

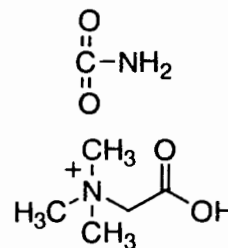
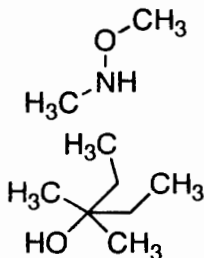
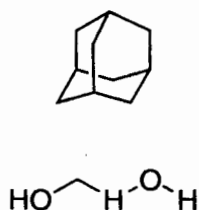
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Prof. Bode
Fall 2004, MWF 11-12

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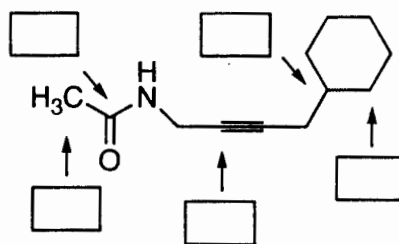
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Quiz 1 (33 points)

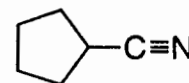
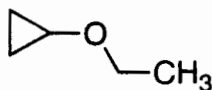
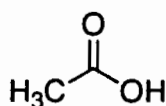
1. Circle the structures that represent permissible organic molecules under the rules of bonding and connectivity covered in this course? (12 points)



2. Identify the hybridization (i.e. sp₃, sp₂, etc.) of each of the indicated atoms in the following molecule. (5 points)



3. Name the functional group, other than alkane, found in each of the following molecules. (6 points)

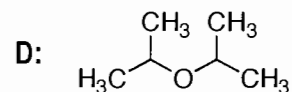
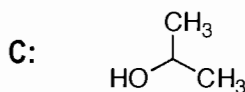
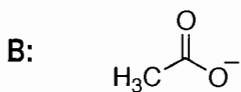
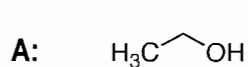


4. Draw two resonance structures for the following compound. (10 points)



Quiz 2 (33 points)

1. Rank the following molecules in order of nucleophilicity (4 points).



Strongest Nucleophile

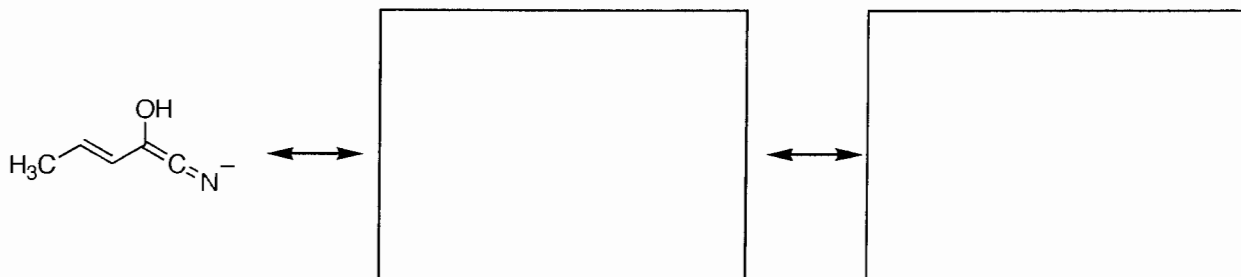
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Weakest Nucleophile

2. Draw two resonance structures for the following compound. (8 points)



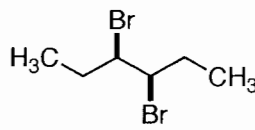
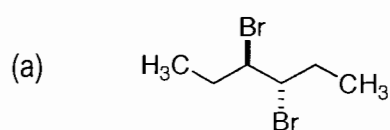
3. Label the relationship between each of the pairs of compounds as one of the following: (12 points)

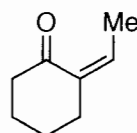
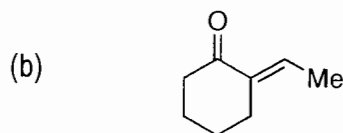
D: diastereomers

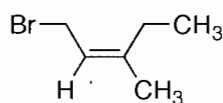
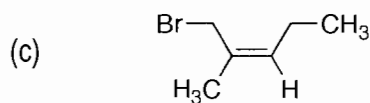
E: enantiomers

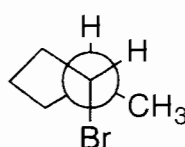
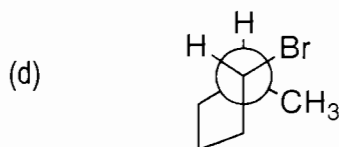
CI: constitutional isomers

S: same compound





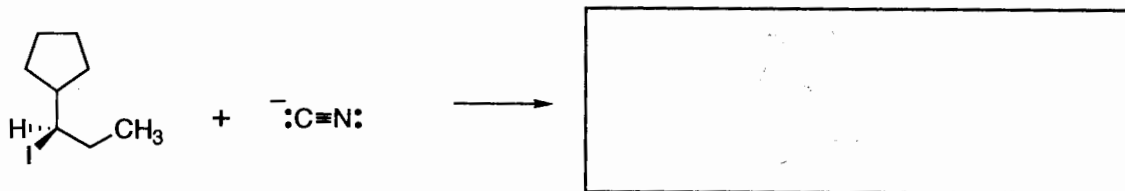




4. Assuming they are prepared in enantiomerically pure form, **circle** all of the molecules in question 3 that would rotate plane polarized light. (8 points)

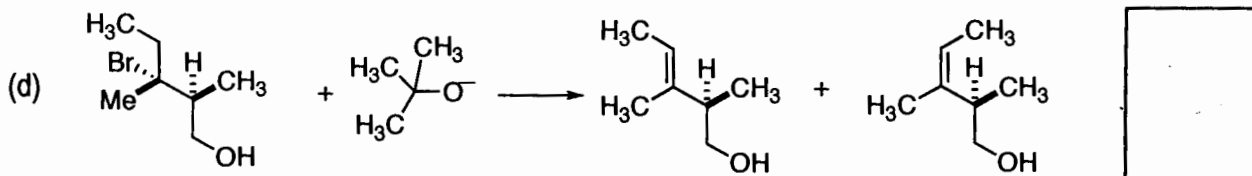
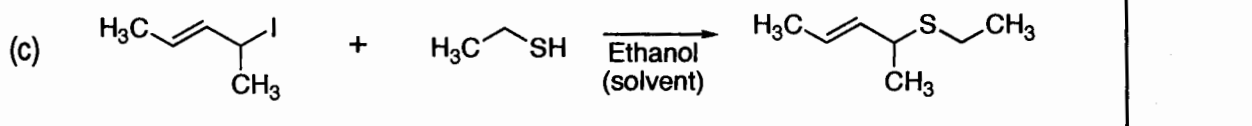
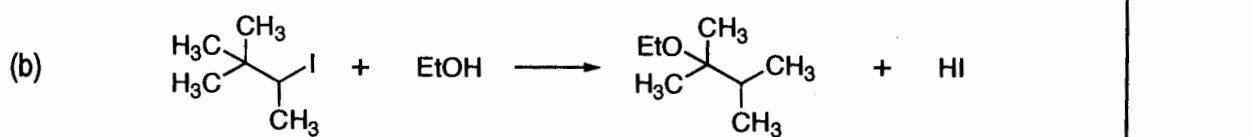
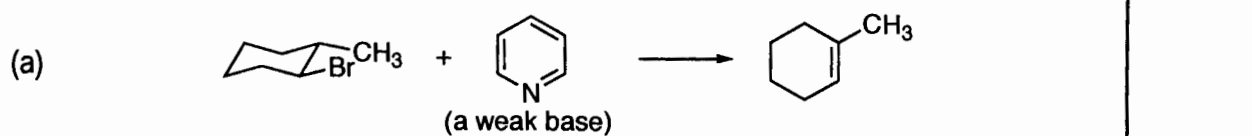
Quiz 3 (33 points)

1. (a) Draw the product of the following S_N2 reaction. (8 points)

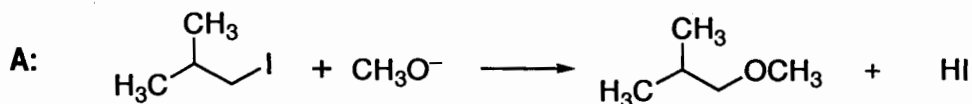


- (b) What is the absolute configuration of the product [(R) or (S)]?

2. By which mechanism does each of the following reactions proceed (S_N2, S_N1, E2, or E1)? (20 points)



3. Which of the following S_N2 reactions will be FASTER? (5 points)



or

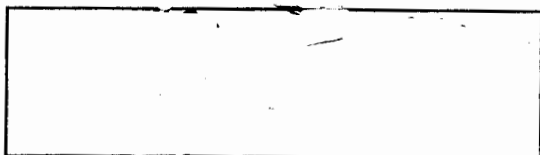
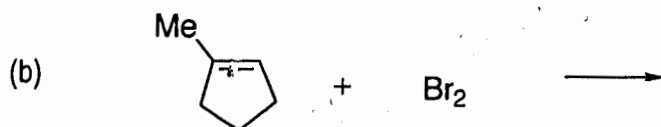
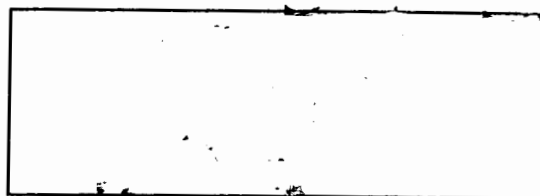
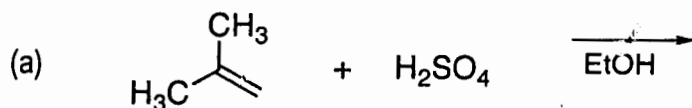


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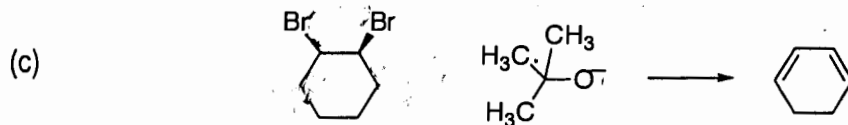
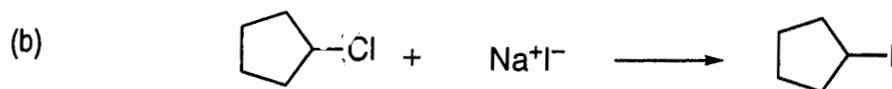
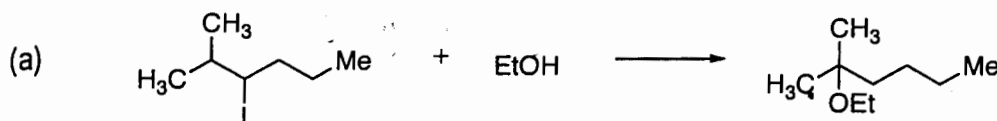
Quiz 4 (33 points)

1. Draw the product of the following reactions. (12 points)

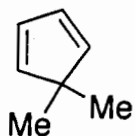


(c) Will the product of this reaction rotate polarized light (Yes or No)?

2. By which mechanism does each of the following reactions proceed (S_N2 , S_N1 , E2, or E1)? (12 points)



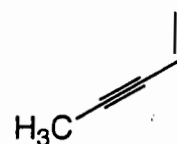
3. How many degrees of unsaturation does each of the following molecules have? (9 points)



(a)



(b)



(c)

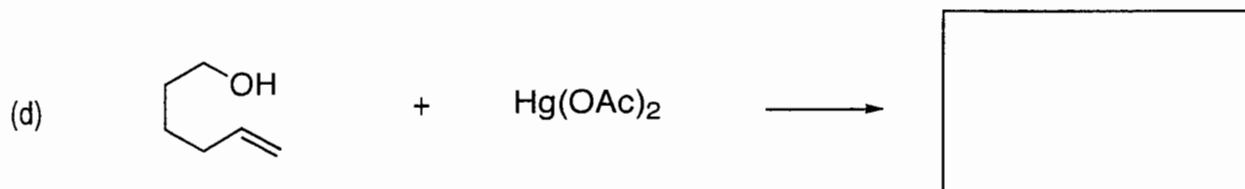
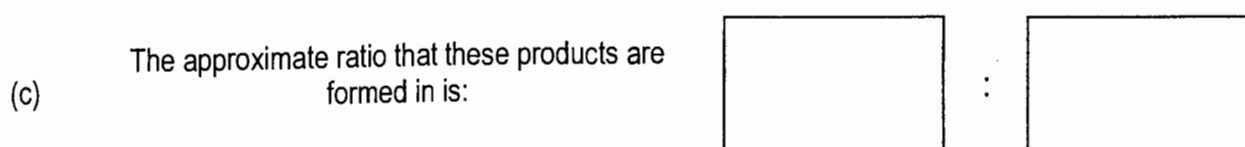
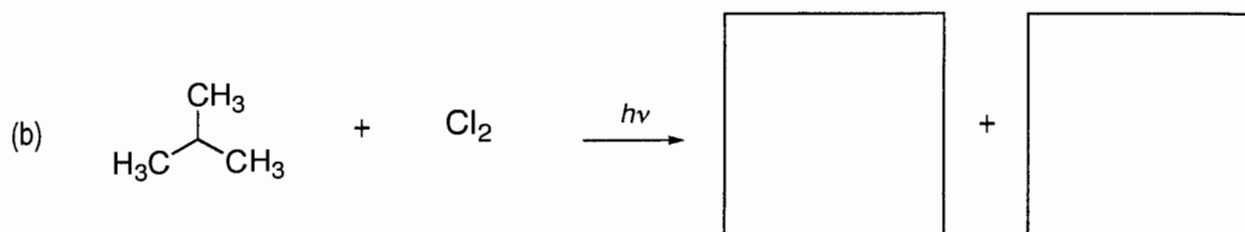
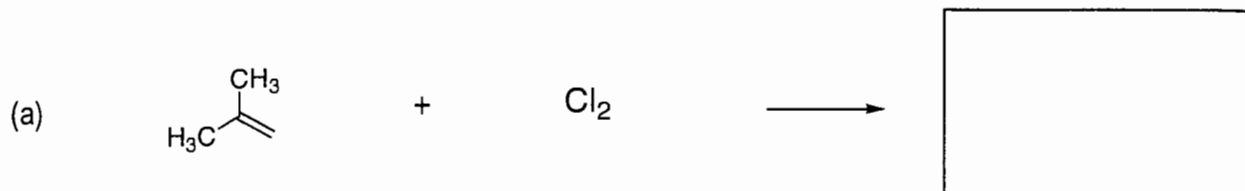
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Quiz 5 (33 points)

1. Give the products from the following reactions. (20 points)



2. Draw the following molecules, clearly showing the hybridization of the carbons (12 points):

(a) $\text{CH}_3\cdot$ {methyl radical}	(b) CH_3^- {methyl anion}	(c) $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_3$