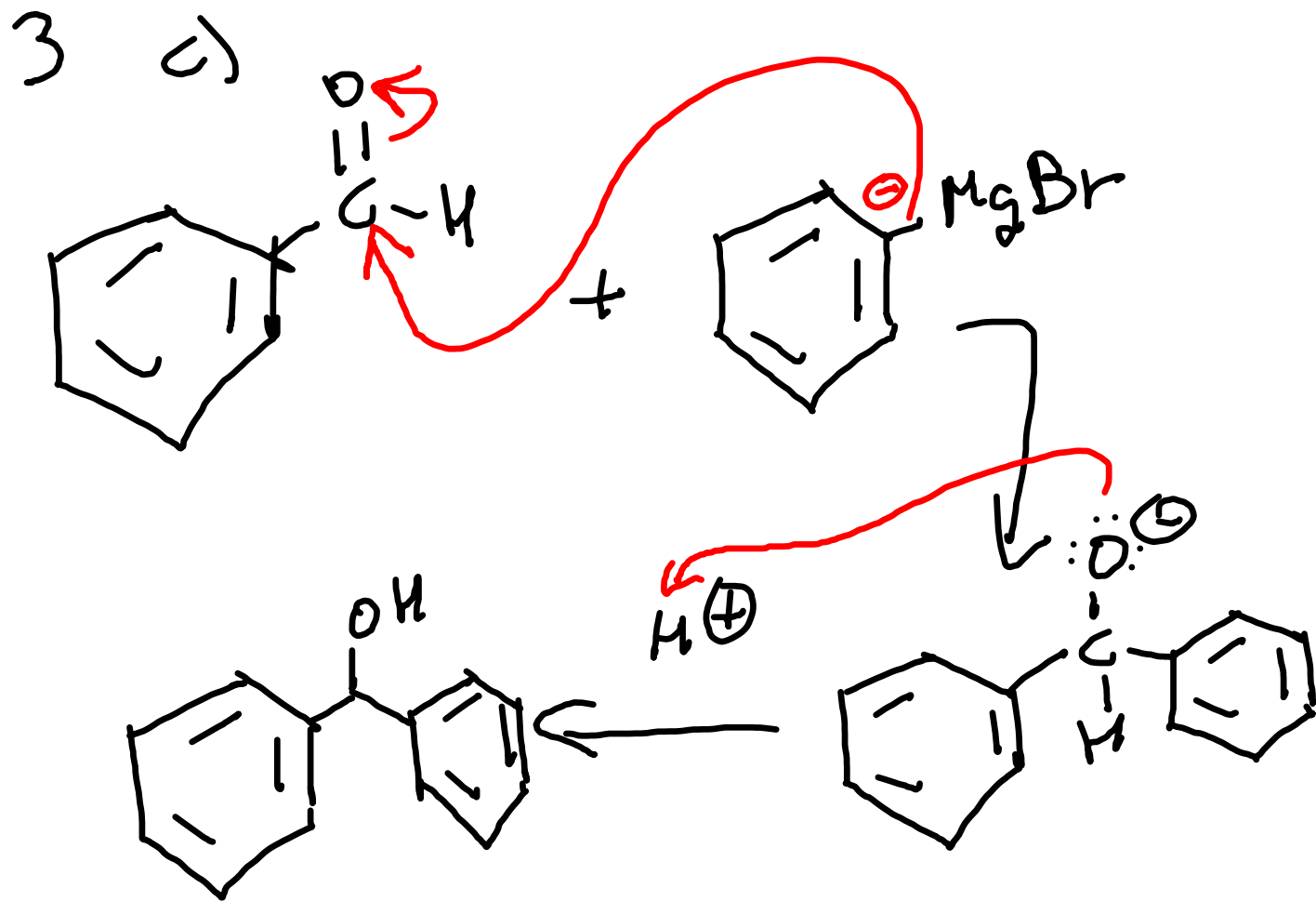
# PROBLEM 3

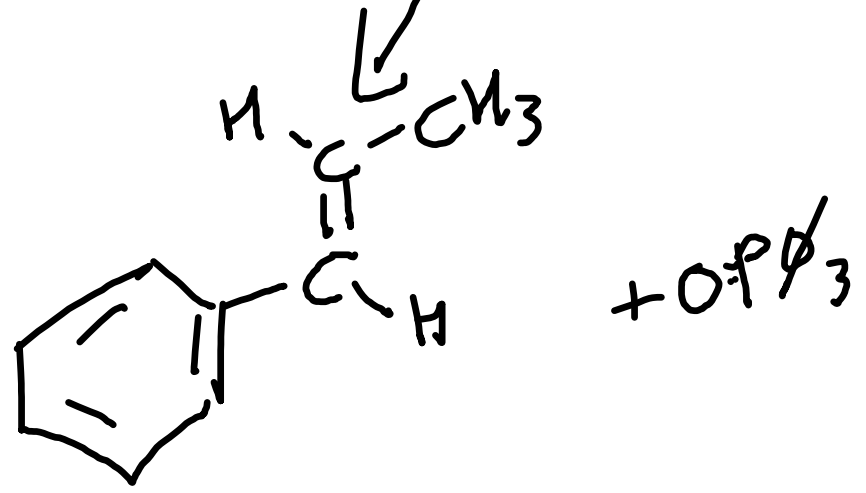
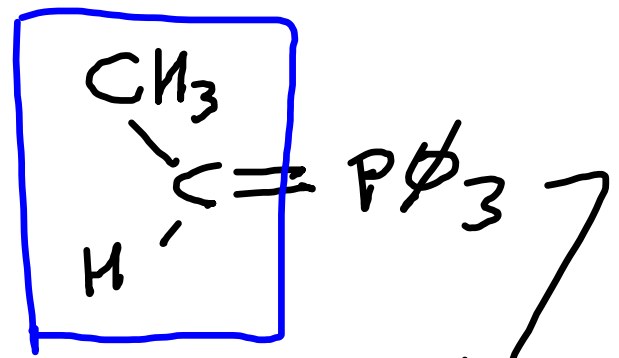
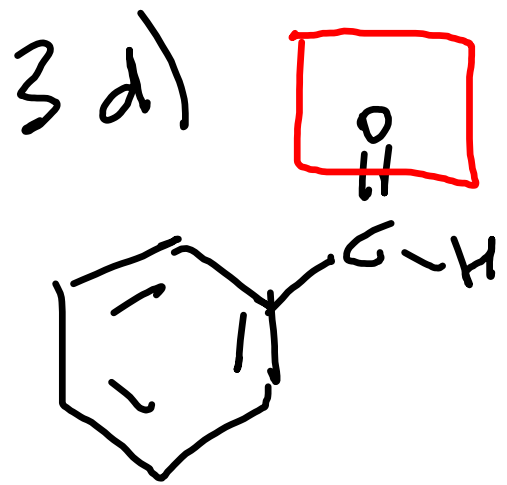
a)



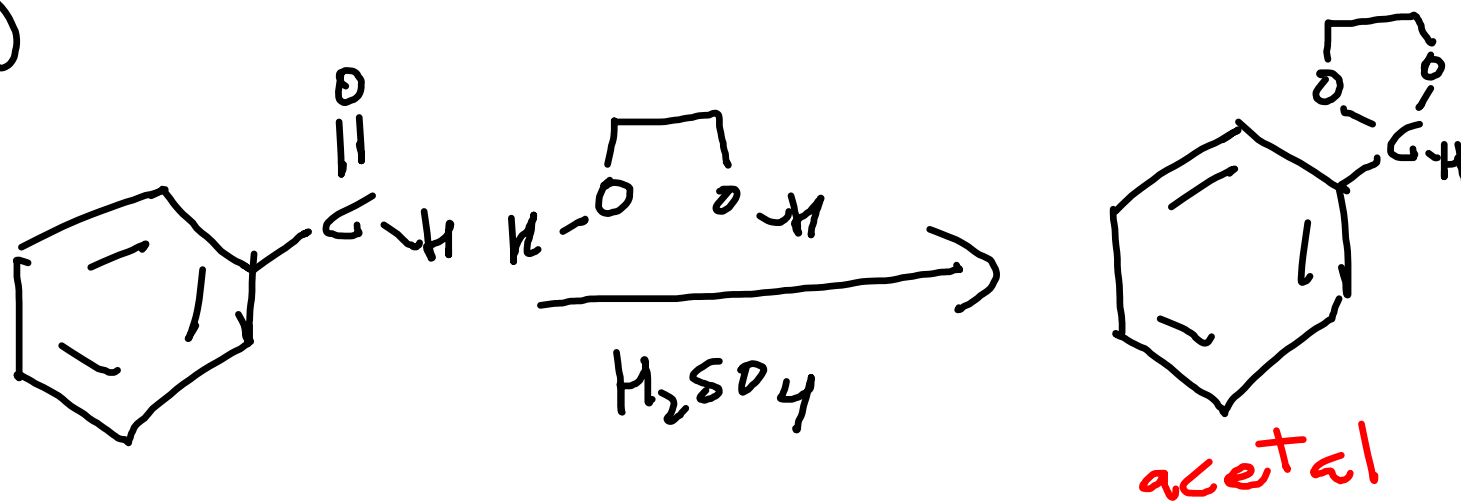
b)



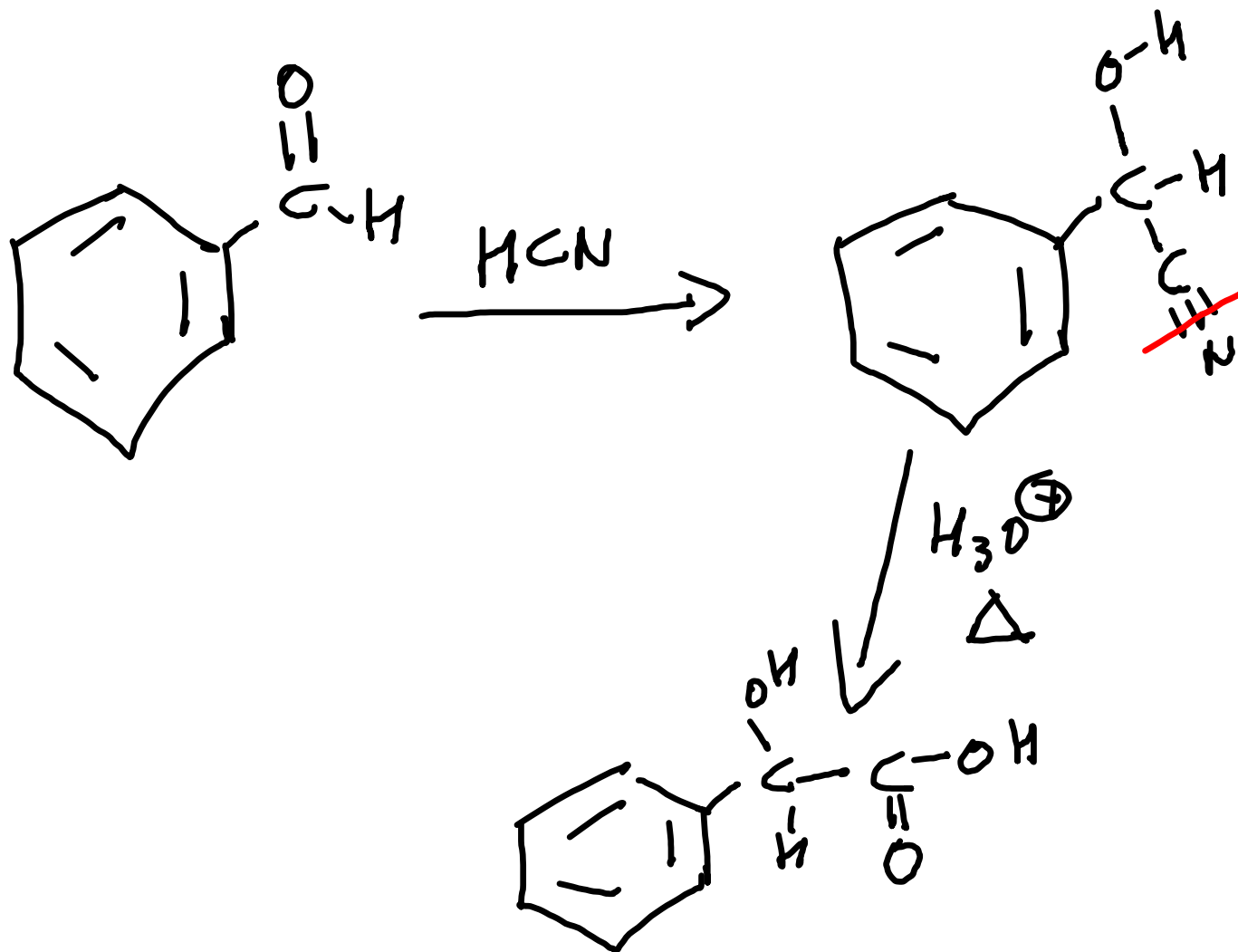


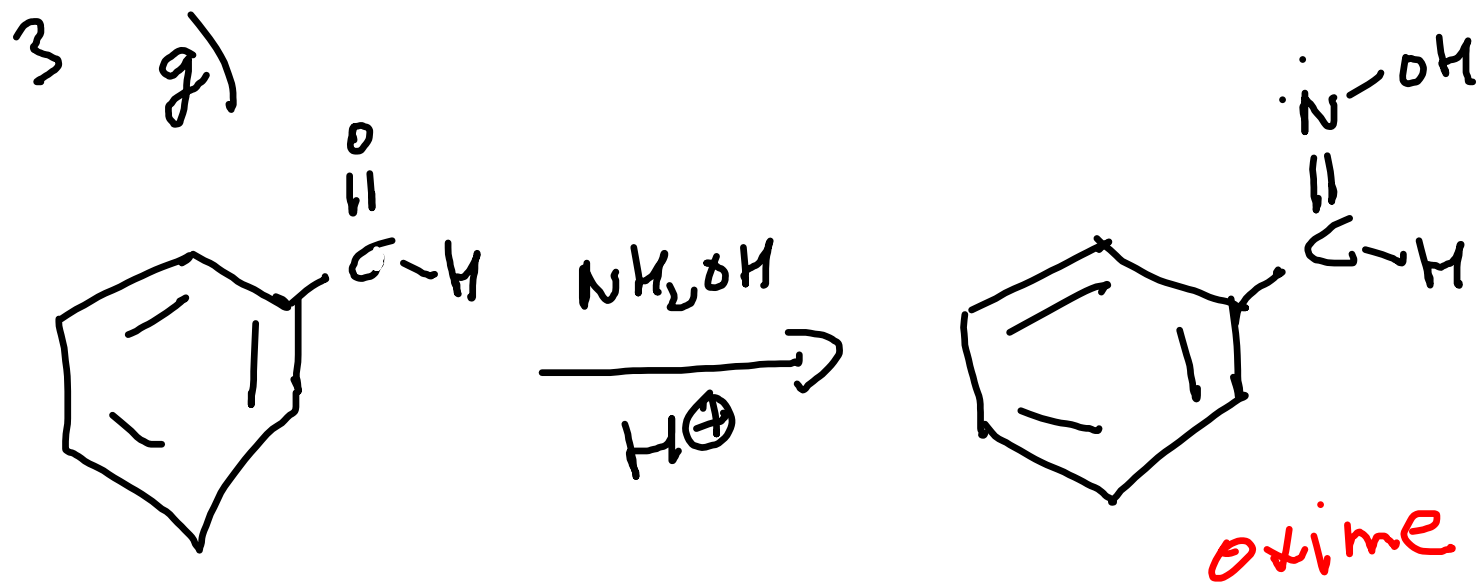


3 e)

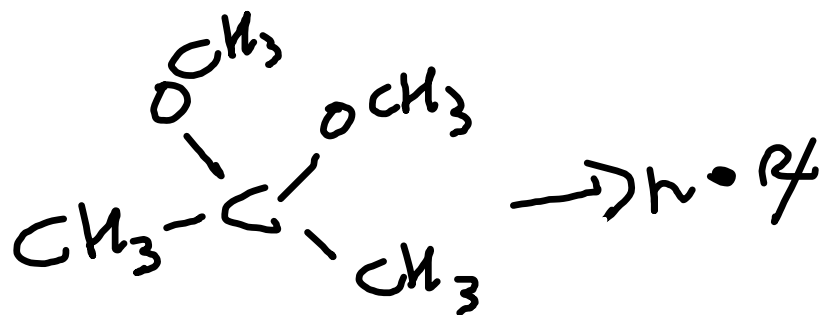
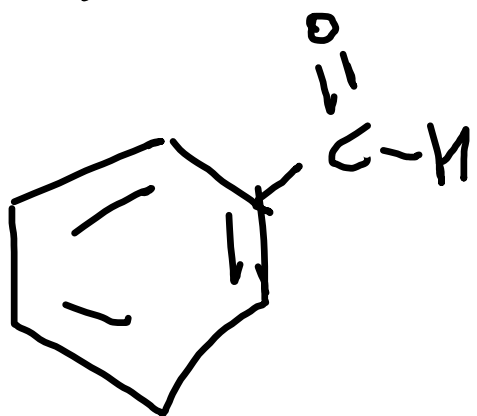


3 f)

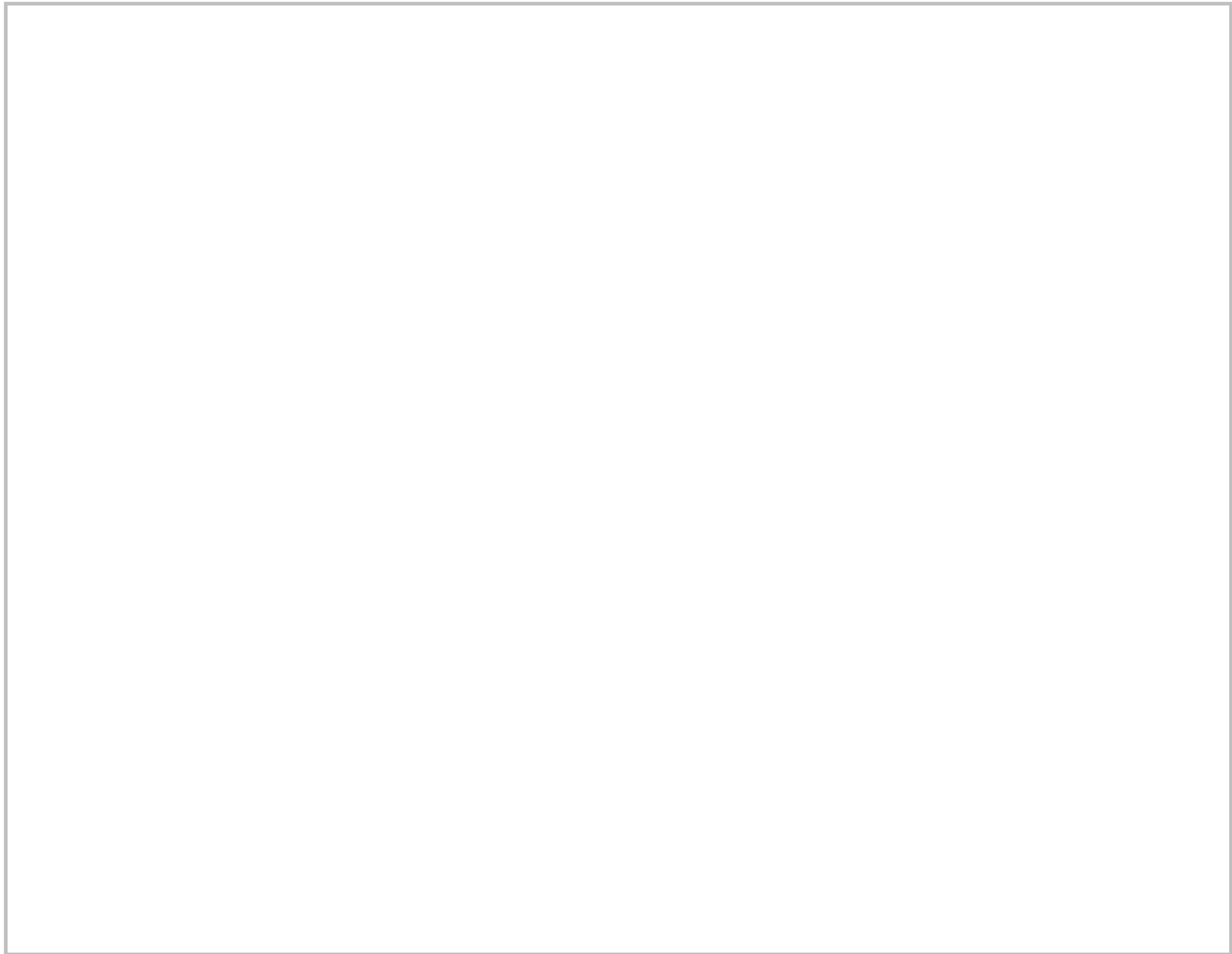




3 h)

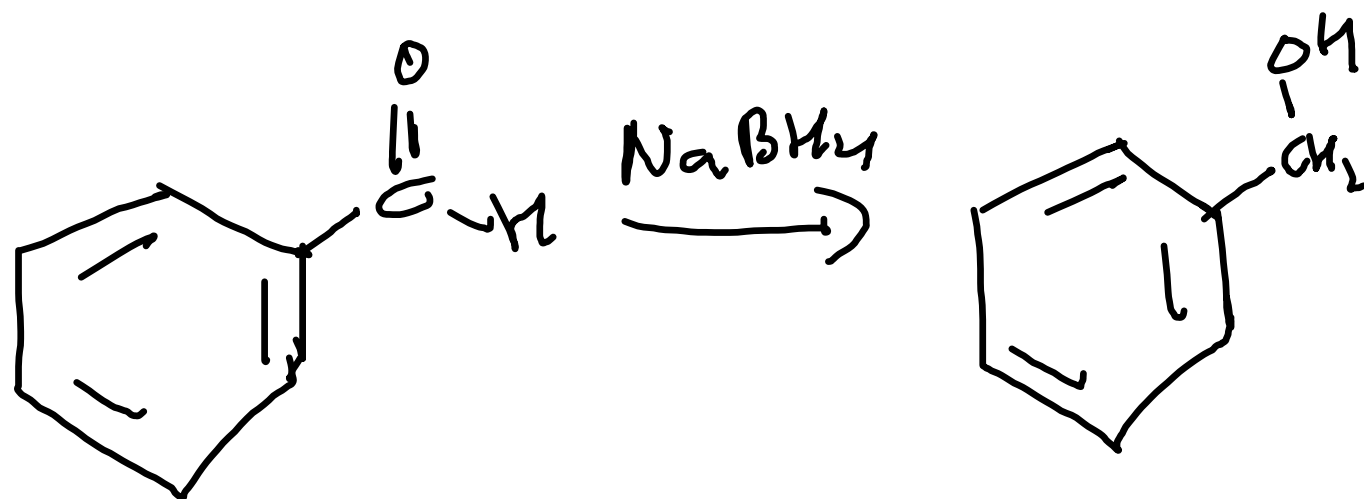


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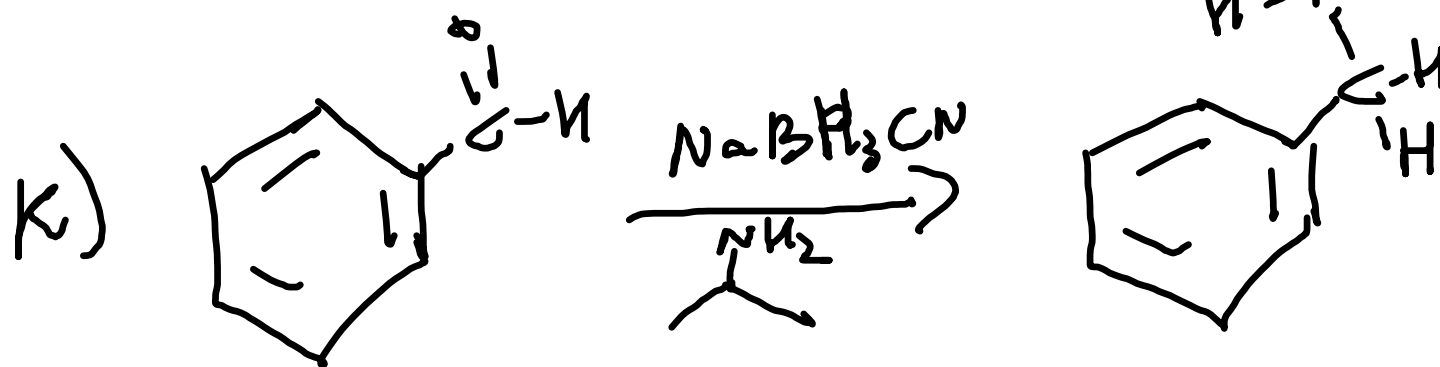




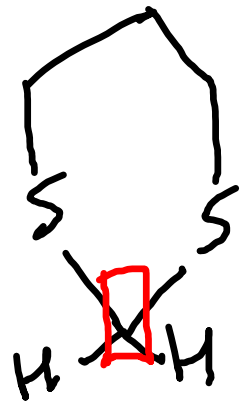
3 i)



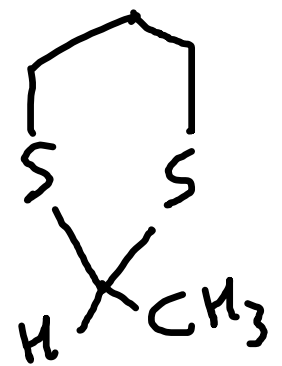
j)  $\text{NaBH}_3\text{CN}$   $\rightarrow$  no rx



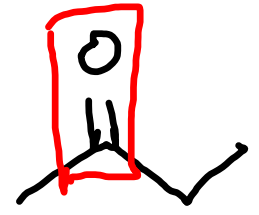
4) a)



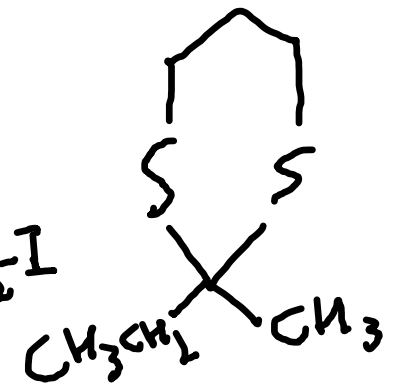
$\downarrow n\text{-BuLi}$

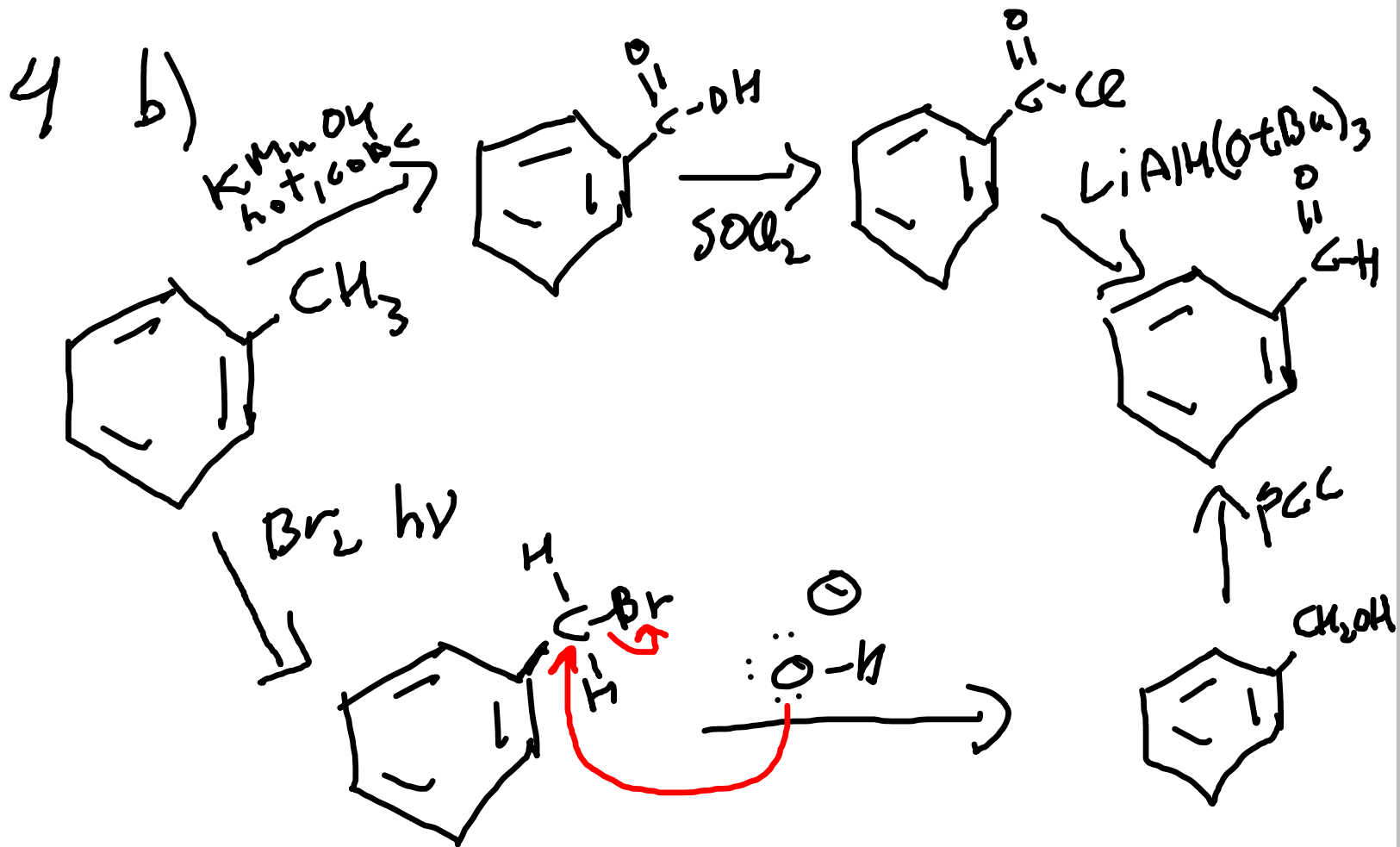


1)  $n\text{-BuLi}$   
2)  $\text{CH}_3\text{CH}_2\text{-I}$

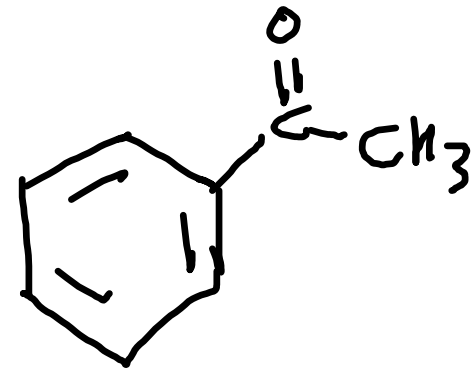
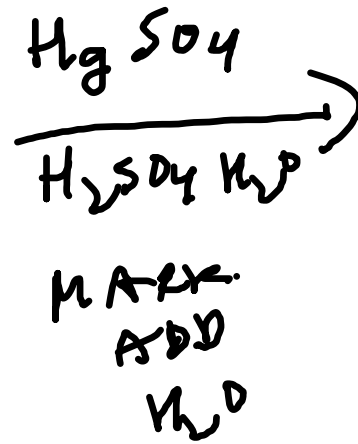
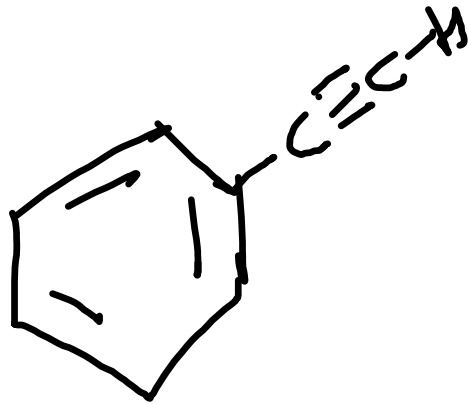


$\uparrow \text{HgCH}_2$   
 $\downarrow \text{H}_3\text{O}^{\oplus}$

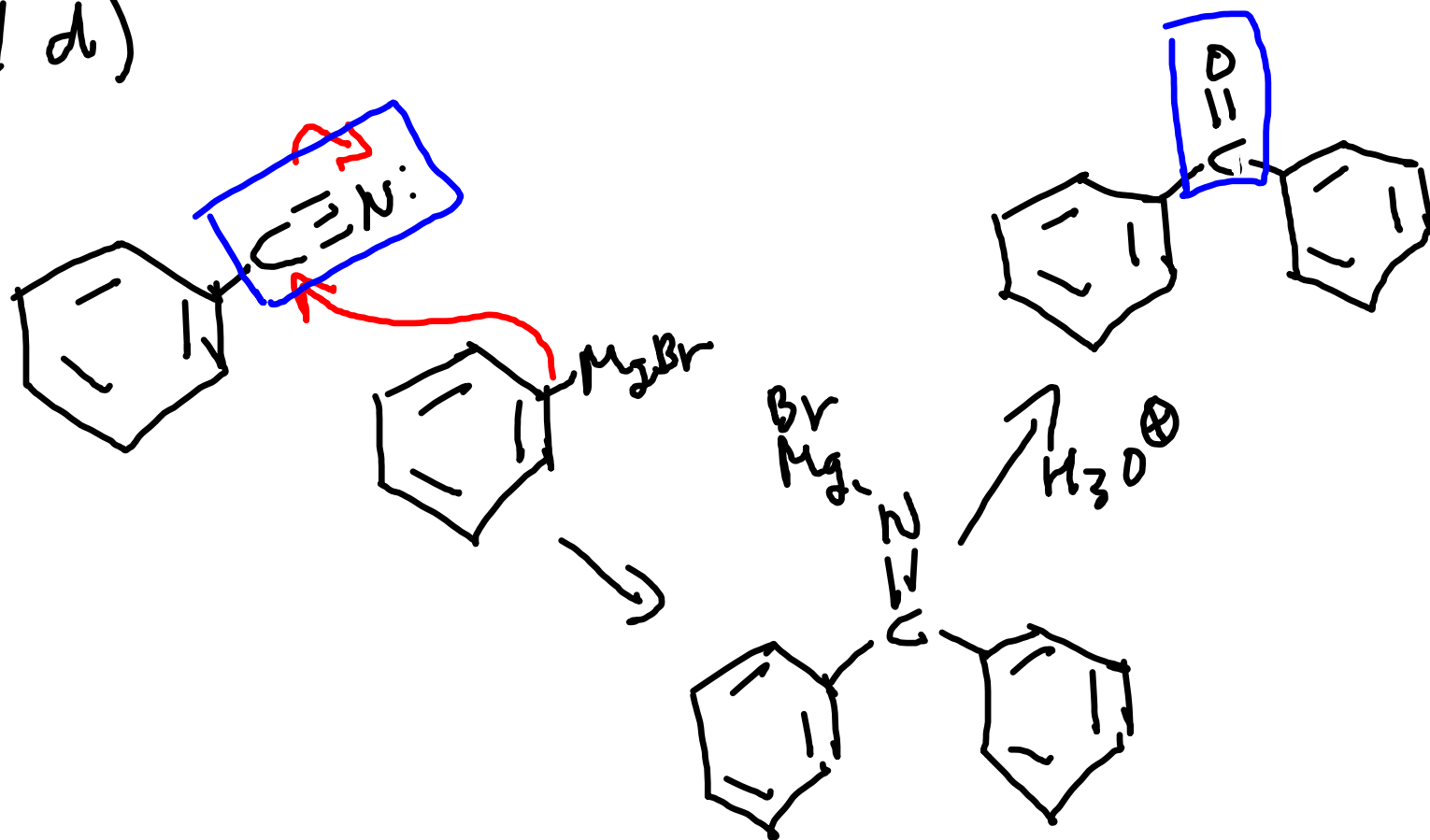




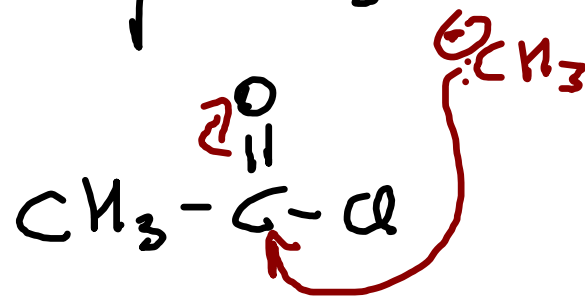
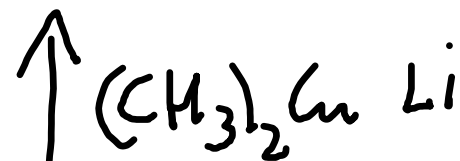
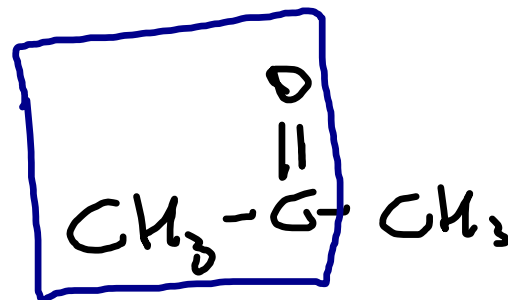
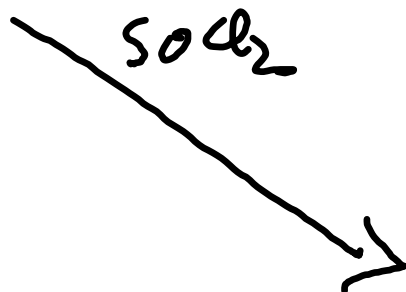
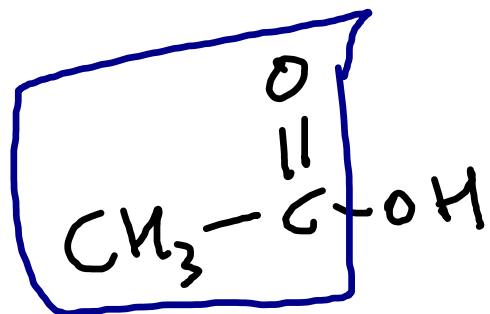
4 c)



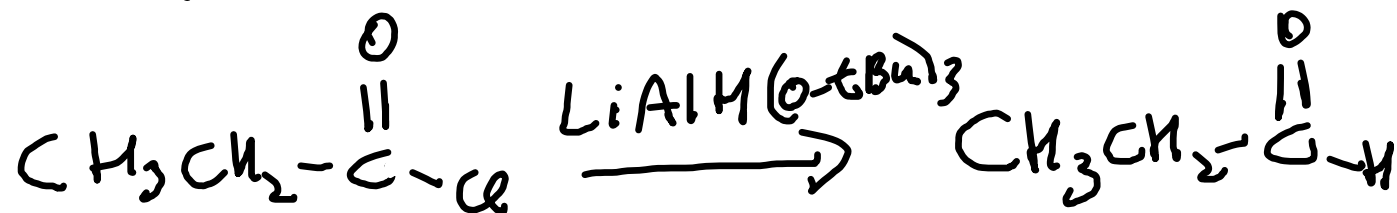
4 d)



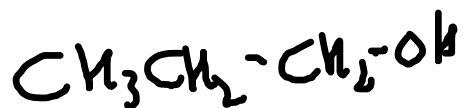
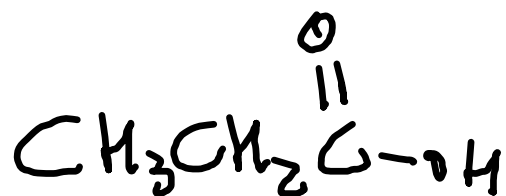
4 e)



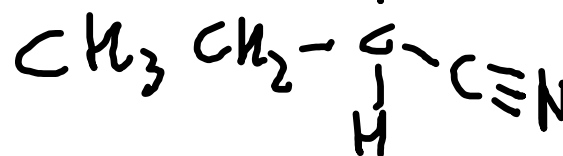
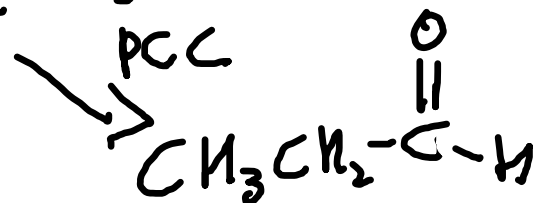
4 f)



4 g



PCC



α-hydroxy acid

