CH 310N
Fall 2006

Anslyn

September 28th, 2006

Exam 1

Print Name_____ **UT-EID**_____

Half of these problems are from Problem 16.15 from your homework!-----> 1) _____ (12 pts)

2) _____ (8 pts)

3) _____ (8 pts)

Half of these problems are from your homework!---------- > 4) _____(39pts)

5) _____ (10 pts)

6) _____ (10 pts)

7) _____ (10 pts)

Problem 15.11 from your homework!----------> 8) _____ (8 pts)

Problem 16.55 from your homework!----------->9) _____ (8 pts)

Total score _____ (113pts)

1) Name the structure or draw the structure of the nomenclature provided in the box.

(12 points)

A)

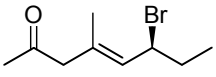
Draw formaldehyde

B) From homework, problem 16.15.

Draw 3-methyl-3-buten-2-one

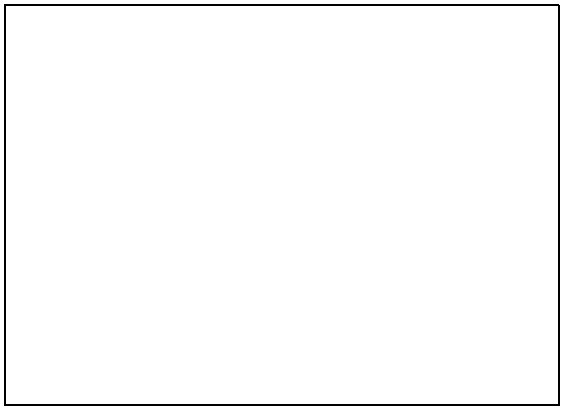
C)

Name the structure

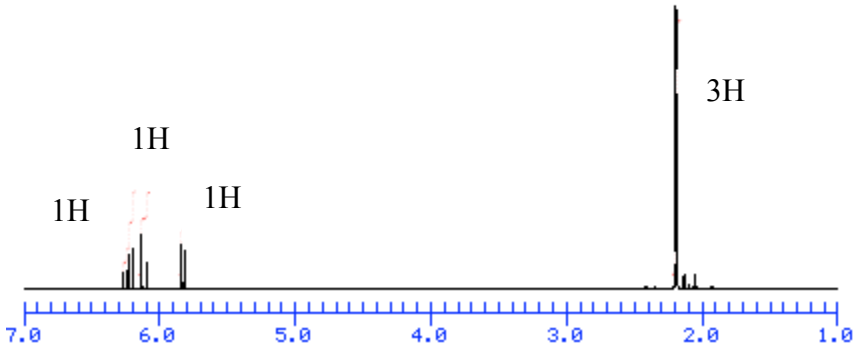


D) From homework, problem 16.15.

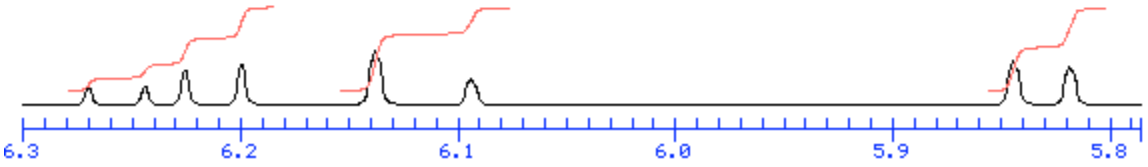
Draw 5-oxohexanal

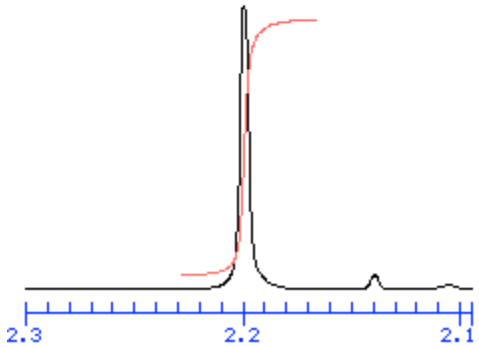


2) The following is the ^{1}H-NMR spectra for C_4H_6O. Draw the chemical structure of this compound in the box provided and provide the IUPAC name of the structure using the spectrums provided below. (8 points)

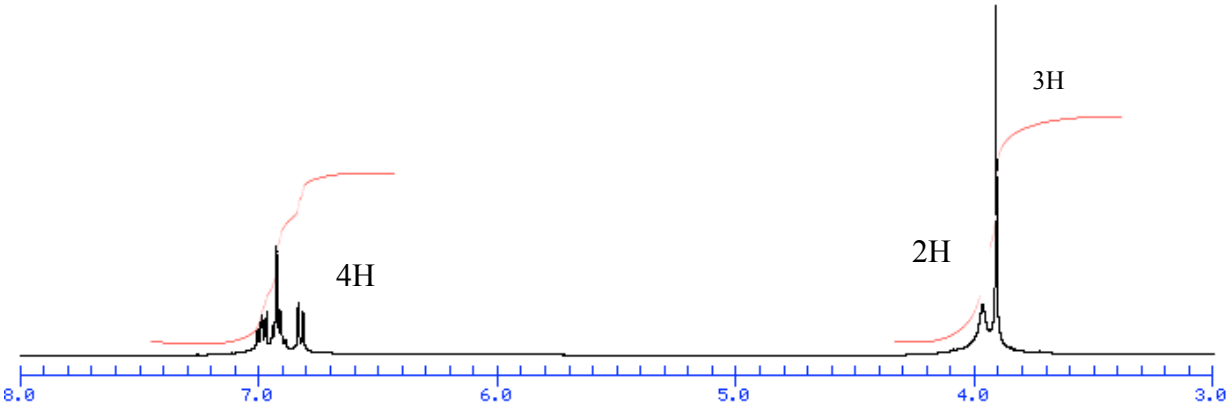


Expansion of peaks:

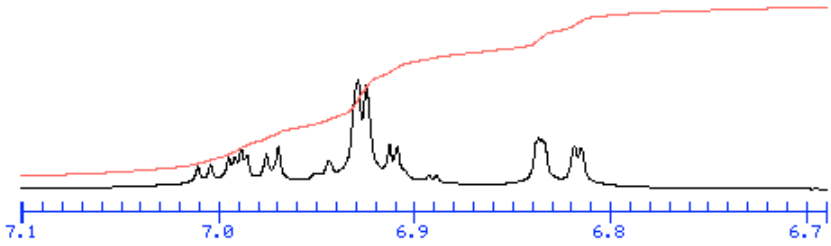


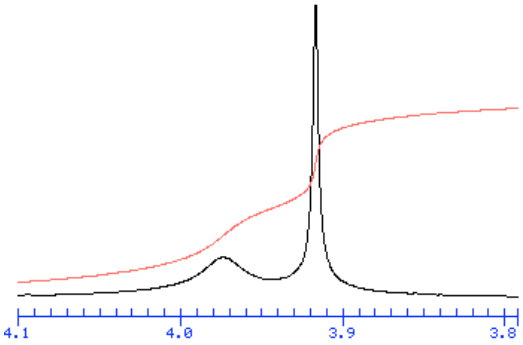


3) Following is the ^{1}H-NMR spectra for C_7H_9NO. Draw the chemical structure of this compound in the box provided from the spectrums provided. (8 points)



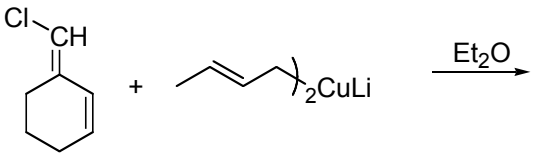
Expansion Pictures:





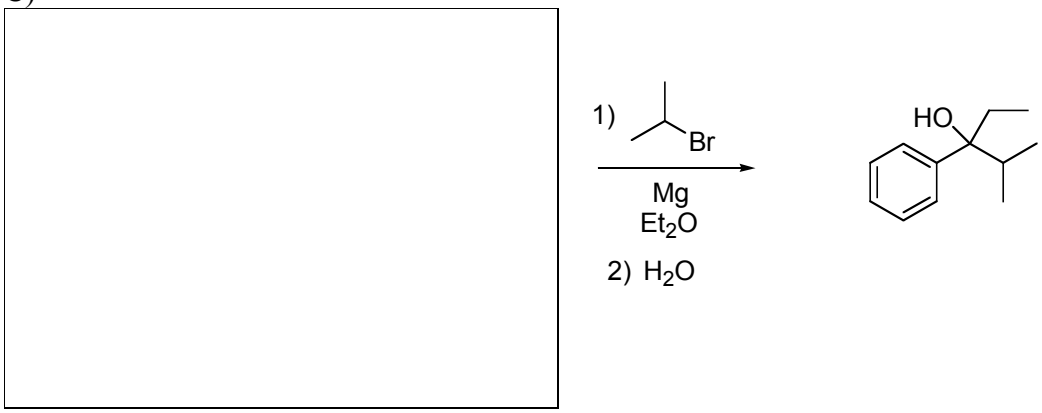
4) Fill in the box with the correct reagent, reactant or product. (39 points)

A) From homework, problem 15.7

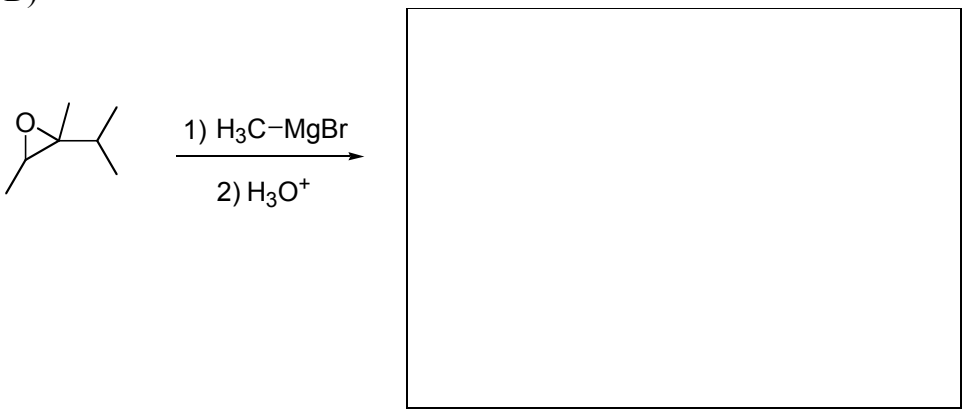


B) From homework, problem 16.30.

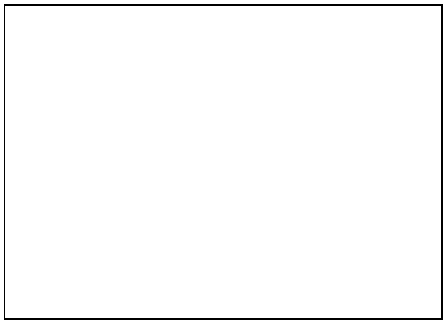
C)



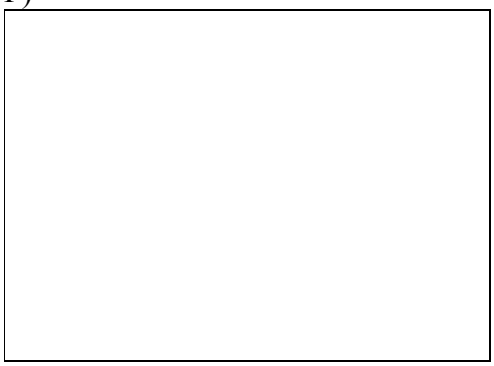
D)

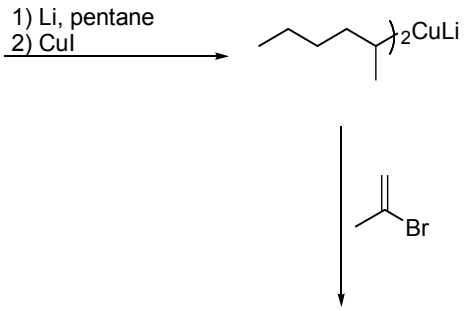


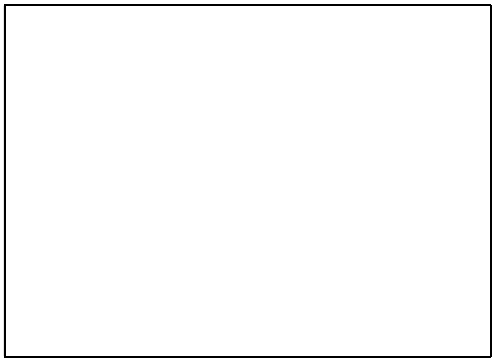
E)



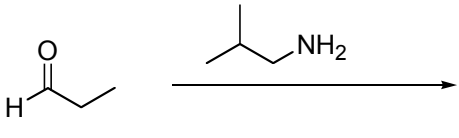
F)

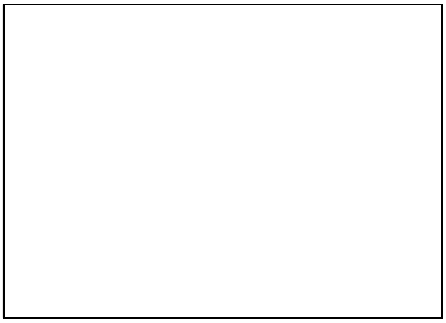




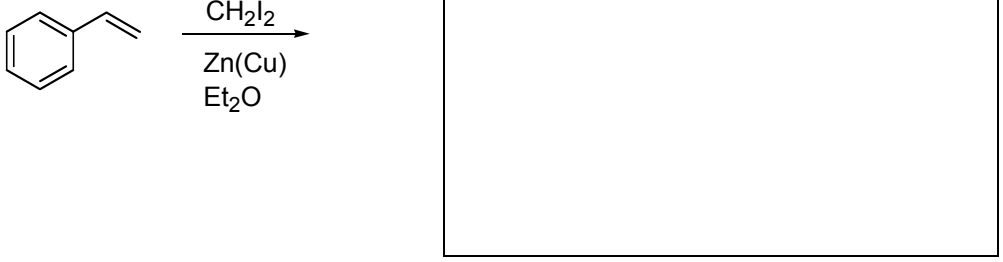


G)

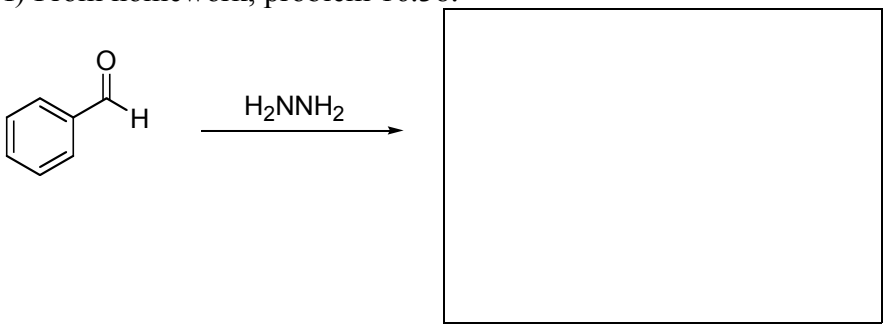




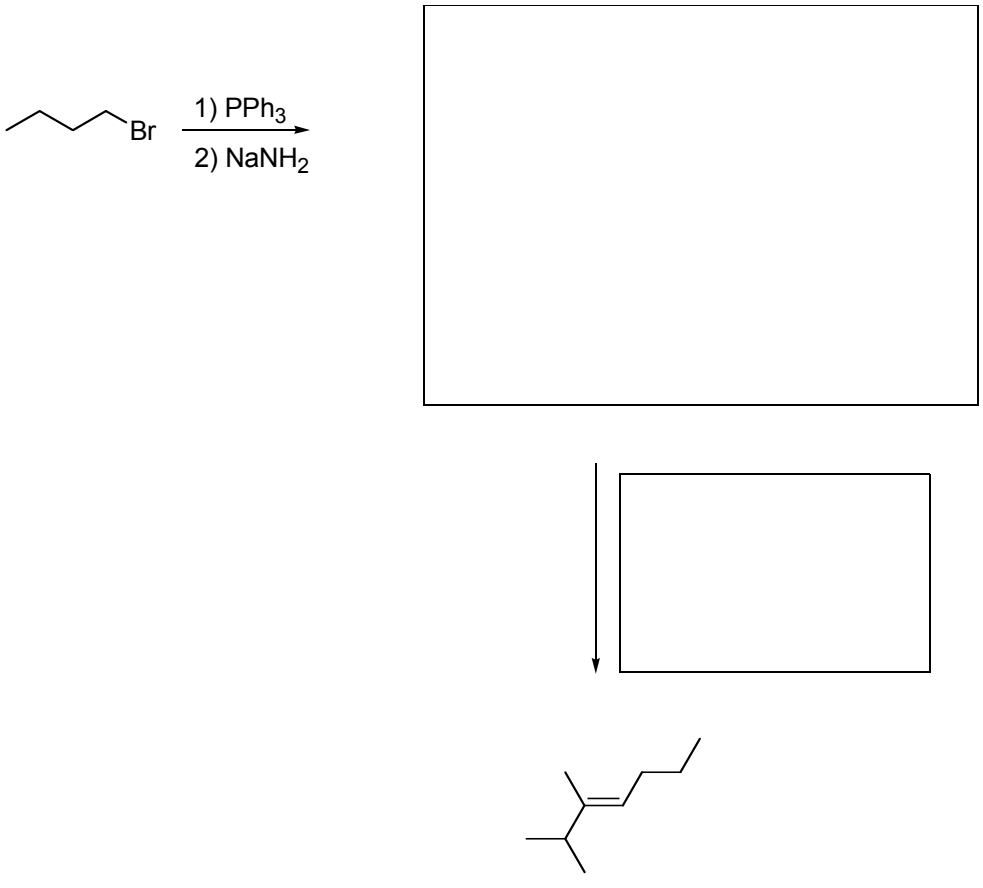
H)
From homework, problem 15.12.



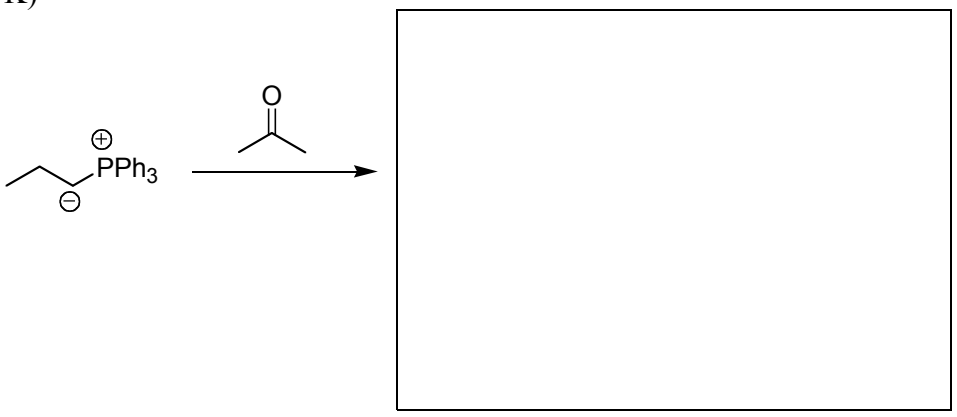
I) From homework, problem 16.38.



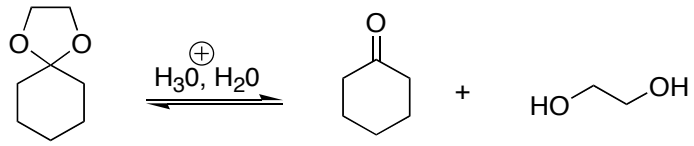
J)



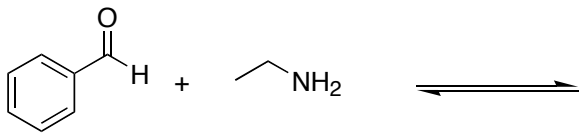
K)



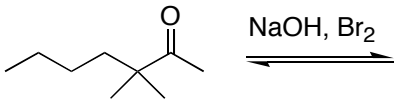
5) Provide a mechanism for the following reaction. Show all arrow pushing and intermediates. Show any lone pair electrons you use as a nucleophilic source or that are created during arrow pushing. (10 points)



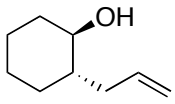
6) Draw the products of the following reactions. Propose a mechanism for the reactions. Be sure to show all intermediates and curved arrows for each step. Show any lone pair electrons you use as a nucleophilic source or that are created during arrow pushing. (10 points)



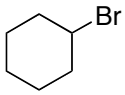
7) Draw the products of the following reactions. Propose a mechanism for the reactions. Be sure to show all intermediates and curved arrows for each step. Show any lone pair electrons you use as a nucleophilic source or that are created during arrow pushing. (10 points)



8) Show how to synthesize:



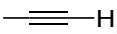
using



and

Use only the reagents given as a source of carbon. You may use any inorganic reagents necessary. Do not worry about arrow pushing (mechanism). (8 points)
(Problem 15.11 in homework)

9) Show a synthesis of

from 

and CH_3I

Use only the reagents given as a source of carbon. You may use any inorganic reagents necessary. Do not worry about arrow pushing (mechanism). (8 points)
(Problem 16.55 in homework)