

Your Name _____

Your Lab Instructor's Name _____

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

Periodic Table of the Elements
 Ground State Electron Configurations

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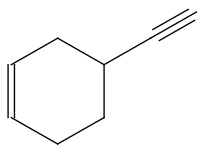
Lanthanides	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
	[Xe]5d ¹ 6s ²	[Xe]4f ¹ 6s ²	[Xe]4f ² 6s ²	[Xe]4f ³ 6s ²	[Xe]4f ⁴ 6s ²	[Xe]4f ⁵ 6s ²	[Xe]4f ⁶ 6s ²	[Xe]4f ⁷ 6s ²	[Xe]4f ⁷ 5d ¹ 6s ²	[Xe]4f ⁹ 6s ²	[Xe]4f ¹⁰ 6s ²	[Xe]4f ¹¹ 6s ²	[Xe]4f ¹² 6s ²	[Xe]4f ¹³ 6s ²	[Xe]4f ¹⁴ 6s ²
Actinides	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
	[Rn]6d ¹ 7s ²	[Rn]6d ² 7s ²	[Rn]5f ³ 6d ¹ 7s ²	[Rn]5f ⁴ 6d ¹ 7s ²	[Rn]5f ⁵ 6d ¹ 7s ²	[Rn]5f ⁶ 6d ¹ 7s ²	[Rn]5f ⁷ 6d ¹ 7s ²	[Rn]5f ⁸ 6d ¹ 7s ²	[Rn]5f ⁹ 6d ¹ 7s ²	[Rn]5f ¹⁰ 6d ¹ 7s ²	[Rn]5f ¹¹ 6d ¹ 7s ²	[Rn]5f ¹² 6d ¹ 7s ²	[Rn]5f ¹³ 6d ¹ 7s ²	[Rn]5f ¹⁴ 6d ¹ 7s ²	[Rn]5f ¹⁴ 6d ¹ 7s ²

* values are based on theory and are not verified

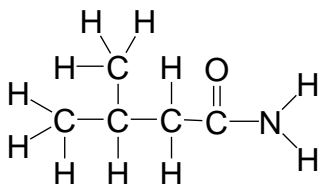
Good luck on this exam!

Please try to relax. Remember it is your job to simply SHOW ME WHAT YOU KNOW.

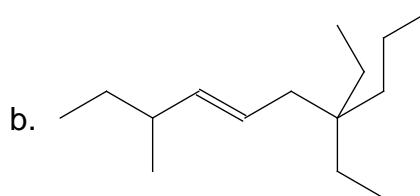
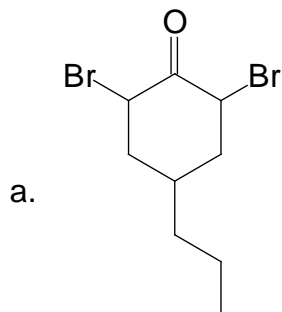
1. Convert the following structure from Line Bond Notation to a Lewis Structure. (8 pts)



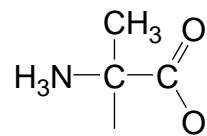
2. Convert the following Lewis Structure to Line Bond Notation. (8 pts)



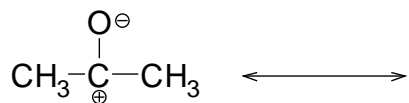
3. Give the official IUPAC name for each molecule shown below. (12 pts)



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



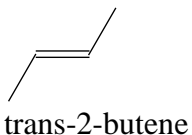
5. Draw a resonance structure for the molecule shown below. If your resonance structure has any formal charges, be sure to show them clearly. (12 pts)



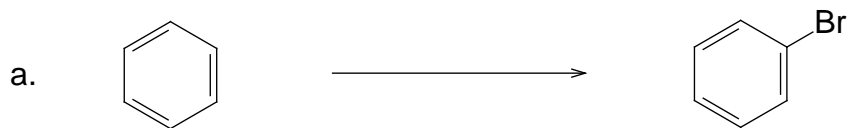
6. Two resonance forms of the same molecule are shown below. Draw arrows to show how the structure on the left would convert to the structure on the right and how the structure on the right would convert to the structure to the left. (12 pts)



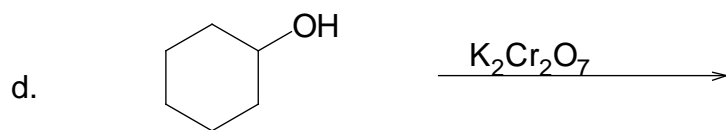
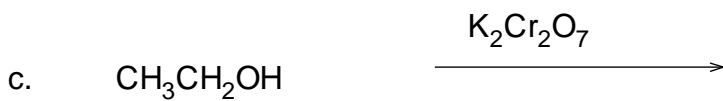
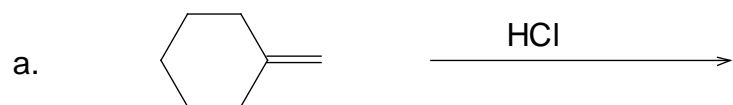
7. Draw the structure of the polymer that would form upon polymerization of trans-2-butene. (4 pts)



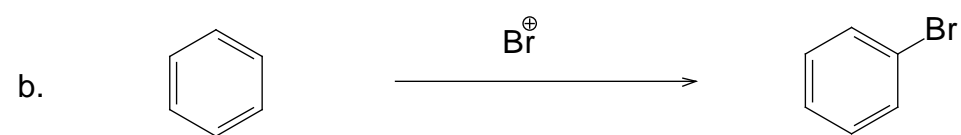
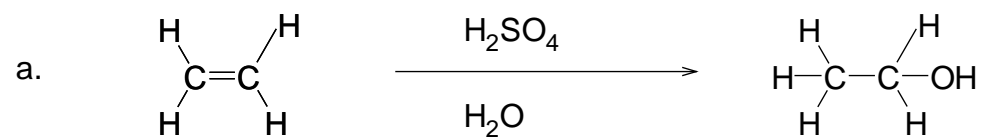
8. Fill in the missing reagent needed to accomplish each of the following reactions. (8 pts)



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

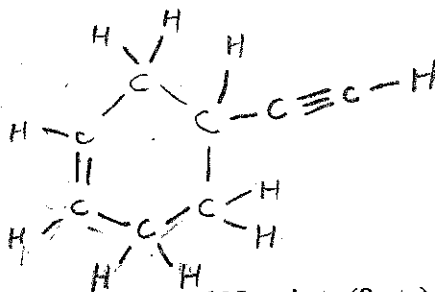
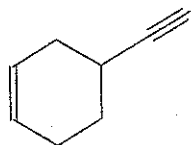


10. Show a step by step mechanism with mechanistic arrows for each of the following reactions. (8 pts)

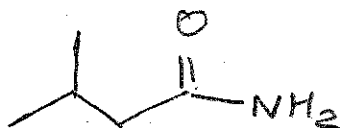
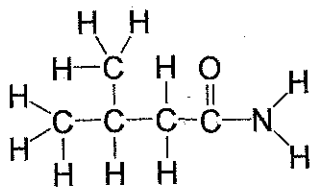


key

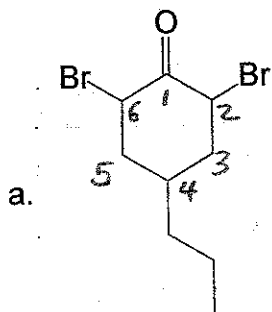
1. Convert the following structure from Line Bond Notation to a Lewis Structure. (8 pts)



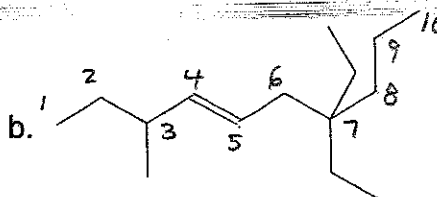
2. Convert the following Lewis Structure to Line Bond Notation. (8 pts)



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

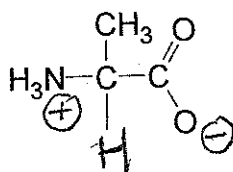


2,6-dibromo-4-propyl cyclohexanone

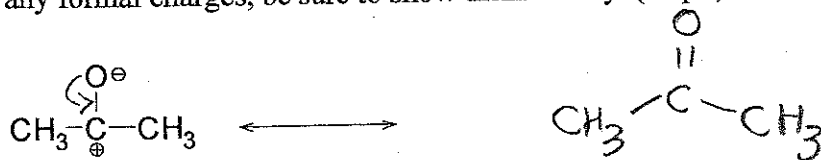


7,7-diethyl-3-methyl-4-decene

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



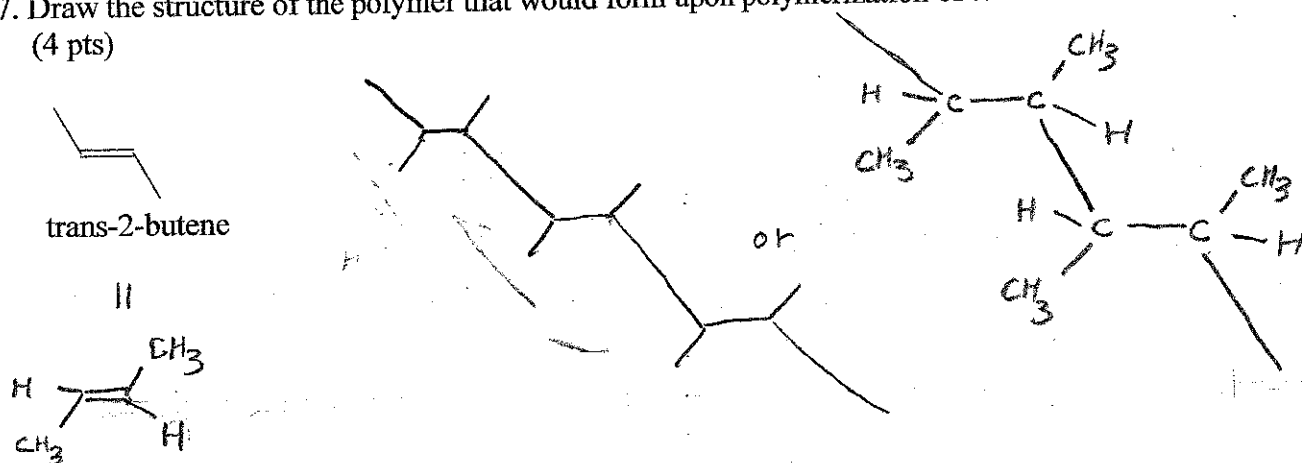
5. Draw a resonance structure for the molecule shown below. If your resonance structure has any formal charges, be sure to show them clearly. (12 pts)



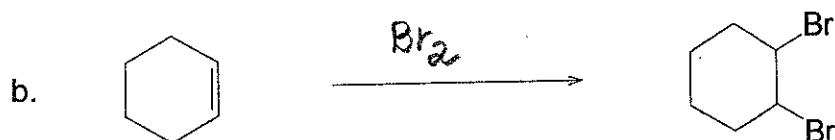
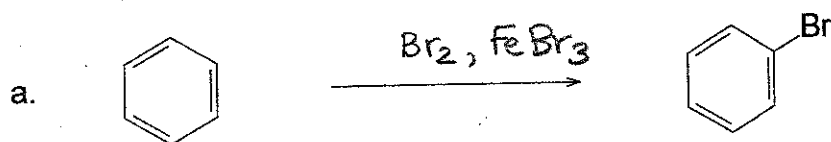
6. Two resonance forms of the same molecule are shown below. Draw arrows to show how the structure on the left would convert to the structure on the right and how the structure on the right would convert to the structure to the left. (12 pts)



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

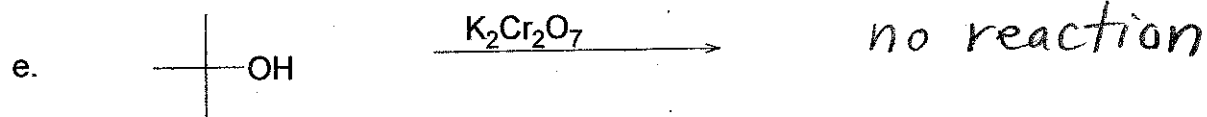
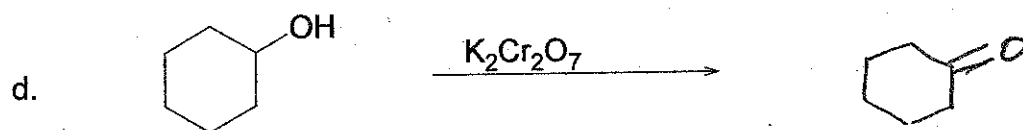
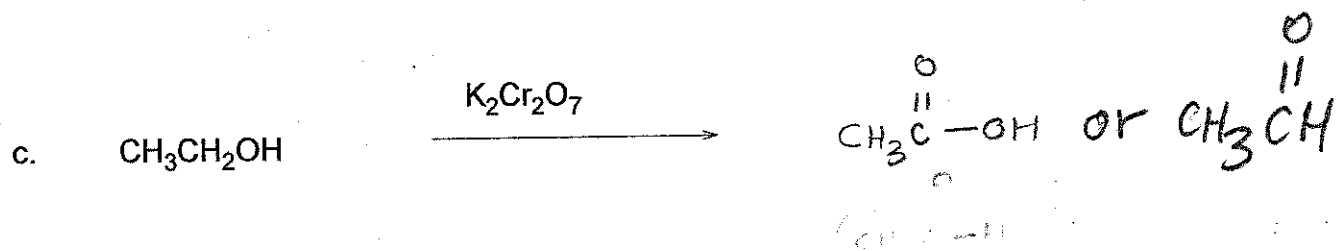
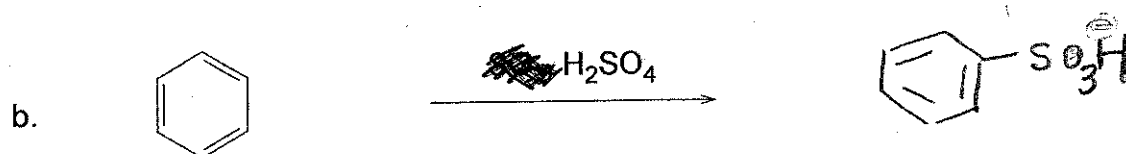
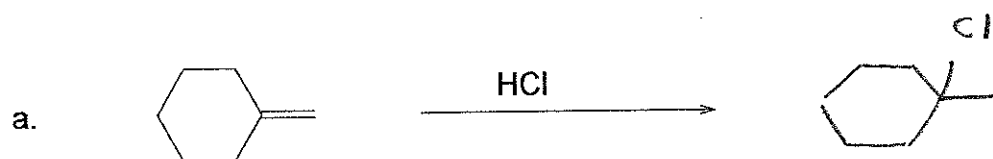


8. Fill in the missing reagent needed to accomplish each of the following reactions. (8 pts)



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

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



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

