

Third Exam

Chemistry 3331

November 25, 2011

Name (PRINT) \_\_\_\_\_  
Last, First

Signature \_\_\_\_\_

ID # \_\_\_\_\_

**PLEASE CIRCLE CLASS TIME**

10:00 AM

1:00 PM

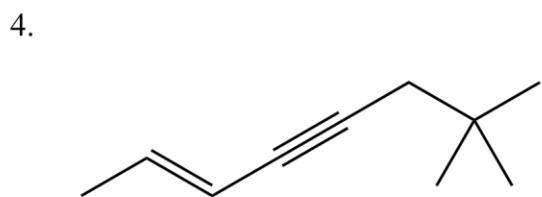
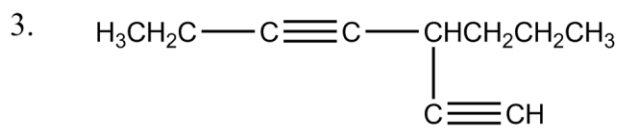
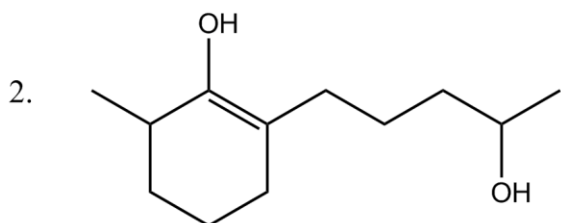
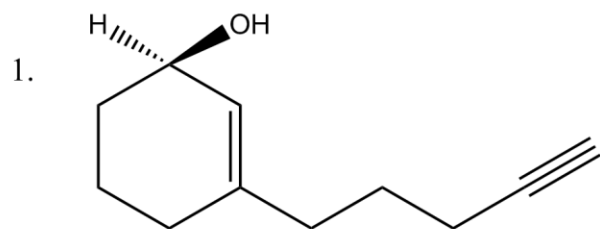
Page #	Score	
1. 16 pt		
2. 24 pt		
3. 18 pt		
4. 18 pt		
5. 12 pt		
6. 12 pt		
7. 9 pt		

Total: \_\_\_\_\_

**NOTE: Present your ID when you return the exam booklet**

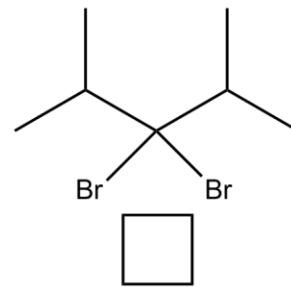
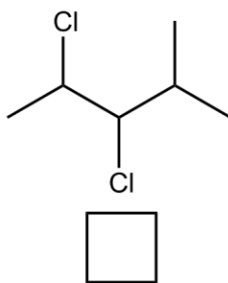
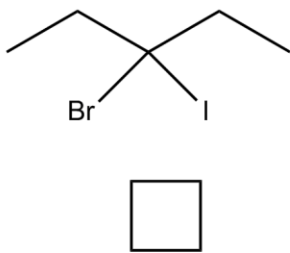
**A. Nomenclature:** (16 points)

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

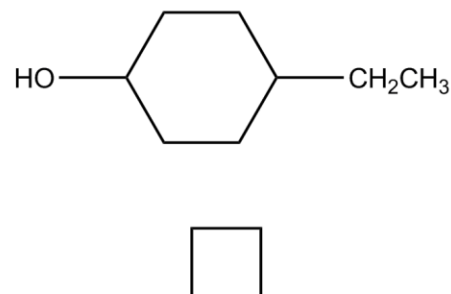
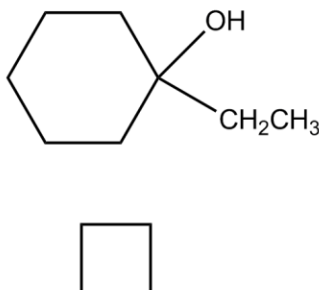
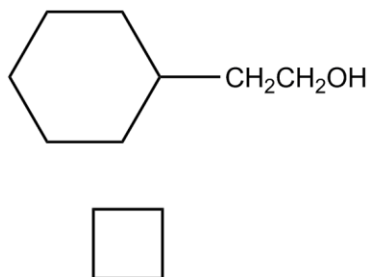


**B. FACTS:** Total = 24 points

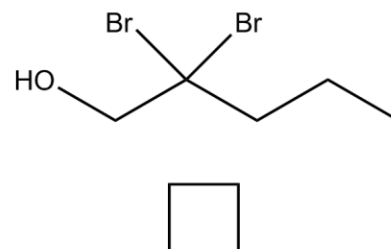
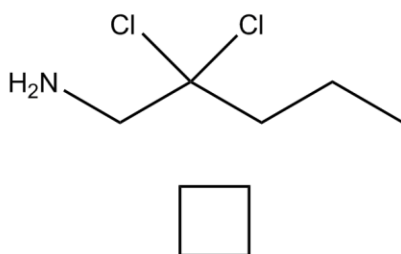
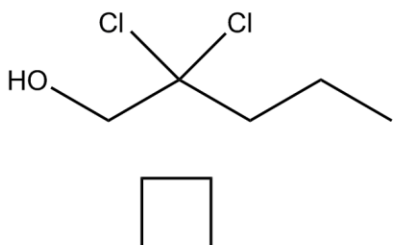
1. Place a "Y" in the box below any compound that will produce a terminal alkyne when treated with  $\text{NaNH}_2$  at 150 C. Place an "N" in the box below any that will not. (6 points)



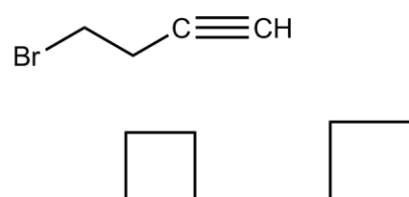
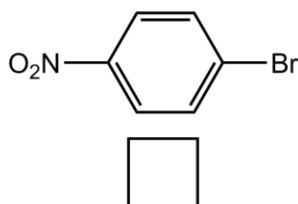
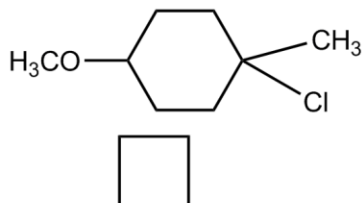
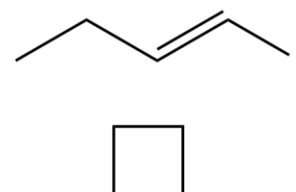
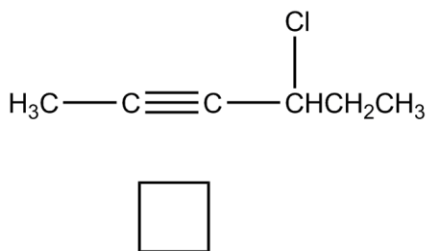
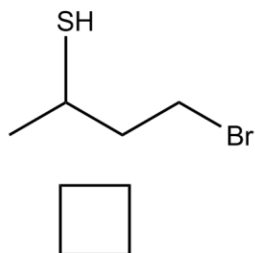
2. Place the alcohols in order of increasing reactivity in an acid catalyzed dehydration. (1=least reactive, 3=most reactive) (6 points)



3. Place the compounds in order of increasing acidity. (1=weakest acid, 3=strongest acid) (6 points)

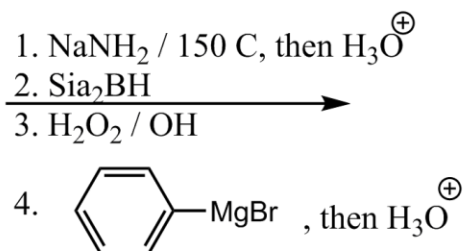
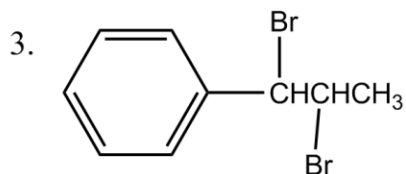
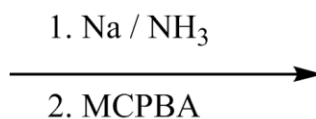
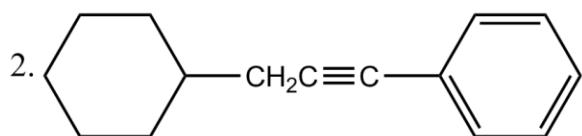
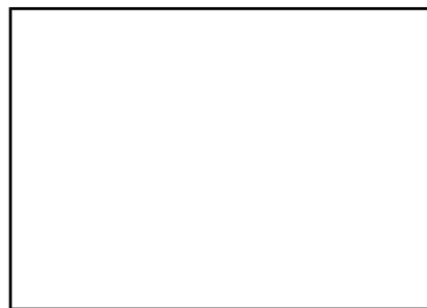
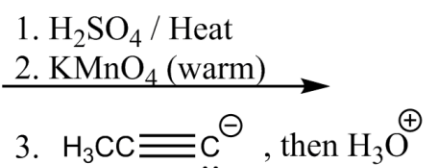
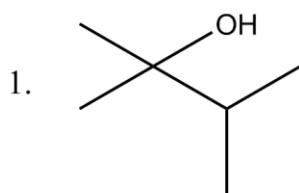


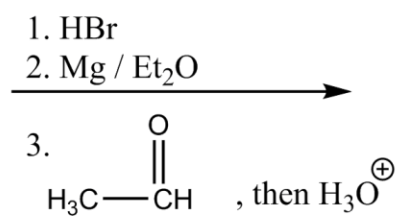
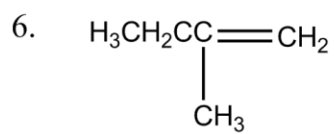
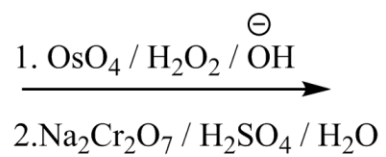
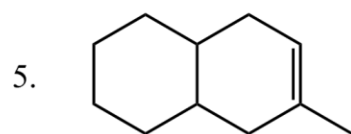
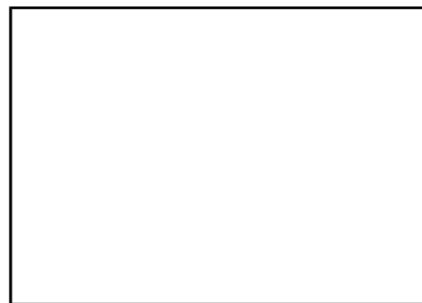
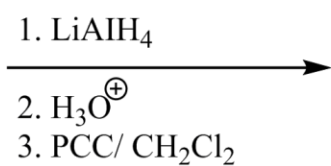
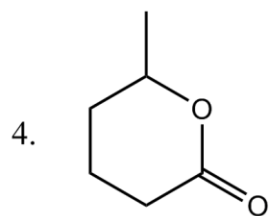
4. Place a "Y" in the box below any halide that will produce a useful Grignard reagent. Place an "N" in the box below any that will not. (6 points)



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

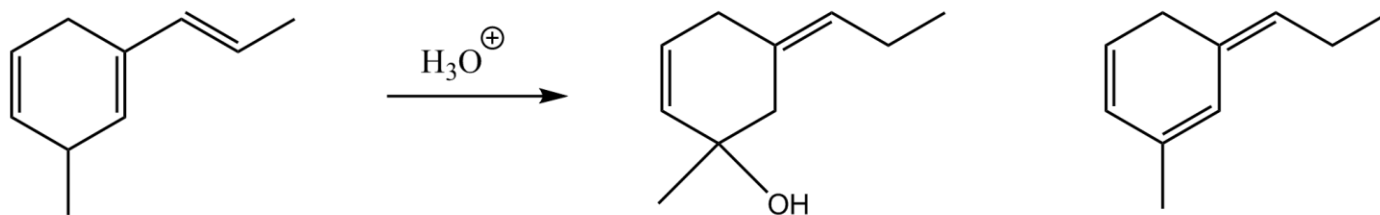
Please provide the major product in the answer box. Be sure your drawing indicates stereochemistry if applicable. Partial credit is awarded only when intermediate products in multi-step reaction are shown below the reaction.





**D. Mechanisms:** (12 points)

The reaction below produces a mixture of products. Provide a clear mechanism to explain the formation of each product. Use curved arrows to indicate "electron flow". Remember to show only one step at a time. Show all intermediate and all formal charges. Do not show transition states.



**E. Synthesis:** (12 points)

Synthesize the molecule below from cyclohexane, any alkenes, or alcohols of **three** carbons or less, and any inorganic reagents. (Please do not include mechanisms)

