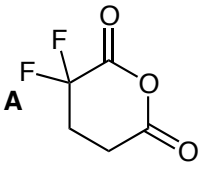
Name .....

L.I.U.

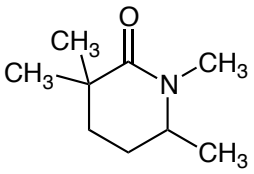
Chem. 122, Sect 007, Quiz 3, 50 pts, Spring, 2011

1. Which molecule below is more reactive to acidic hydrolysis in $H_3O^+/H_2O$? Explain your choice briefly and show the hydrolysis reaction for BOTH molecules, giving all of the steps of the reaction mechanism. (20 pts)

**A**

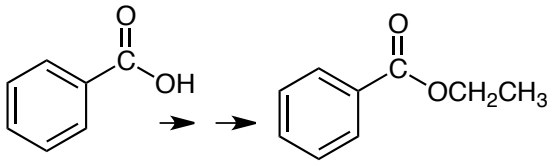



**B**

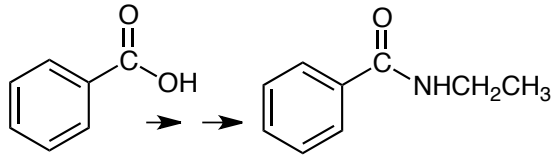



2. Synthesize the following molecules from the starting materials on the left as shown. (10 pts)

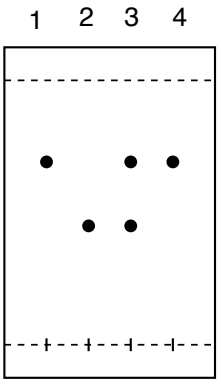
(a)




(b)




3. Look at the following TLC plate for the nitroaniline experiment and answer the questions. (8 pts)




Lane 1 = pure *ortho*-nitroaniline
Lane 2 = pure *para*-nitoraniline
Lane 3 = unrecrystallized product
Lane 4 = recrystallized product

(a) How many products were produced in the reaction and what were they? (b) Was the recrystallization successful in purifying the product? Expalin briefly. (c) Which is more soluble in the recrystallization solvent (i.e. water), *ortho* or *para*-nitroaniline? Explain your reasoning briefly.

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4. For the preparation of dibenzalacetone (a) write the overall reaction. You do not need to show the mechanism. (b) If 0.016 mol of benzaldehyde and 0.008 mol acetone and 0.02 mol sodium hydroxide were used, what was the limiting reagent? (6 pts)

5. In the unknown amine experiment, show the reaction that occurs between butylamine ($C_4H_9NH_2$) and benzenesulfonyl chloride ($C_6H_5SO_2Cl$) in aqueous KOH solution. (b) How many layers would be formed? Explain. (6 pts)