

Name (Last, First, MI): _____

Student ID Number: _____

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

Key

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	

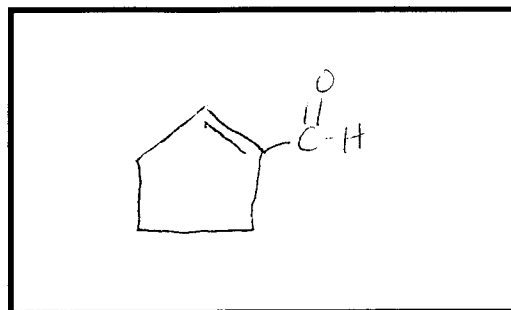
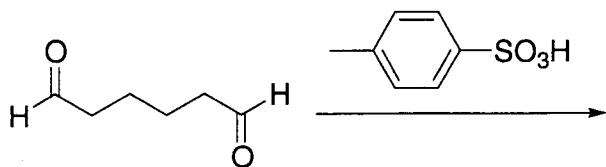
Do not open this exam until instructed to do so

Write all answers in the boxes or spaces provided

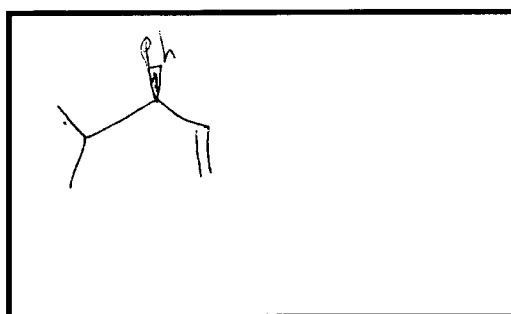
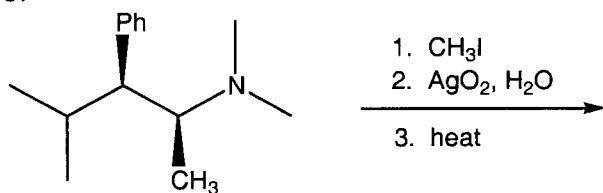
-7 Pages Follow-

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)

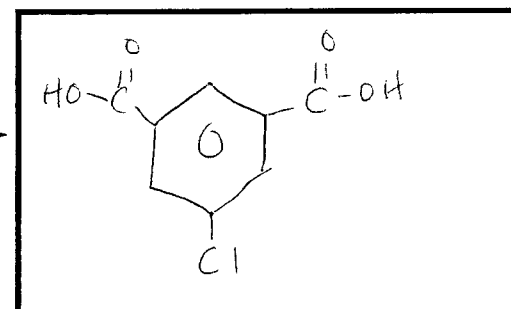
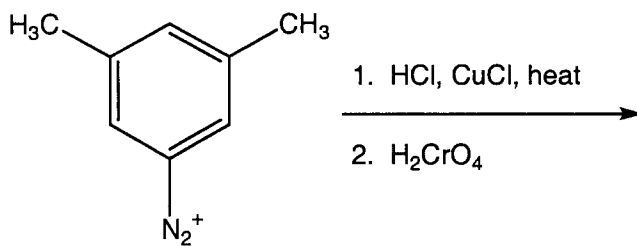
a.



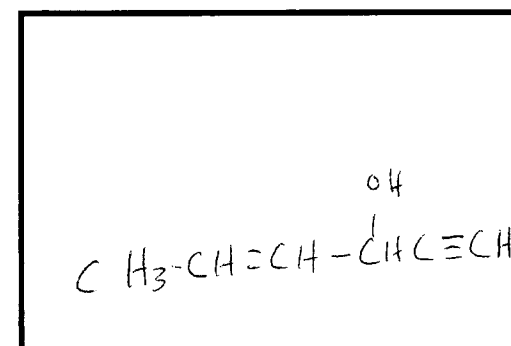
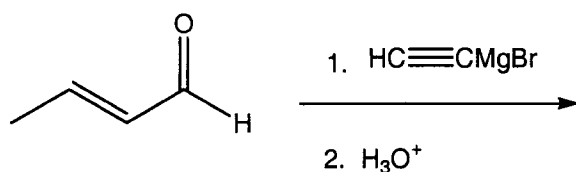
b.



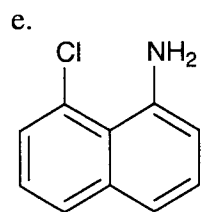
c.



d.



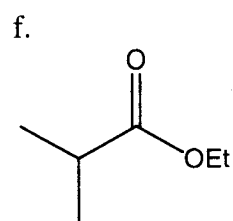
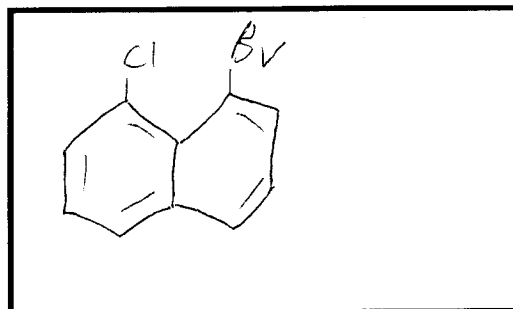
Problem 1 is continued on page 2



1. $\text{NaNO}_2, \text{HBr}$



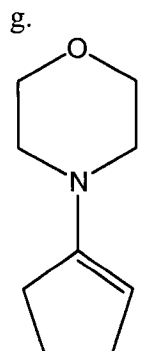
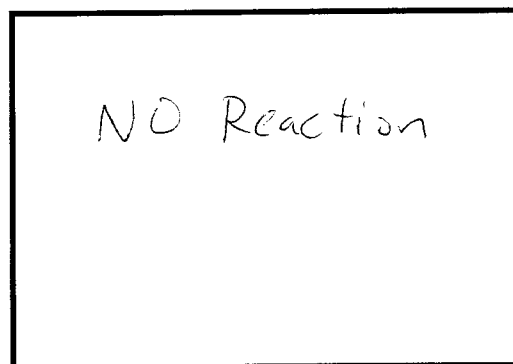
2. CuBr



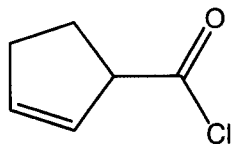
1. $\text{NaOEt}, \text{EtOH}$



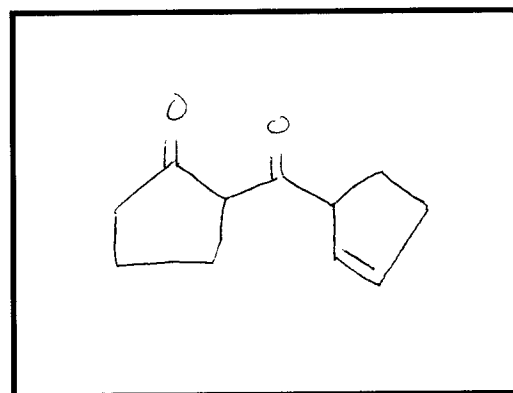
2. $\text{HCl}, \text{H}_2\text{O}$



1.

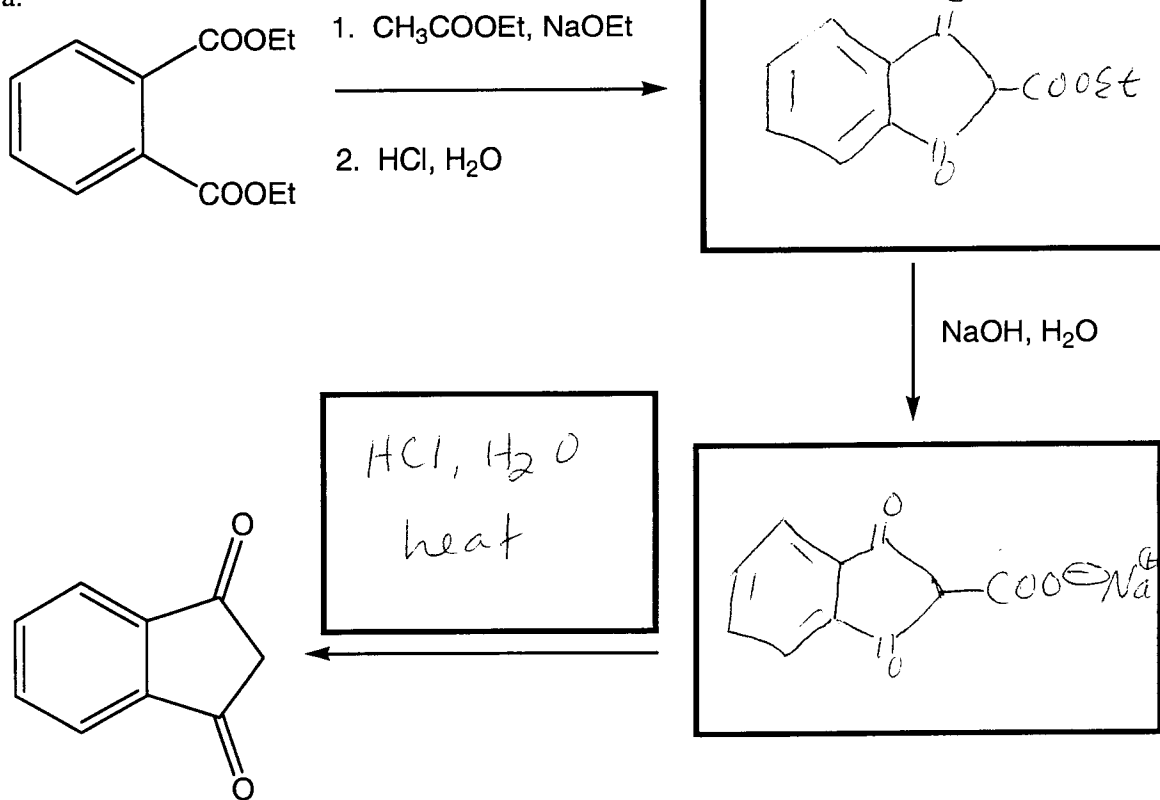


2. H_3O^+

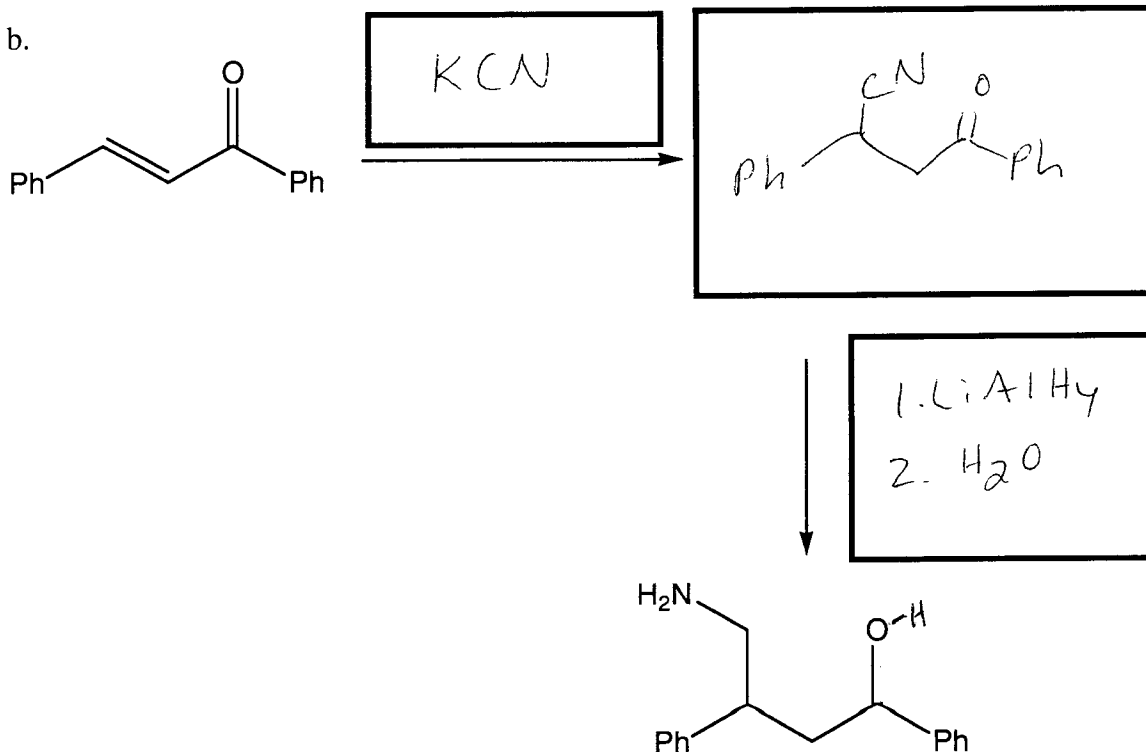


Problem 2. Draw the intermediate, product, or reagent in the box provided. (3 points each box)

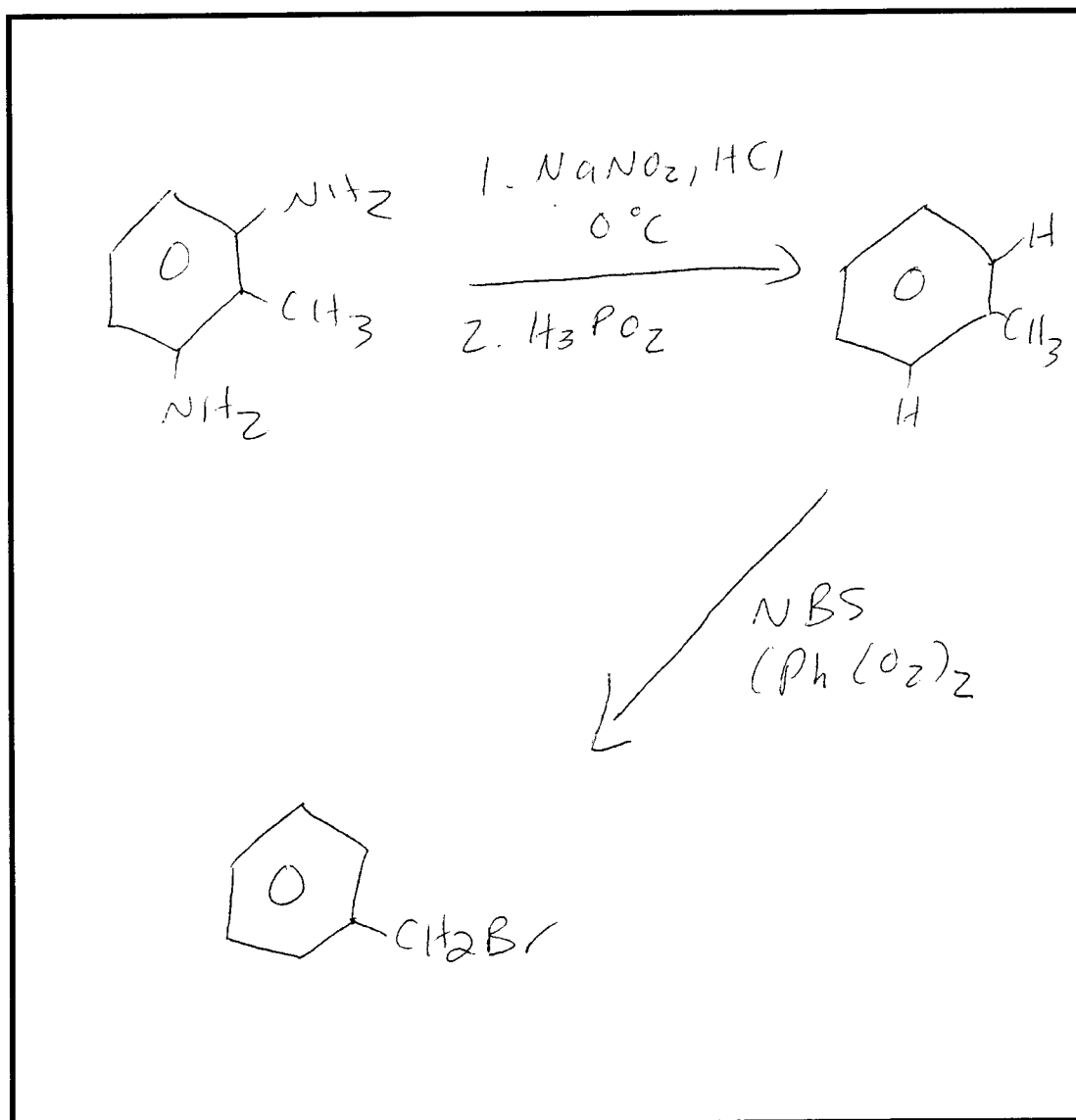
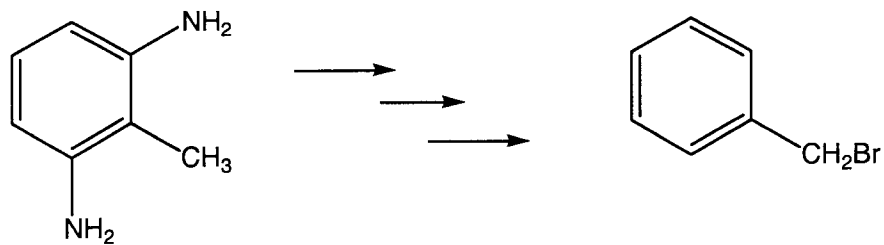
a.



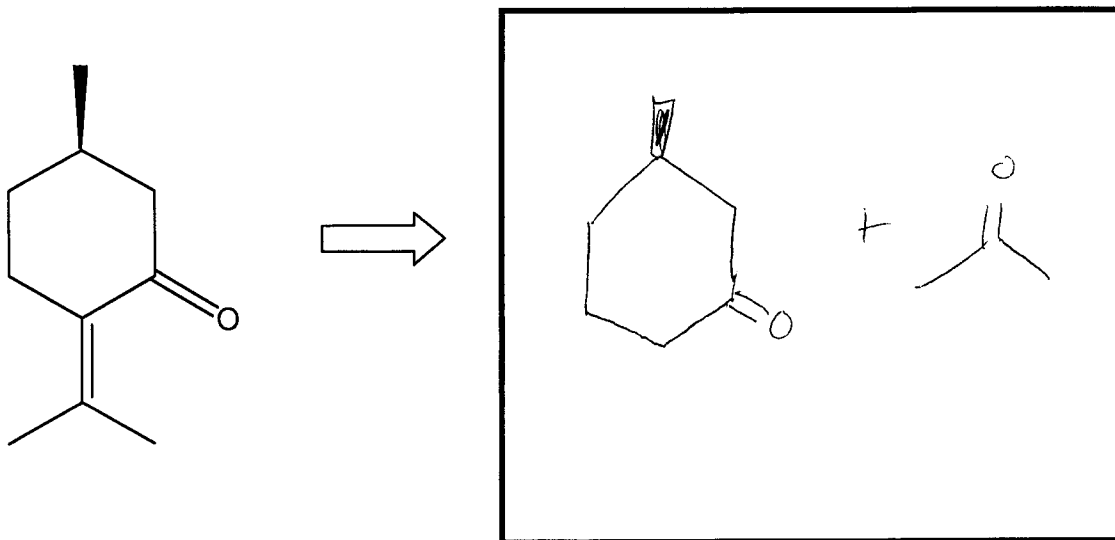
b.



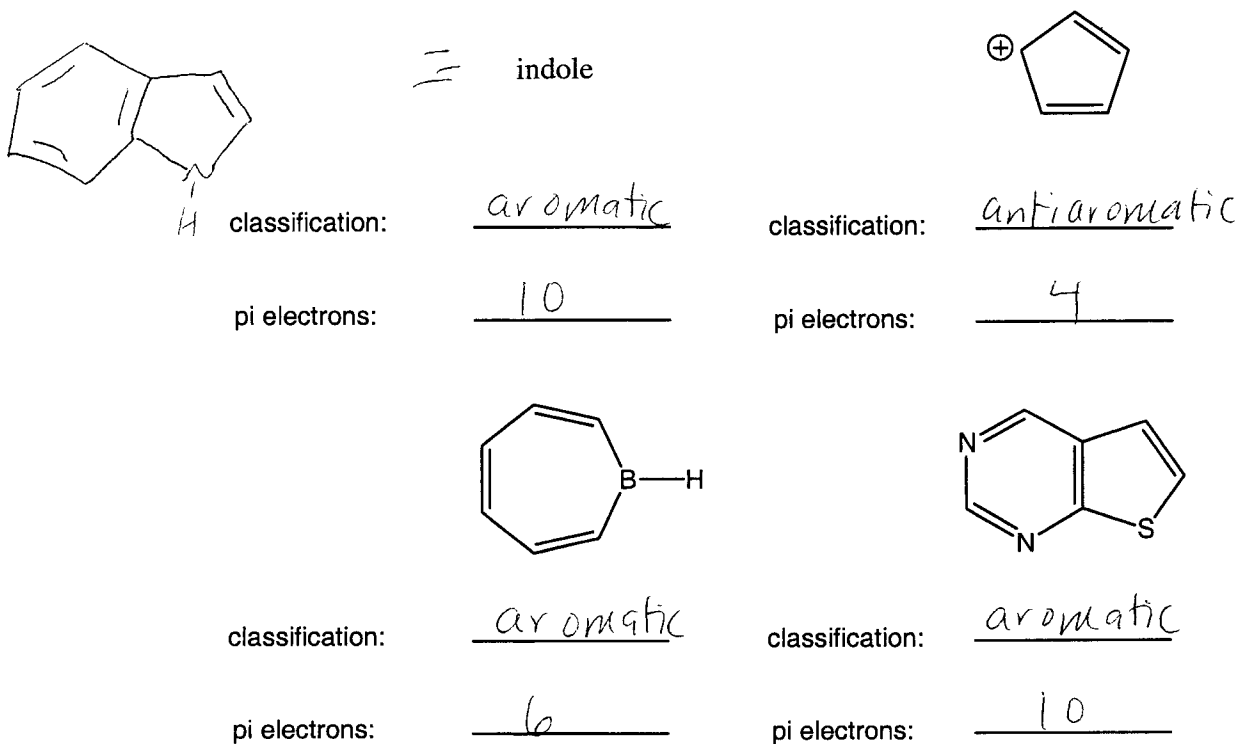
Problem 3. Provide a reasonable synthesis of benzyl bromide from the following starting material. (11 points)



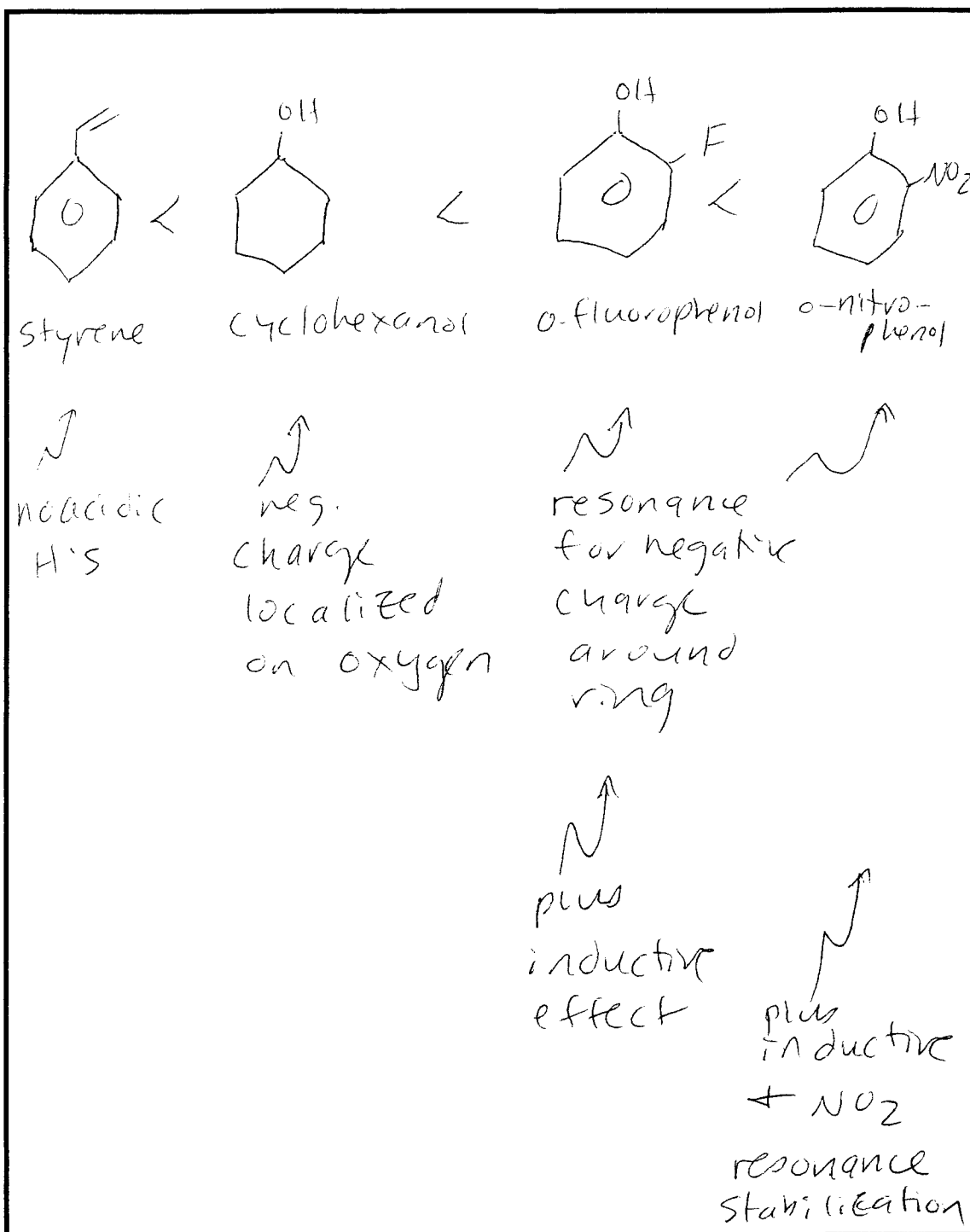
Problem 4. The following product was synthesized using an acid-catalyzed aldol reaction. In the box provided, draw the starting material(s) only (i.e. no intermediates) that would yield the given product. (8 points)



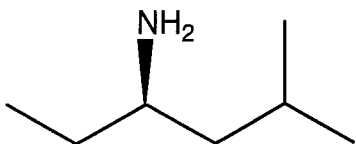
Problem 5. Classify the following molecules as aromatic, antiaromatic or nonaromatic. Assume all molecules are planar. For each molecule state the number of p orbital electrons. Write your answers on the lines provided. (16 points)



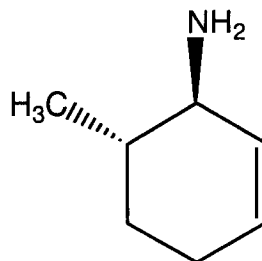
Problem 6. Draw the following compounds and rank them in order of increasing acidity: *o*-fluorophenol, styrene, *o*-nitrophenol, and cyclohexanol. Briefly explain your ranking. (12 points)



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



(R)-2-methyl-4-hexanamine or
(R)-4-amino-2-methylhexane



(R,S)-3-amino-4-methylcyclohexene

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

