

Chemistry 325  
Summer, 2008  
Examination #3  
Thursday, July 24, 2008

The time limit for this examination is 50 minutes. The maximum score possible for this examination is 100 points. You may use molecular models.

NAME: \_\_\_\_\_

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SECTION I. Nomenclature [10 pts]

1. Draw the structures of *S*-4-methyloct-2-yne. [5 pts]

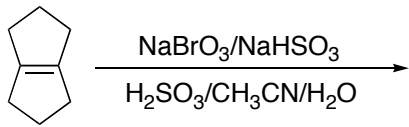
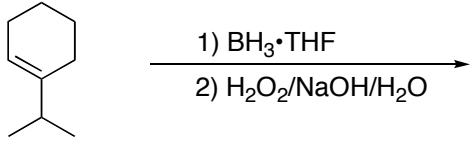
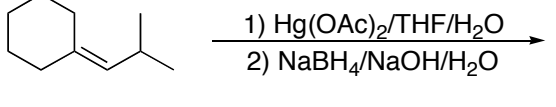
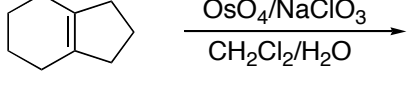


2. Write a correct name for the following compound [5 pts]:



SECTION II. Reactions and Theory [70 pts]

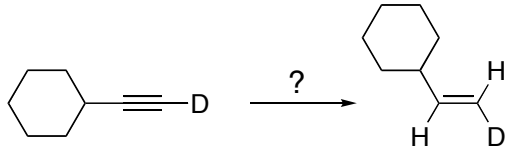
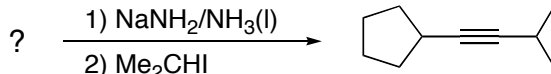
3. [5 pts. each; 40m pts total]. Complete the following reactions by drawing the structure of the major organic product.

(a)		
(b)		
(c)		
(d)		

(e)	<chem>CC(C)C#C &gt;&gt; [H2SO4/H2O, HgSO4]</chem>	
(f)	<chem>CC=CC &gt;&gt; [Br2/H2O]</chem>	
(g)	<chem>C1CC1C#C &gt;&gt; [H2/Pd-BaSO4, PbSO4/quinoline]</chem>	
(h)	<chem>C1CCCCC1C#C &gt;&gt; [1) NaNH2/NH3(l), 2) Me2CHCH2CH2I]</chem>	

6. [6 pts. each; 30 pts] Complete the following reactions by drawing the structure of the starting alkene or providing the structure of the missing reagent.

(a)	<chem>C1CCC2(C1)CC2 &gt;&gt; [?]</chem>	
(b)	<chem>? &gt;&gt; [NaBrO3/NaHSO3, H2SO3/CH3CN/H2O]</chem>	
(c)	<chem>C1CCC(CC1)C=C &gt;&gt; [?]</chem>	

(d)		
(e)		

SECTION III. Synthesis [20 pts]. Design a rational synthesis of the target molecule shown from compounds containing five or less carbon atoms. Your synthesis should yield only the stereoisomer shown (racemic compounds are permitted). Partial credit is available for this question, and points are explicitly allocated to stereochemistry.

