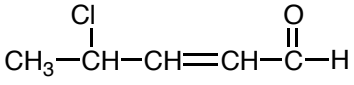
Name .....

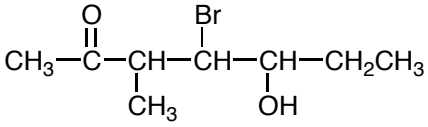
L.I.U.

Chem. 122, Sect 008, Quiz 2, 50 pts, Spring, 2011

1. Name the following compounds. (10 pts)

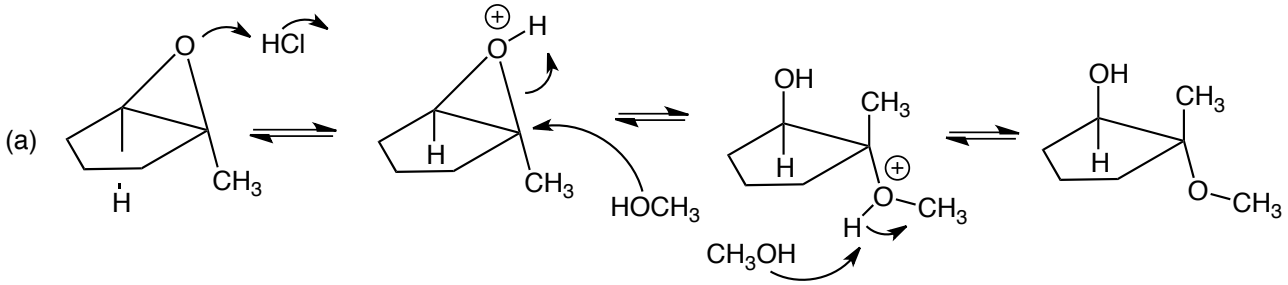
(a) 

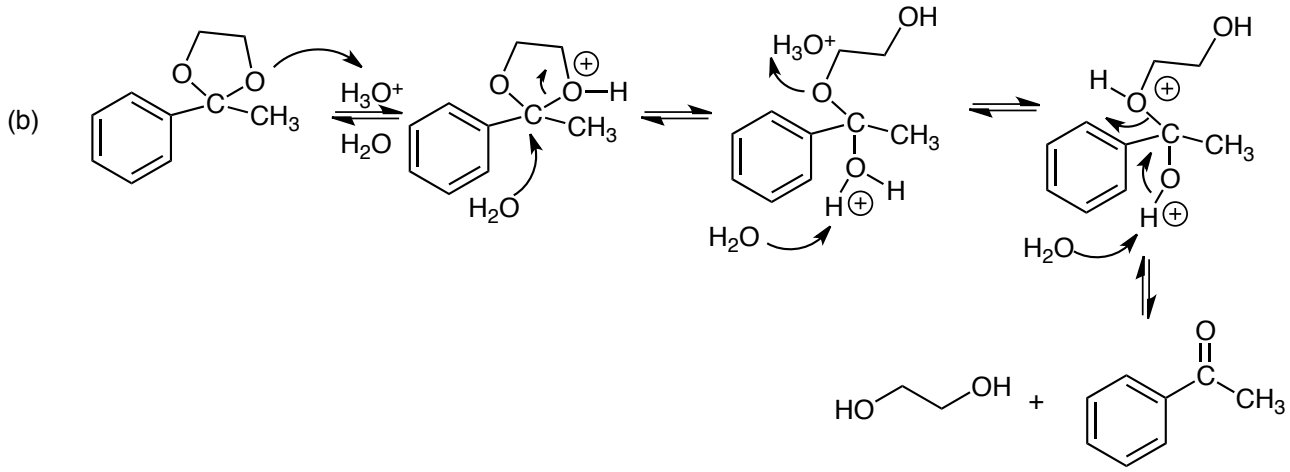
4-chloro-2-pentenal

(b) 

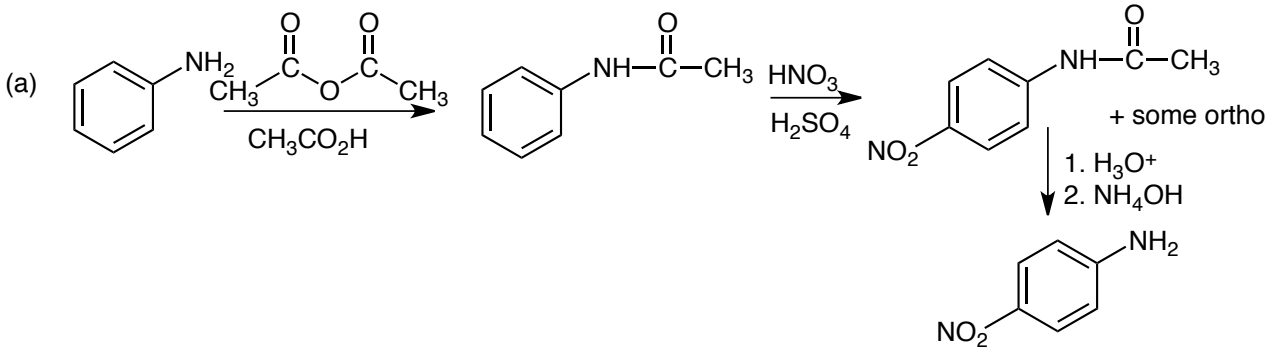
4-bromo-5-hydroxy-3methyl-2-heptanone

2. Give the product of the following reactions, showing the complete reaction mechanism in each case. (20 pts)

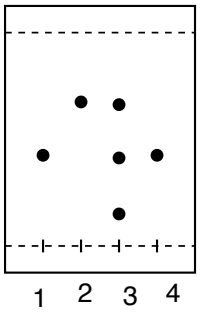
(a) 

(b) 

3. For the preparation of *p*-nitroaniline (a) show all three steps of the reaction. You do not need to include the mechanisms. Briefly explain the purpose of the following: (b) putting the acetyl group on the aniline in step one (c) adding the ammonium hydroxide (NH_4OH) after the acid hydrolysis at the end of step 3. (10 pts)

(a) 

4. Look at the following tlc plate and answer the questions. (a) Was the non-recrystallized material one pure compound? Briefly explain. How many compounds were present and what were they? (b) Was the recrystallization successful in purifying the product? Explain. (c) In the actual experiment, we recrystallized the nitroaniline product from water. Which compound, *othro-* or *para*-nitroaniline is less soluble in water? Explain briefly. (10 pts)



Lane 1 pure *para*-nitroaniline

Lane 2 pure *ortho*-nitroaniline

Lane 3 non-recrystallized product

Lane 4 recrystallized product

ANS: (a) No, the non-recrystallized material was not one pure compound. It contained three compounds: both *ortho-* and *para*-nitroaniline and a third unknown compound. (b) The recrystallization was successful in purifying the *para*-nitroaniline. Only one spot was present in the recrystiallized material, indicating that it was pure *para*-nitroaniline. (c) the *para*-nitroaniline is less soluble in water since it is the one that precipitated from cold water in the recrystallization whicle the *ortho*-nitroaniline remained behind in the water.