

Organic 2 Test 2
SPRING 2013

Second Exam

Name (PRINTED) _____

Chemistry 3332

Signature _____

March 22, 2013

ID# _____

PLEASE CIRCLE CLASS TIME!

10:00AM

1:00PM

4:00 PM

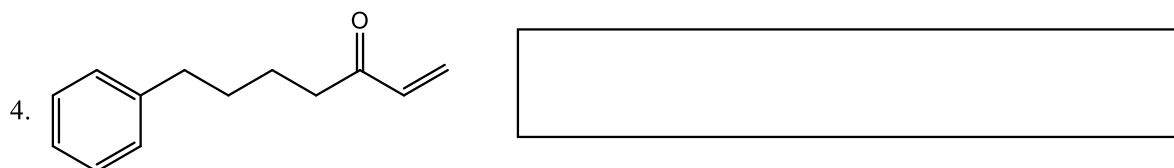
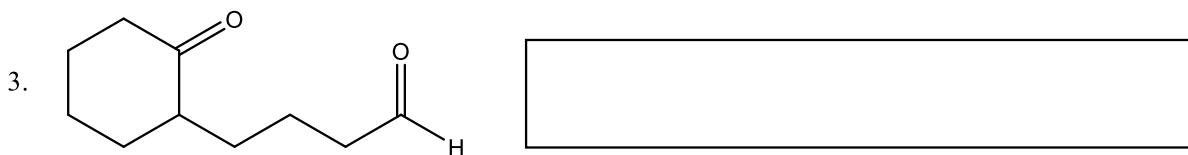
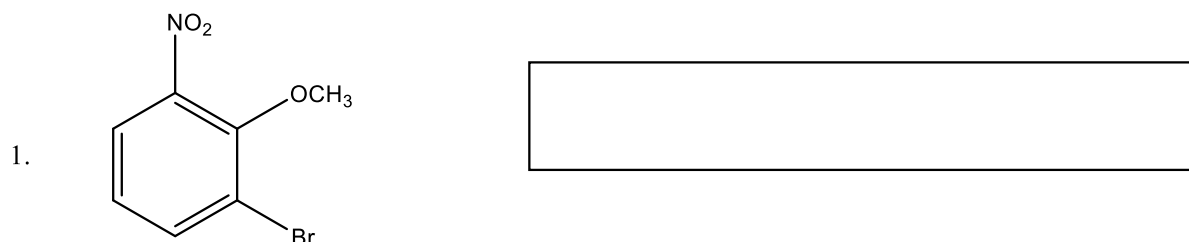
Page #	Score	
1. 12 pts		
2. 17 pts		
3. 18 pts		
4. 18 pts		
5. 12 pts		
6. 12 pts		
7. 11 pts		

Total: _____

NOTE: Present your ID when you return the exam booklet

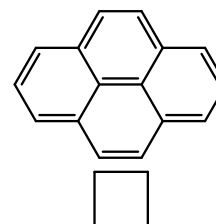
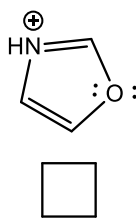
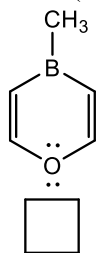
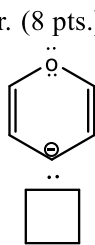
A. Nomenclature: (12 points)

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

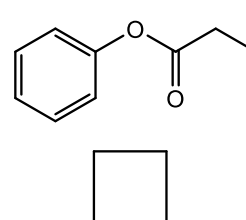
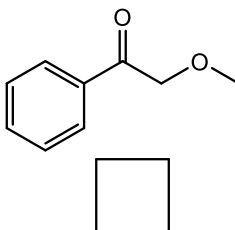
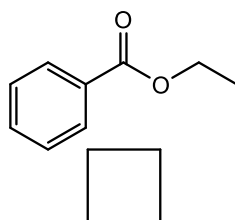


B. Facts: 16 points

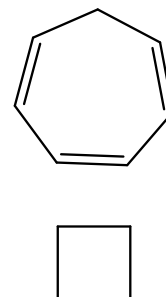
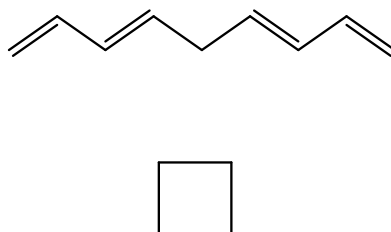
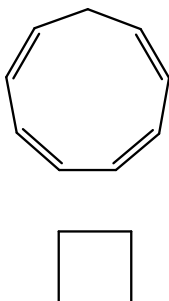
1. Label the molecules below as aromatic (**AR**), antiaromatic (**AA**), or nonaromatic (**NA**). Please assume all are planar. (8 pts.)



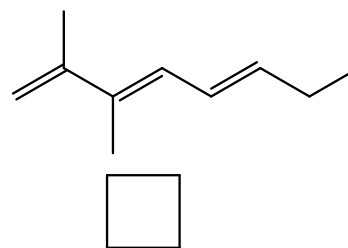
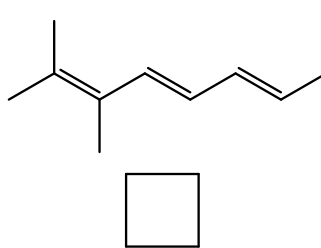
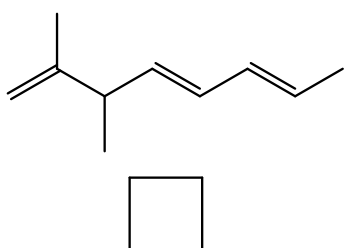
2. Rank the following substituted benzene compounds in order of increasing rate in an electrophilic aromatic substitution reaction. (1=slowest rate, 3=fastest rate) (3 pts.)



3. Rank the following compounds in order of increasing acidity. (1=least acidic, 3=most acidic) (3 pts.)

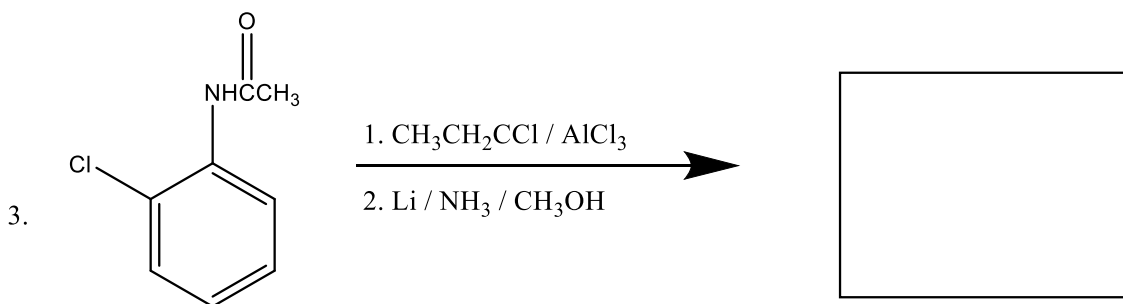
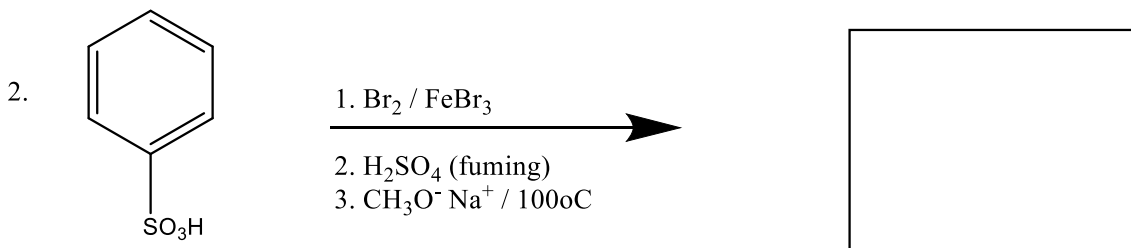
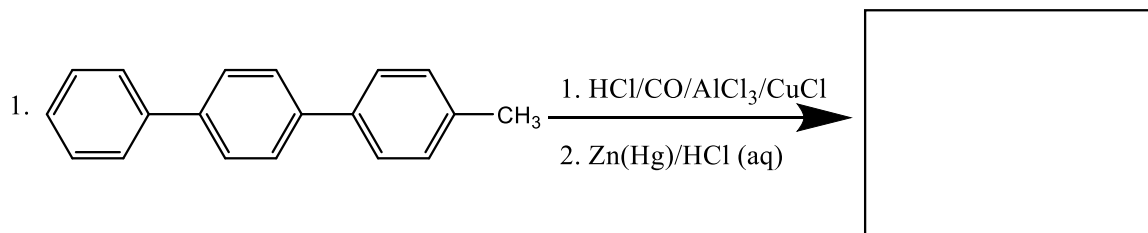


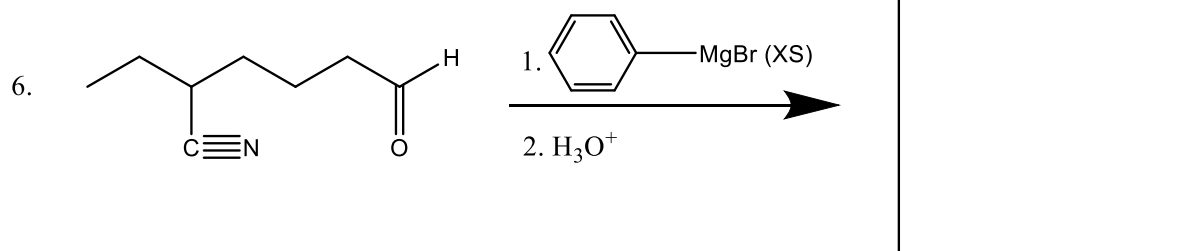
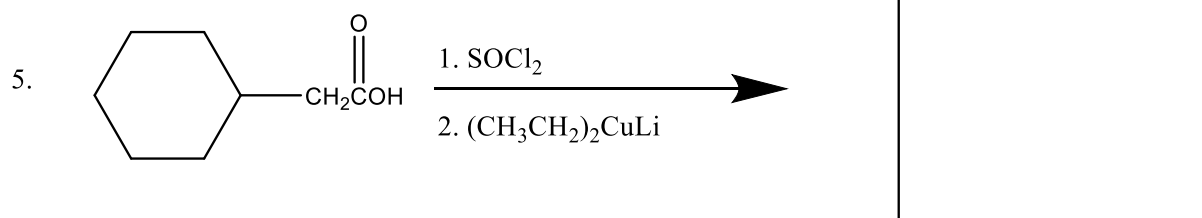
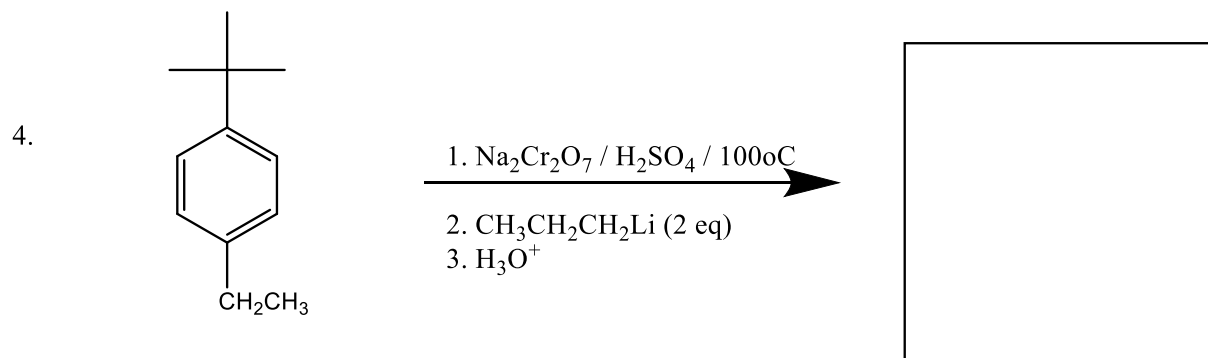
4. Rank the following compounds in order of increasing (wavelength) of the $\pi \rightarrow \pi^*$ transition in the UV spectrum. (1=shortest wavelength, 3=longest wavelength) (3pts.)



C. Reactions: Total = 36 points, 6 points each

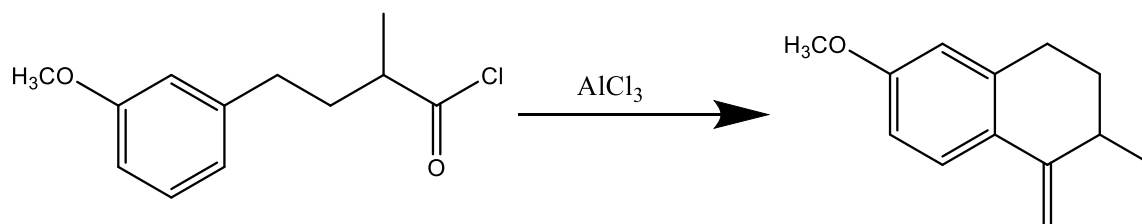
Please provide the major product in the answer box. Indicates **stereochemistry** if applicable. Partial credit is awarded only when intermediate product in a multi-step reaction are shown below the reaction.





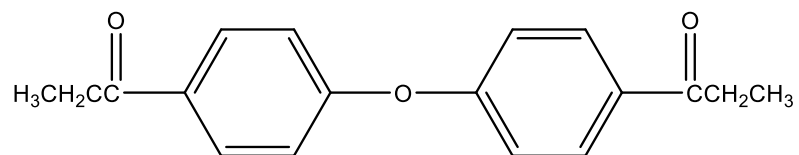
D. Mechanism: (12 points)

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



E. Synthesis : 12 points

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



F. Spectroscopy: 11 Points

A compound with the formula $C_{10}H_{12}O$ 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.

