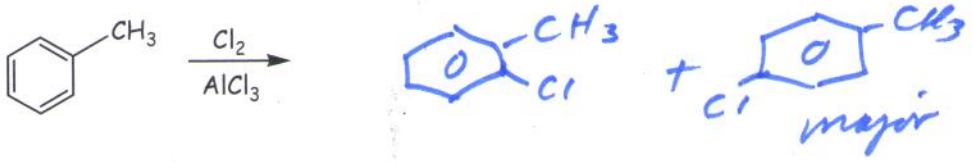
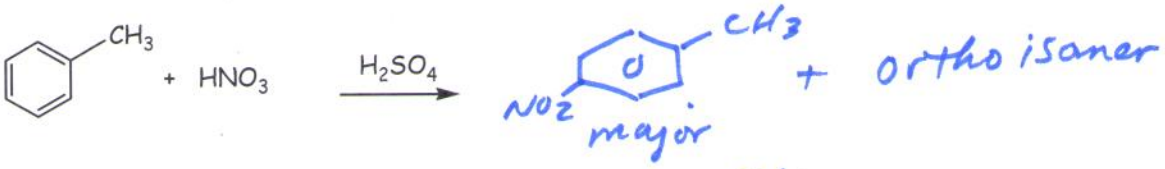
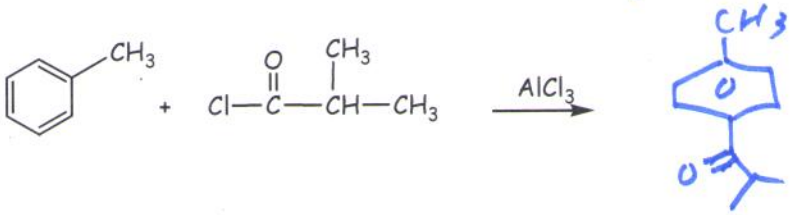
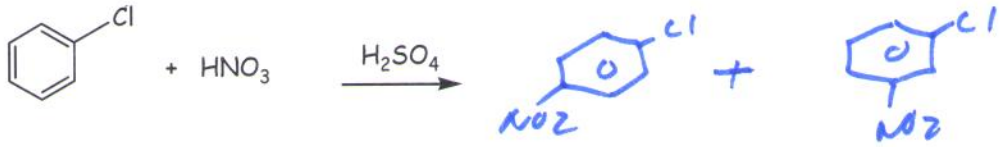
NAME KEY Problem Set 17.2

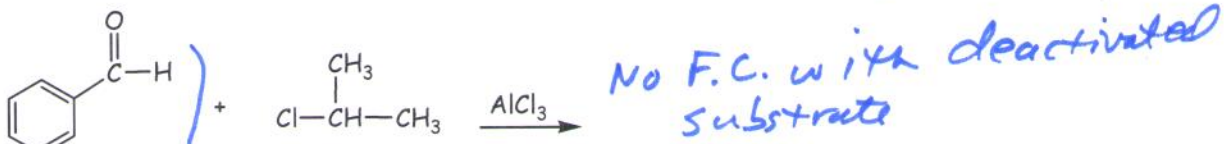
1. Ortho/para-director versus meta-director. Predict which monosubstituted isomer is preferred.

a. 

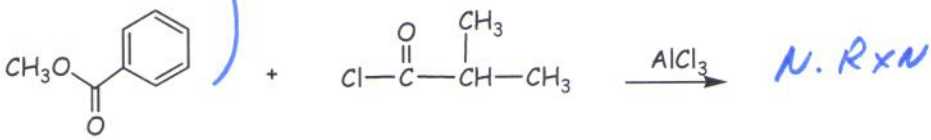
b. 

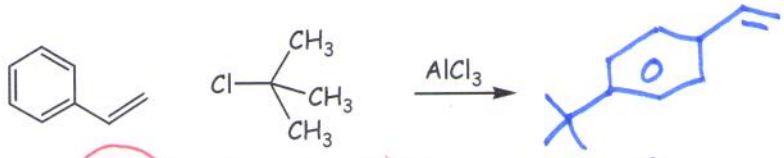
c. 

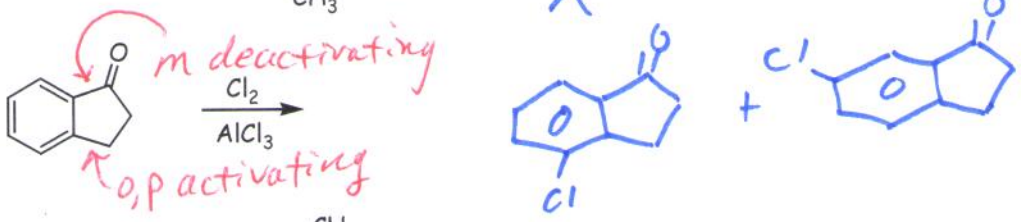
d. 

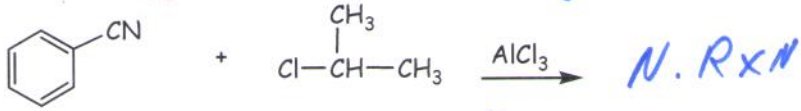
e. 

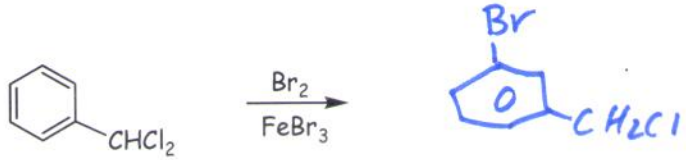
deactivated ring

f. 

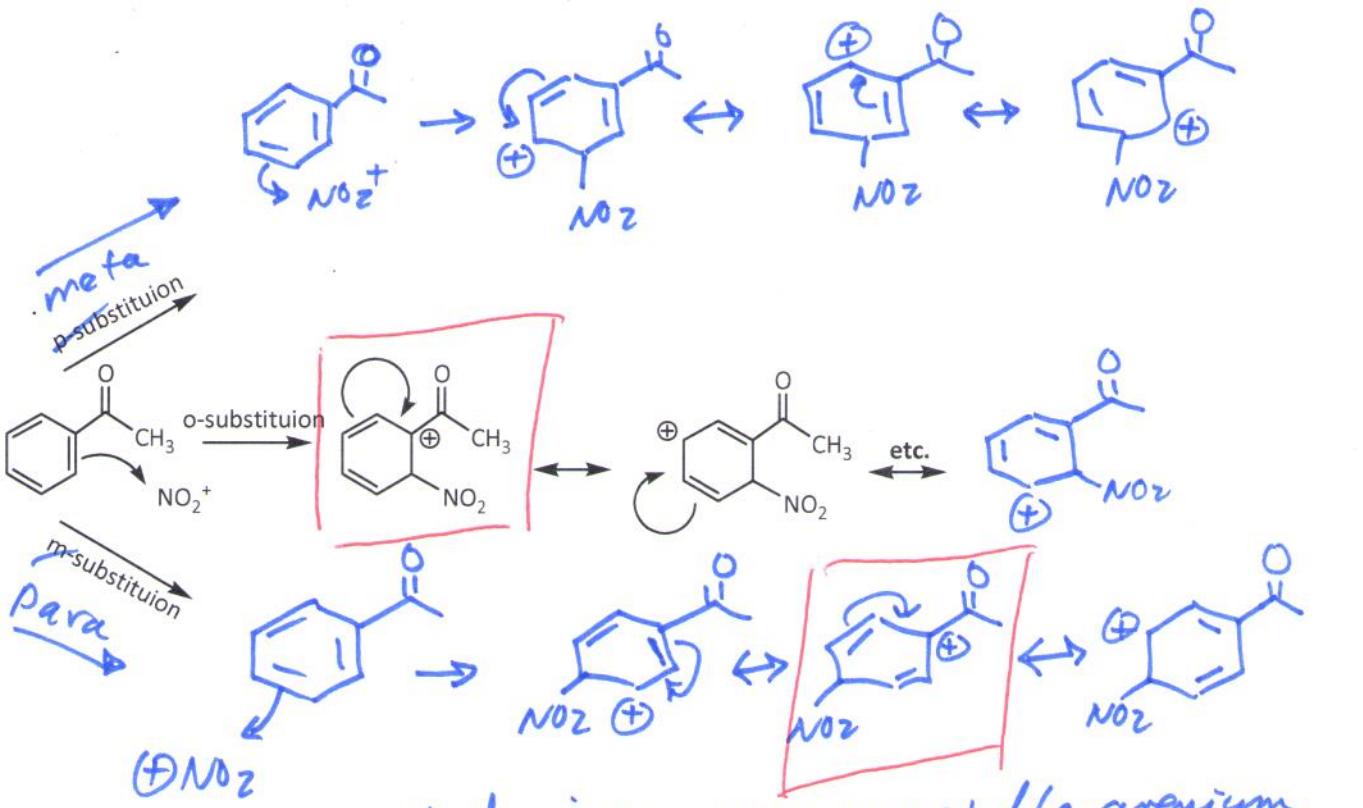
g. 

h. 

i. 

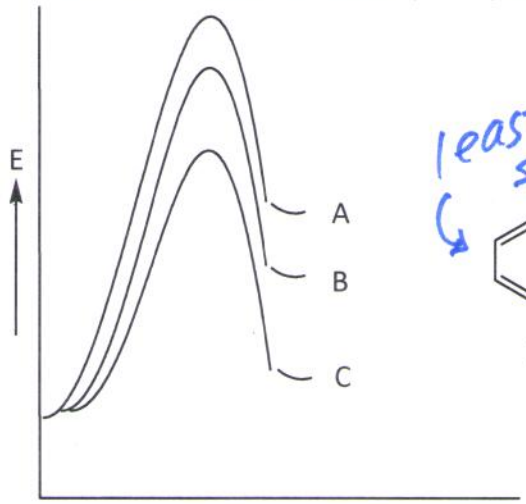
j. 

2. Consider the mechanism for nitration of acetophenone. Draw the first step for substitution at the ortho, para and meta position. Draw all resonance structures for each of the 3 arenium ion intermediates. This means arrow pushing to convert between resonance structures.

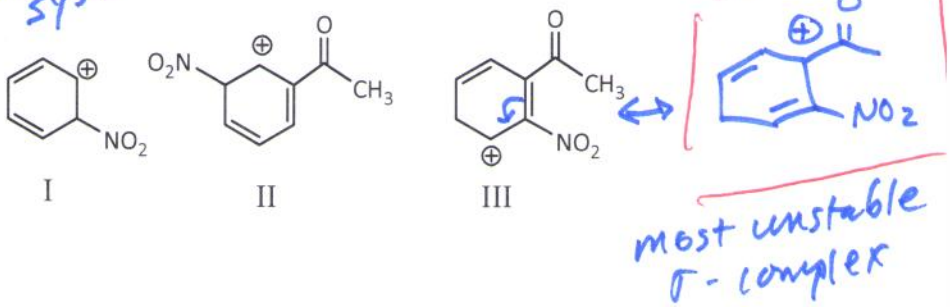


o, p attack gives most unstable arenium ion illustrated by high-energy resonance structures in box

3. Match the arenium ions below (I, II, III) with the energy curves marked A, B and C.



least deactivated system



most unstable σ-complex

a. The relative energy for arenium ion (I) is: A B (C)
b. The relative energy for arenium ion (II) is: A (B) C
c. The relative energy for arenium ion (III) is: (A) B C