Name (Last, First, MI): _____

Student ID Number: _____

My TA is (circle one): *Phil Haussmann* or *Luis Campos*

Chem 30C Fall 2005

Midterm # 1

Friday, October 28

Problem #	Possible Points	Points Awarded
1	21	
2	18	
3	11	
4	8	
5	16	
6	12	
7	4	
8	10	
Total	**100**	

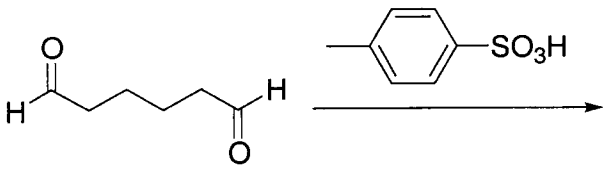
Do not open this exam until instructed to do so

Write all answers in the boxes or spaces provided

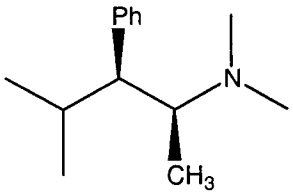
-7 Pages Follow-

Problem 1. Draw the major product in the box provided. For a multi-step synthesis, give the final product only (i.e. do not draw intermediates). *(3 points each)*

a.

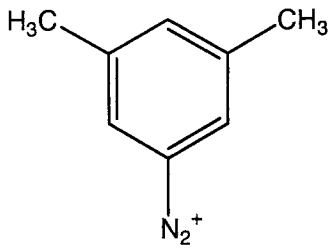


b.



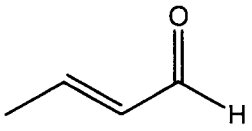
1. CH_3I
2. AgO_2, H_2O
3. heat

c.



1. HCl, CuCl, heat
2. H_2CrO_4

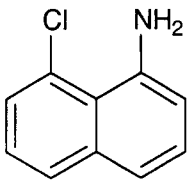
d.



1. $HC{\equiv}CMgBr$
2. H_3O^+

Problem 1 is continued on page 2

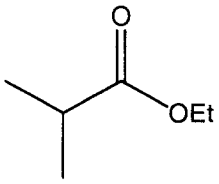
e.



1. $NaNO_2$, HBr

2. CuBr

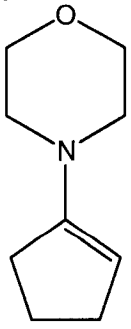
f.



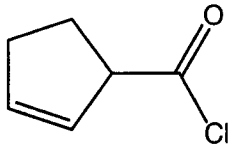
1. NaOEt, EtOH

2. HCl, H_2O

g.



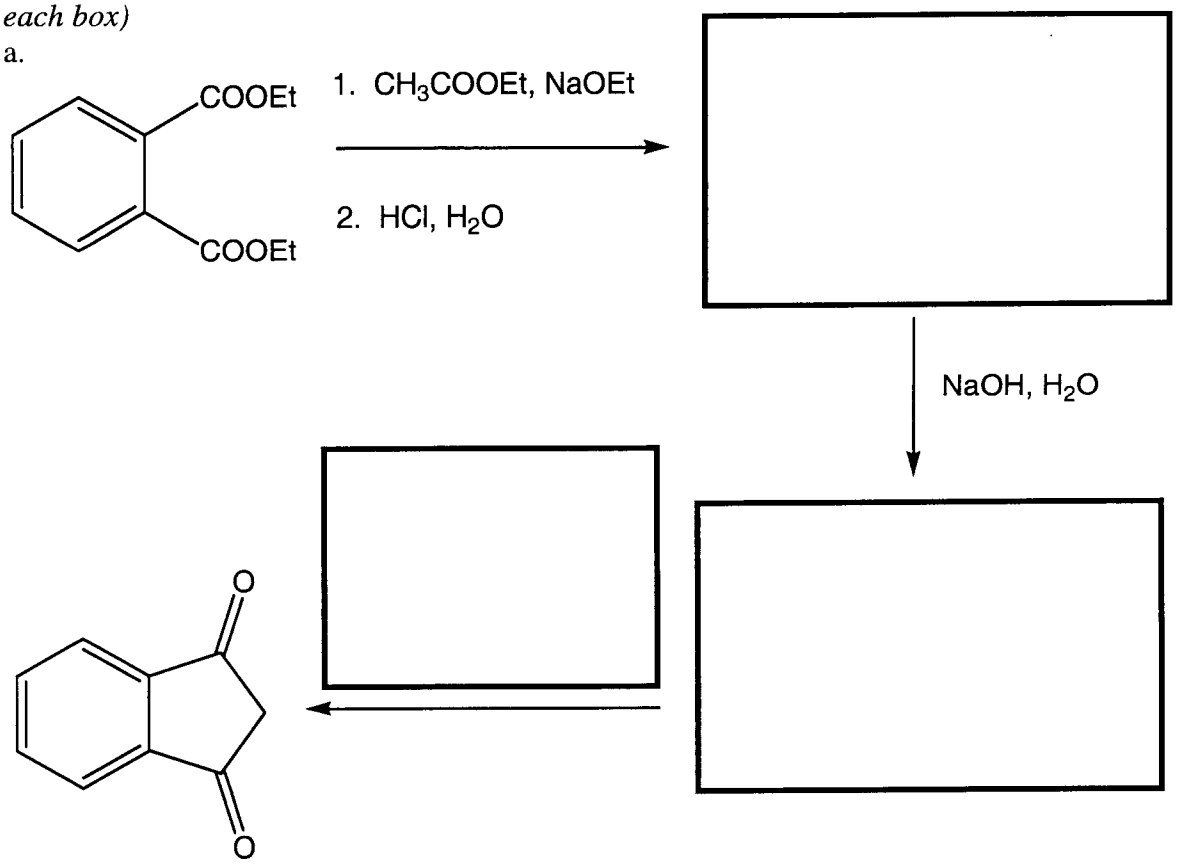
1.



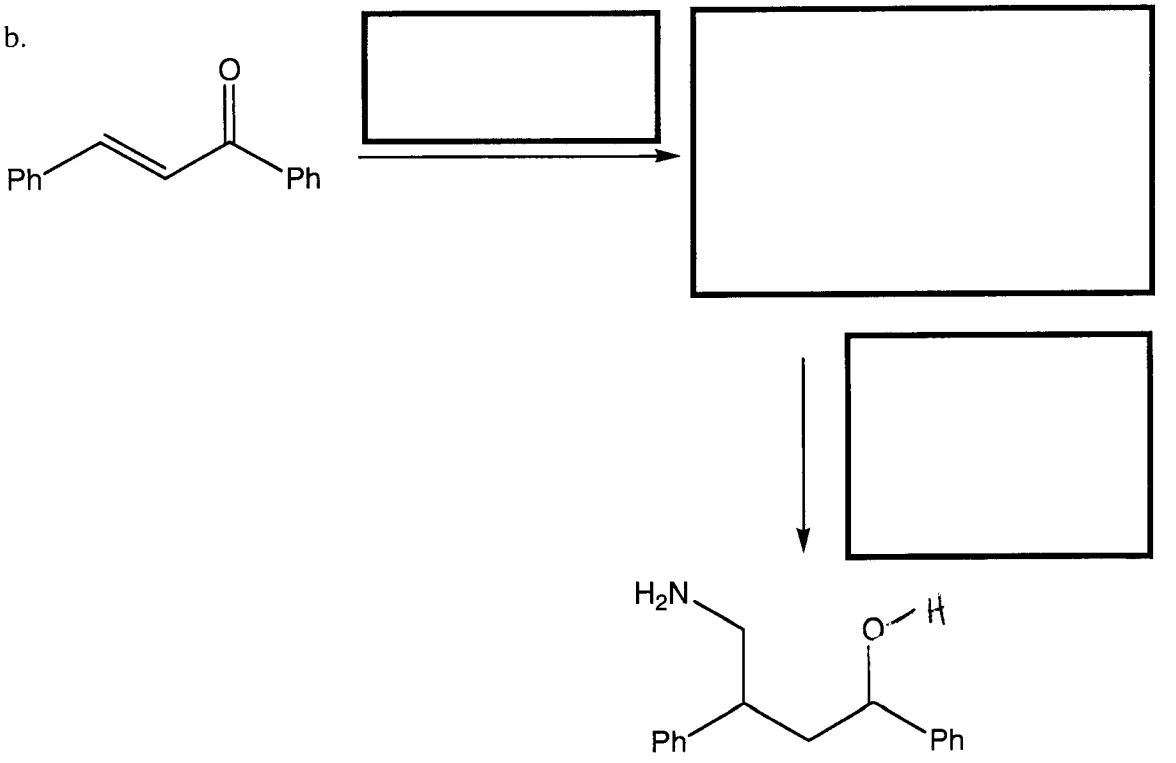
2. H_3O^+

Problem 2. Draw the intermediate, product, or reagent in the box provided. *(3 points each box)*

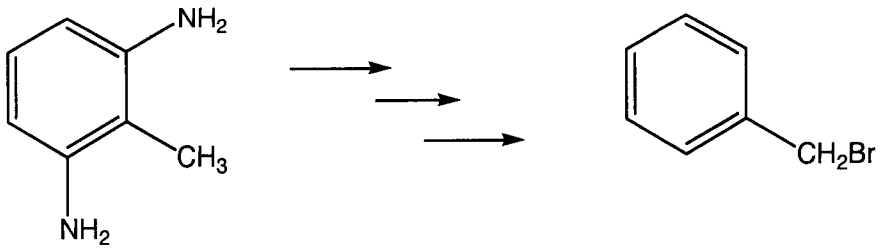
a.



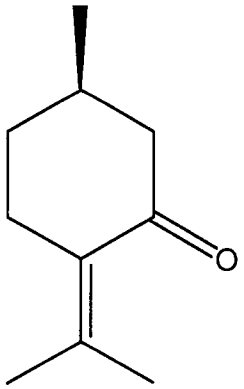
b.

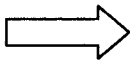


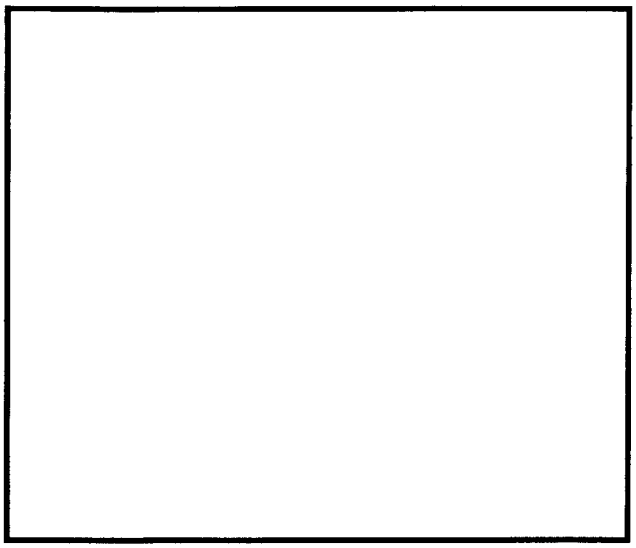
Problem 3. Provide a reasonable synthesis of benzyl bromide from the following starting material. *(11 points)*



Problem 4. The following product was synthesized using an acid-catalyzed aldol reaction. In the box provided, draw the starting material(s) only (i.e. no intermediates) that would yield the given product. *(8 points)*

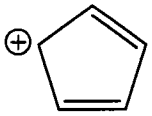






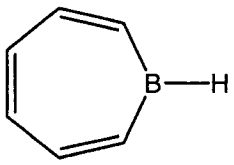
Problem 5. Classify the following molecules as aromatic, antiaromatic or nonaromatic. Assume all molecules are planar. For each molecule state the number of *p* orbital electrons. Write your answers on the lines provided. *(16 points)*

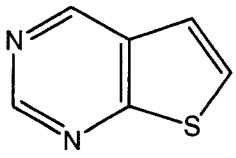
indole



classification: _____ classification: _____

pi electrons: _____ pi electrons: _____

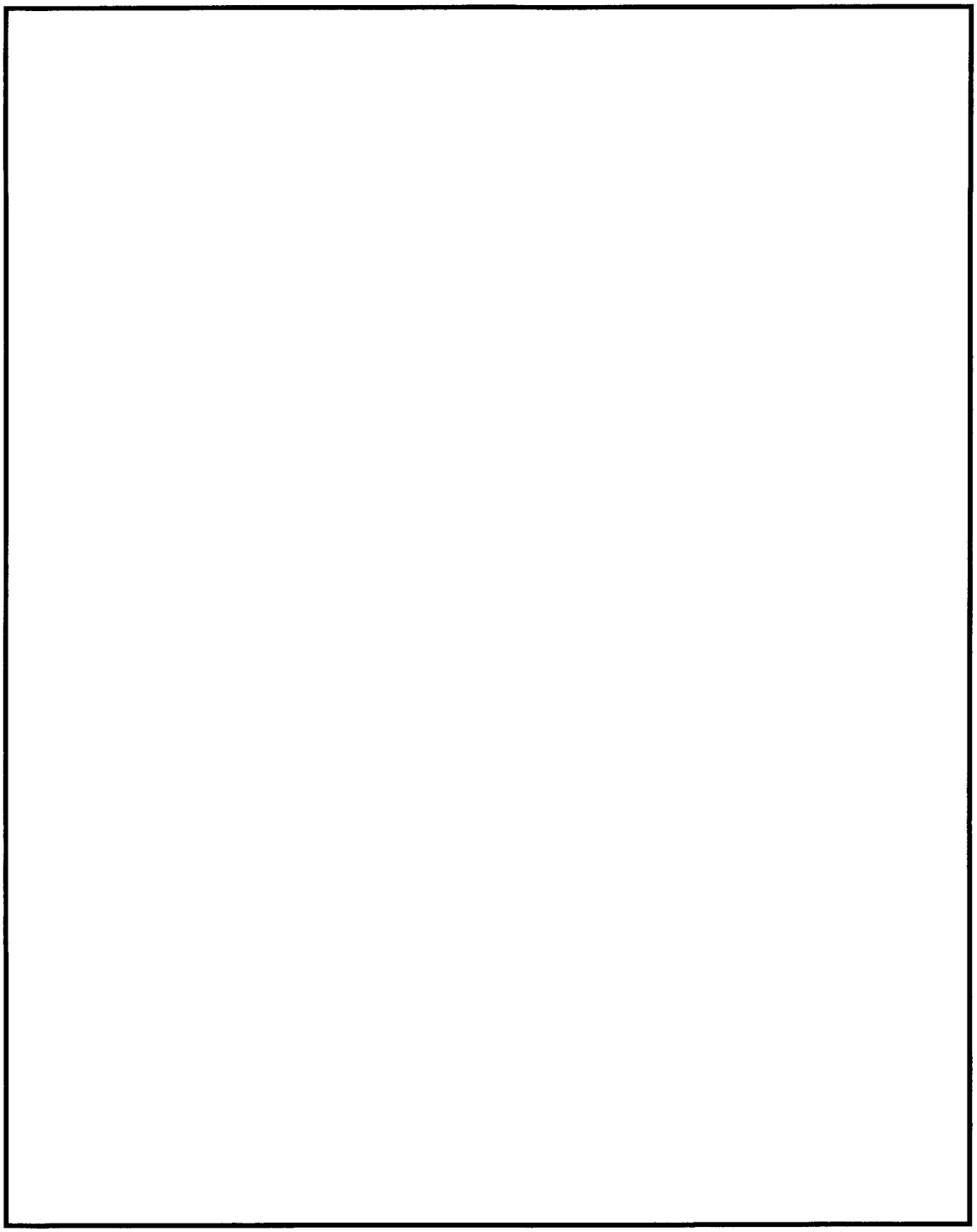




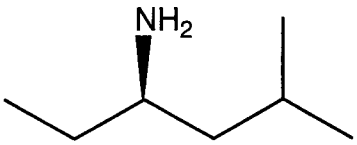
classification: _____ classification: _____

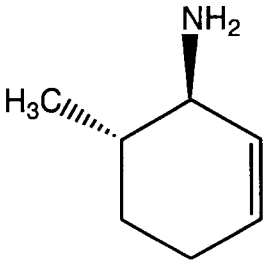
pi electrons: _____ pi electrons: _____

Problem 6. Draw the following compounds and rank them in order of increasing acidity: *o*-fluorophenol, styrene, *o*-nitrophenol, and cyclohexanol. Briefly explain your ranking. *(12 points)*



Problem 7. Give the IPUAC names of the following compounds on the lines provided. (*2 points each)*





_____ _____

Problem 8. Propose a reason why aryl diazonium salts are more stable than alkyl diazonium salts. (*10 points)*