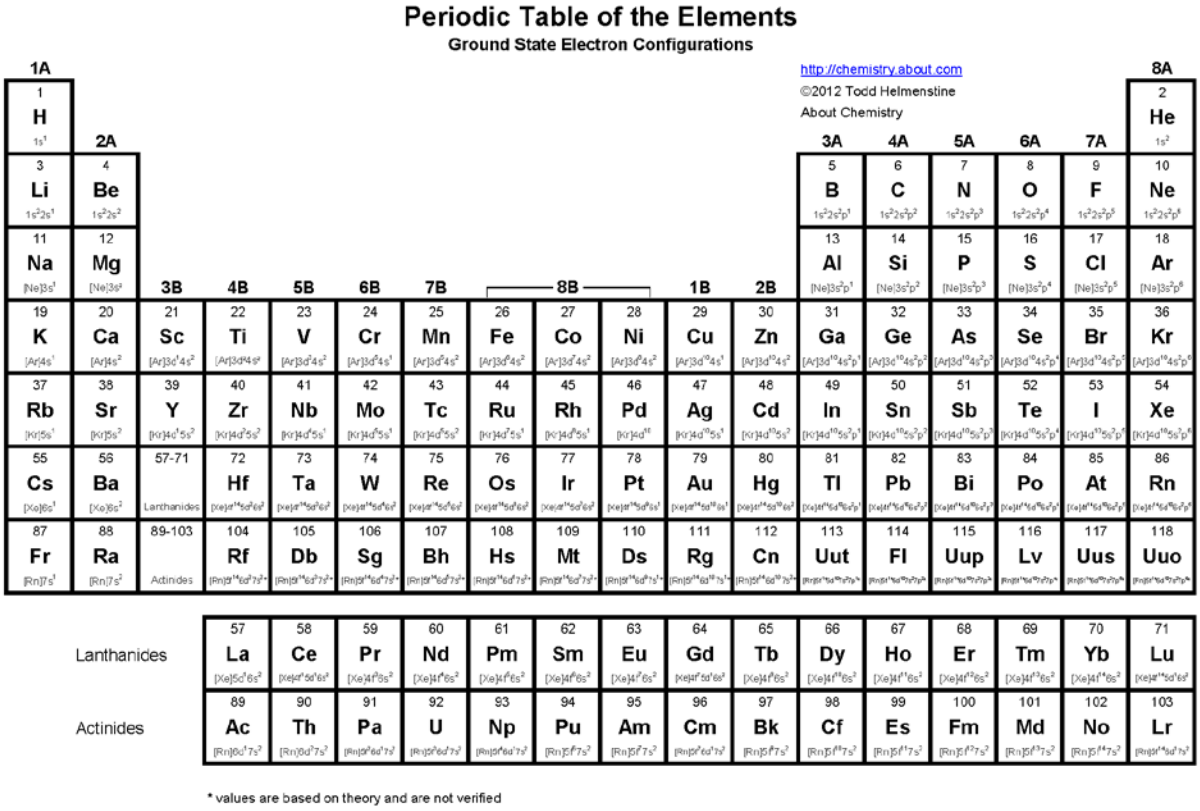
Your Name _____

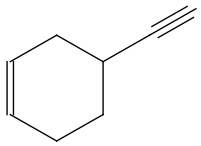
Your Lab Instructor's Name _____

ORGANIC CHEMISTRY FOR HEALTH AND NUTRITION
MIDTERM I
MARCH 5, 2014

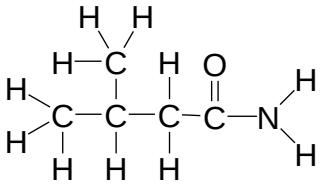


Good luck on this exam!
Please try to relax. Remember it is your job to simply SHOW ME WHAT YOU KNOW.

1. Convert the following structure from Line Bond Notation to a Lewis Structure. (8 pts)

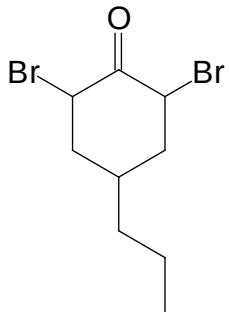


2. Convert the following Lewis Structure to Line Bond Notation. (8 pts)

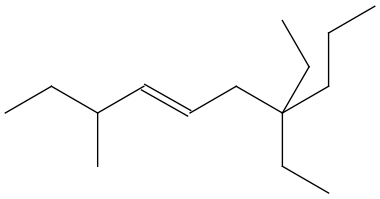


3. Give the official IUPAC name for each molecule shown below. (12 pts)

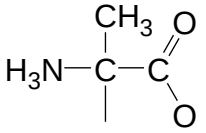
a.



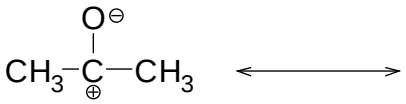
b.



4. Fill in all missing non-zero formal charges on the molecule shown below. (8 pts)

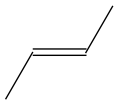


5. Draw a resonance structure for the molecule shown below. If your resonance structure has any formal charges, be sure to show them clearly. (12 pts)



6. Two resonance forms of the same molecule are shown below. Draw arrows to show how the structure on the left would covert to the structure on the right and how the structure on the right would covert to the structure to the left. (12 pts)

7. Draw the structure of the polymer that would form upon polymerization of trans-2-butene. (4 pts)



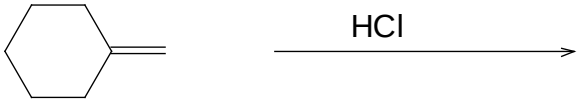
trans-2-butene

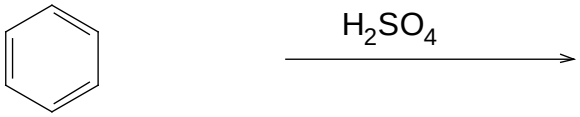
8. Fill in the missing reagent needed to accomplish each of the following reactions. (8 pts)

a.

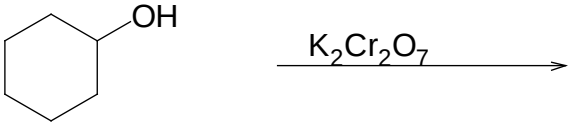
b.

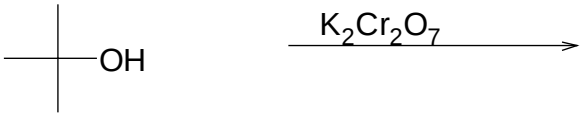
9. Give the product of each of the following reactions. (20 pts)

a. 

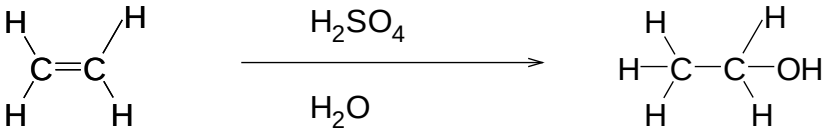
b. 

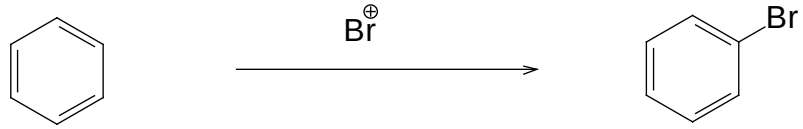
c. CH_3CH_2OH $\xrightarrow{K_2Cr_2O_7}$

d. 

e. 

10. Show a step by step mechanism with mechanistic arrows for each of the following reactions. (8 pts)

a. 

b. 

Key

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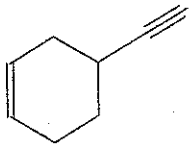

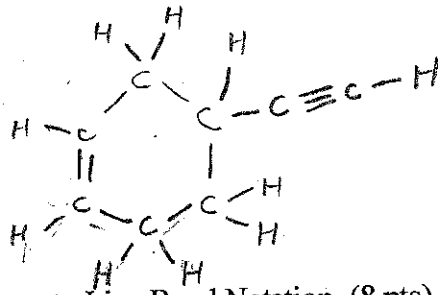

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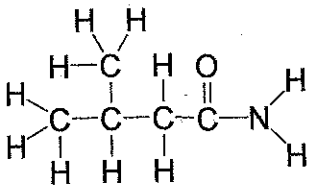

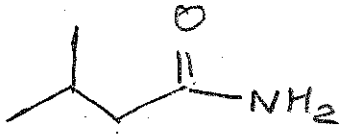

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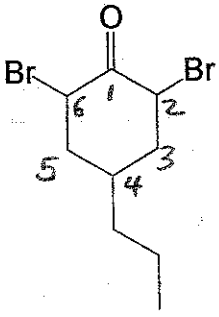
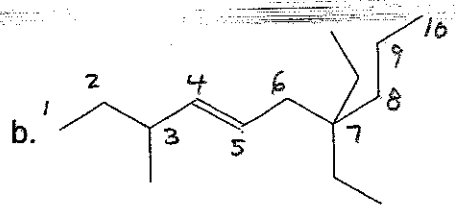


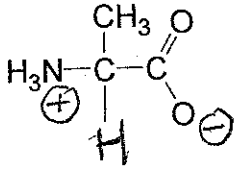
2,6-dibromo-4-propyl cyclohexanone

b.



7,7-diethyl-3-methyl-4-decene

4. Fill in all missing non-zero formal charges on the molecule shown below. (8 pts)



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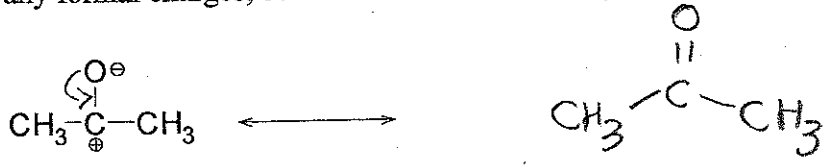

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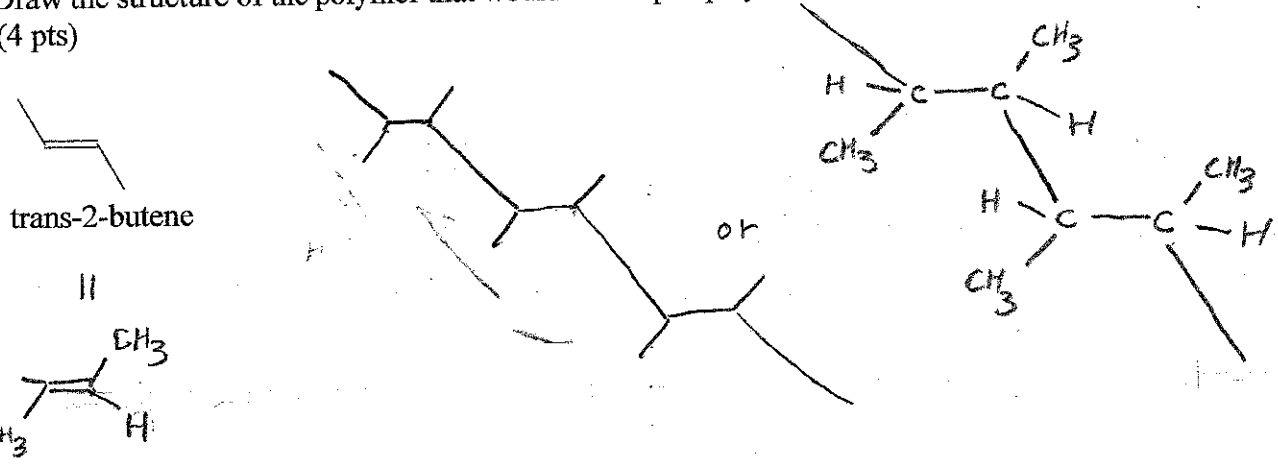
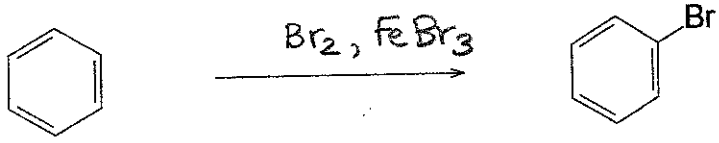


8. Fill in the missing reagent needed to accomplish each of the following reactions. (8 pts)

a.



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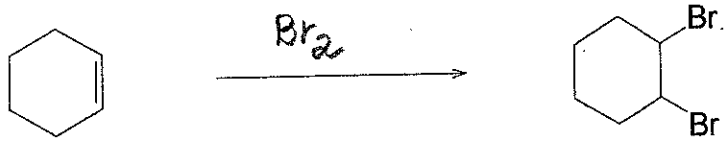

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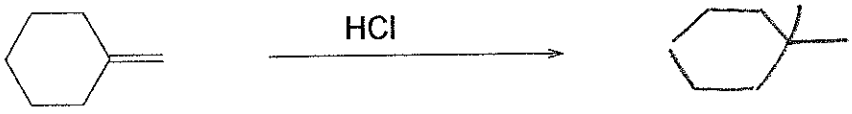
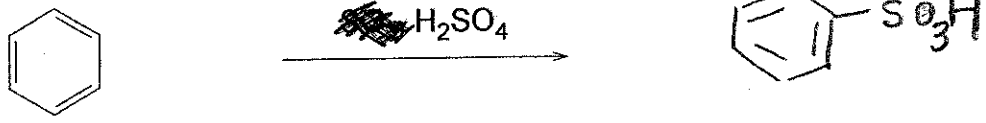
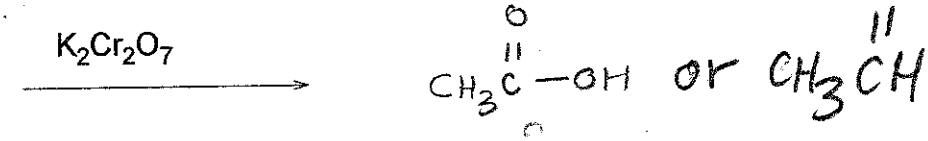
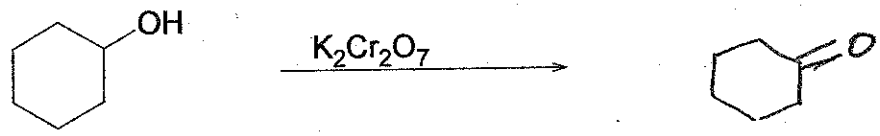
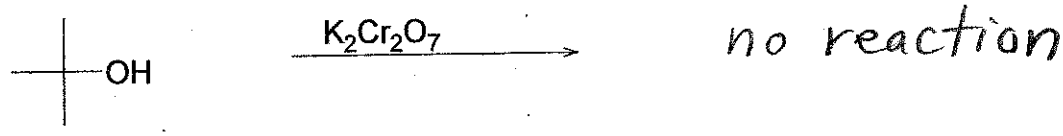
a. 

b. 

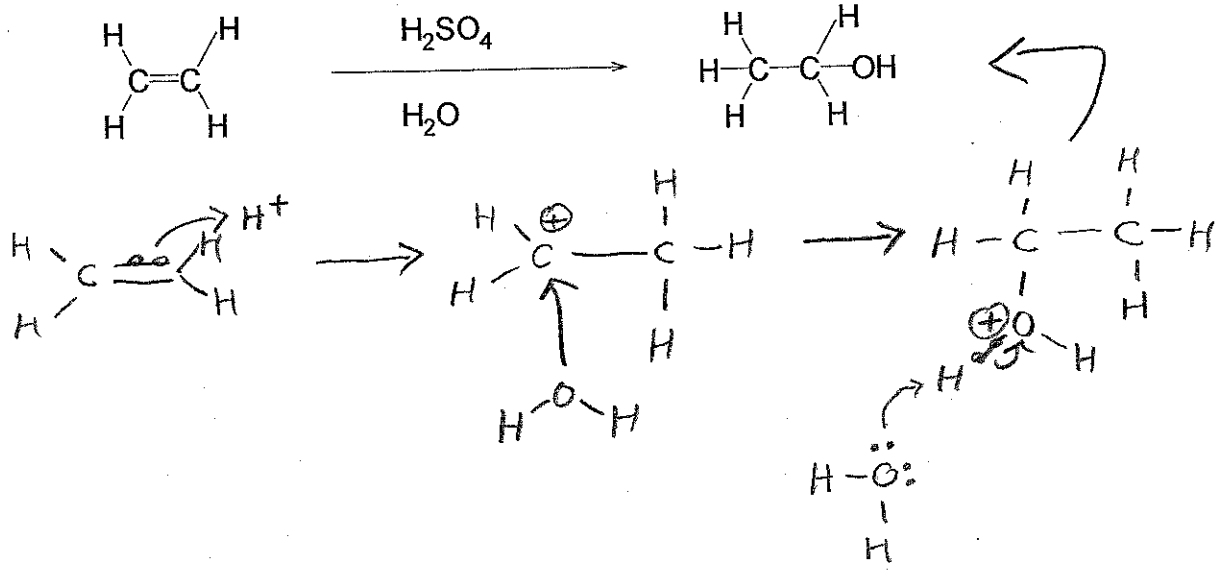
c. CH_3CH_2OH 

d. 

e. 

10. Show a step by step mechanism with mechanistic arrows for each of the following reactions. (8 pts)

a.



b.