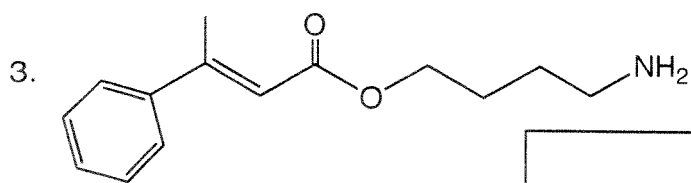
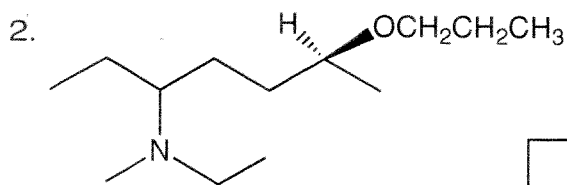
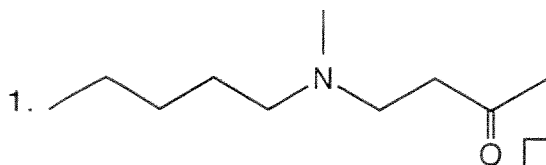


# Alt. Final Ex. 3p

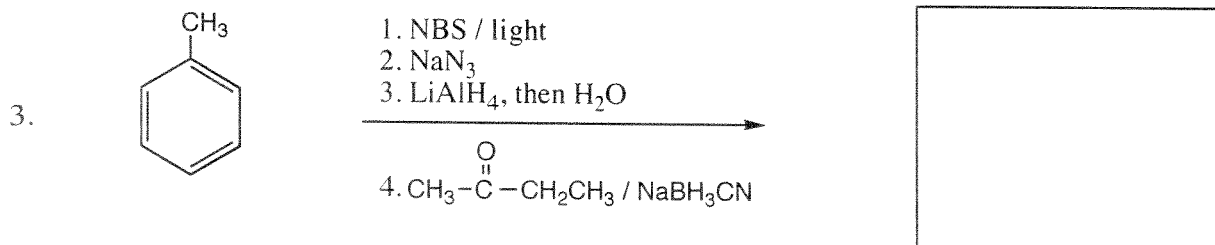
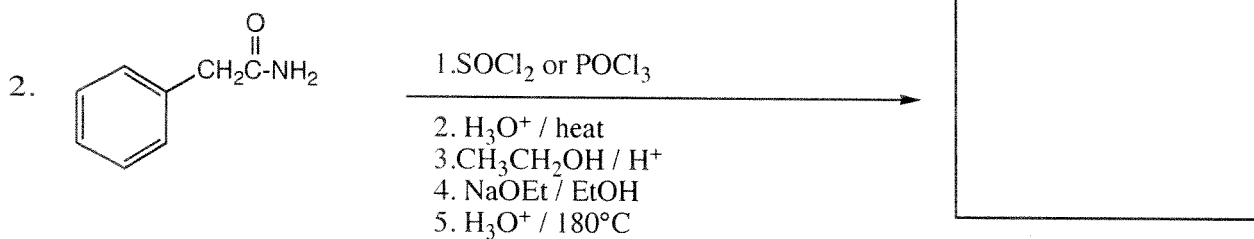
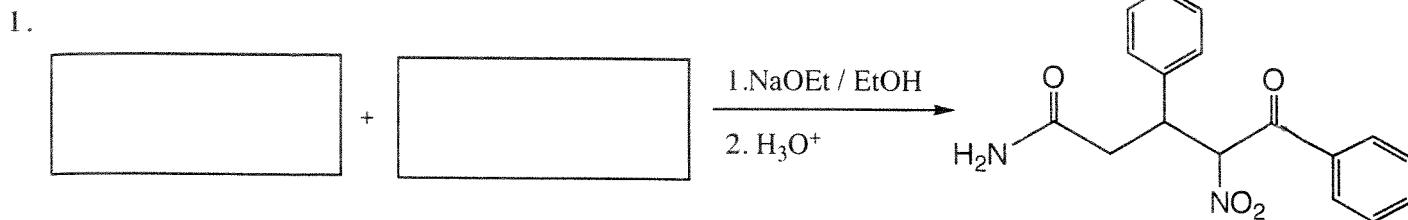
## A. Nomenclature: (15 points)

Give an acceptable IUPAC name for each of the following compounds. Be sure to indicate the stereochemistry where appropriate.

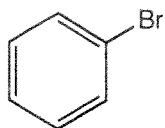


**B. Reactions:** Total = 40 points, 8 points each

Please provide the starting material or major product in the answer box. Be sure your drawing indicates **stereochemistry** if applicable. Partial credit is awarded only when intermediate products in a multi-step reaction are shown below the reaction.

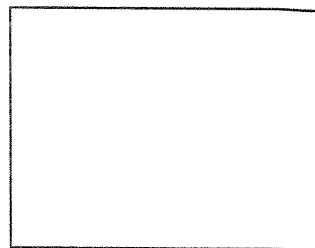
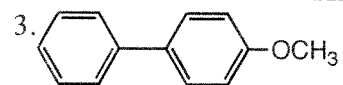


4.

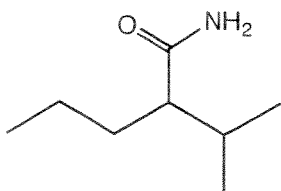


1.  $\text{NaNH}_2$  / heat

2.  $\text{NaNO}_2$  /  $\text{HCl}$



5.

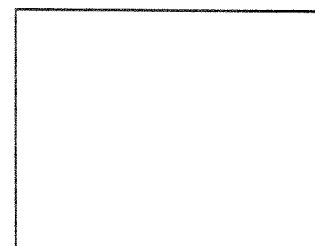


1.  $\text{Br}_2$  /  $\text{OH}^-$  / heat

2.  $\text{CH}_3\text{I}$  (xs)

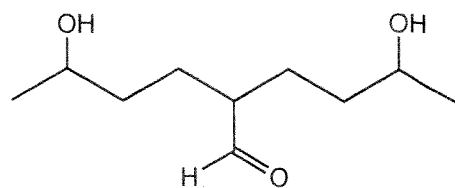
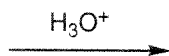
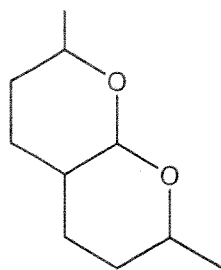
3.  $\text{Ag}_2\text{O}$  /  $\text{H}_2\text{O}$  / heat

4. MCPBA



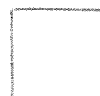
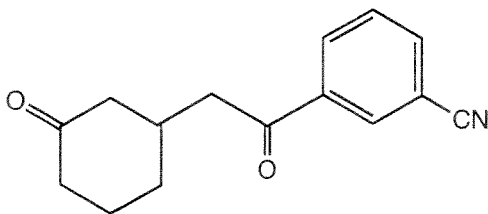
**C. Mechanism:** (15 points)

Provide a clear mechanism to explain the formation of the product. Use curved arrows to indicate "electron flow". Remember to show only one step at a time. Show all intermediates and all formal charges. When more than one resonance contributor may be drawn, be sure to draw the most stable contributor.



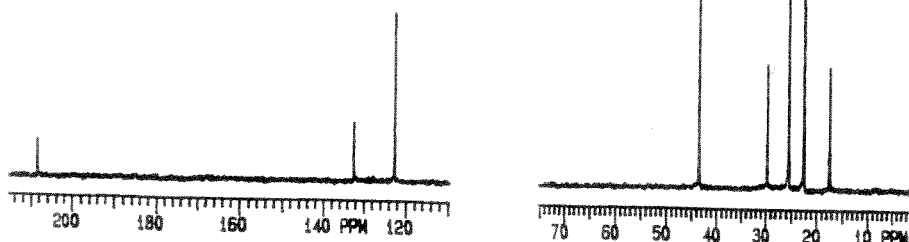
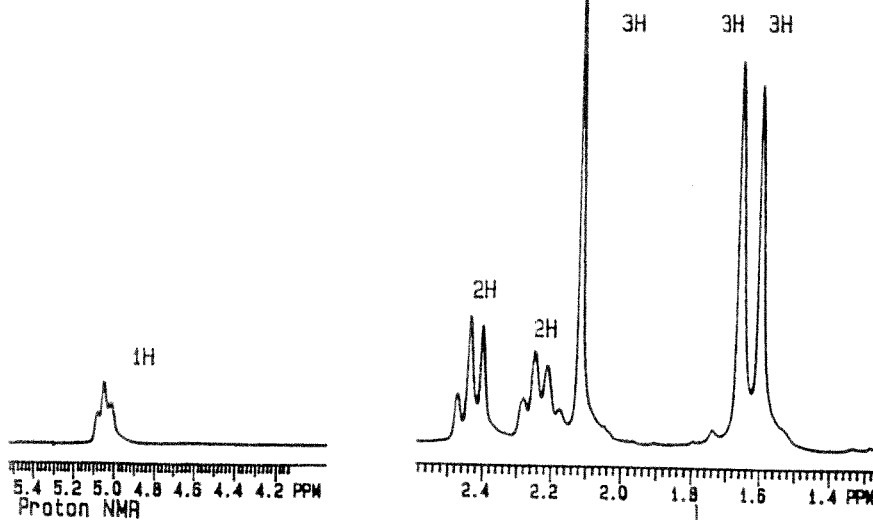
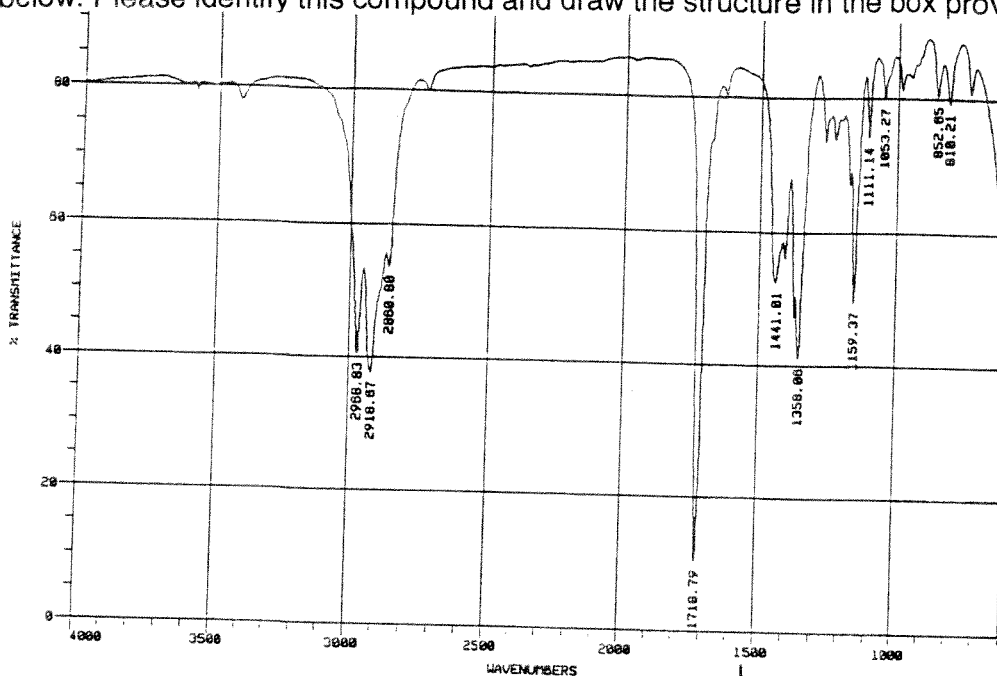
**D. Synthesis:** 15 Points

Synthesize the molecule below using any of the following reagents: **cyclohexanone**, benzene, any alcohols of **two carbons** or less, any inorganic reagents, any oxidizing or reducing agents, and any peroxyacids.



### E. Spectroscopy: 15 Points

A compound with the formula  $C_8H_{14}O$  exhibits the IR,  $^1H$  NMR and proton decoupled  $^{13}C$  NMR spectra shown below. Please identify this compound and draw the structure in the box provided below.



Carbon  $^{13}C$  NMR

