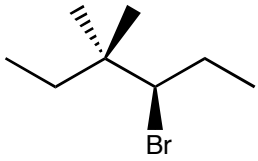
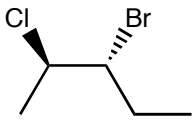
Name _____ Test 2
PHYS 0201 (Organic) Fall 2006

1. (5 pts. each) Newman projections

a. Draw a Newman projection along the C_3–C_4 bond in 3,3-dimethyl-4-bromohexane.



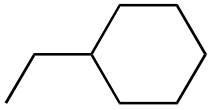
b. Draw a Newman projection along the C_2–C_3 bond in 2-chloro-3-bromopentane.



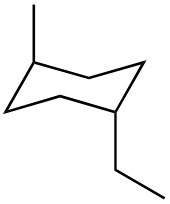
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

2. (4 pts. each) Draw the lowest energy forms of the following molecules

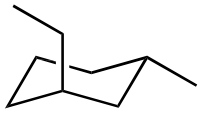
a.



b.

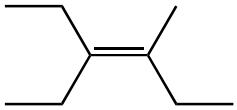


c.

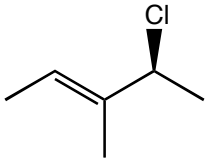


3. (3 pts. each) Determine whether the following molecules are the *Z* or *E* conformers. If the *Z* and *E* nomenclature is not required for the alkene in question, write neither.

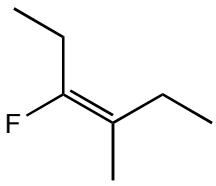
a.



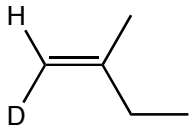
b.



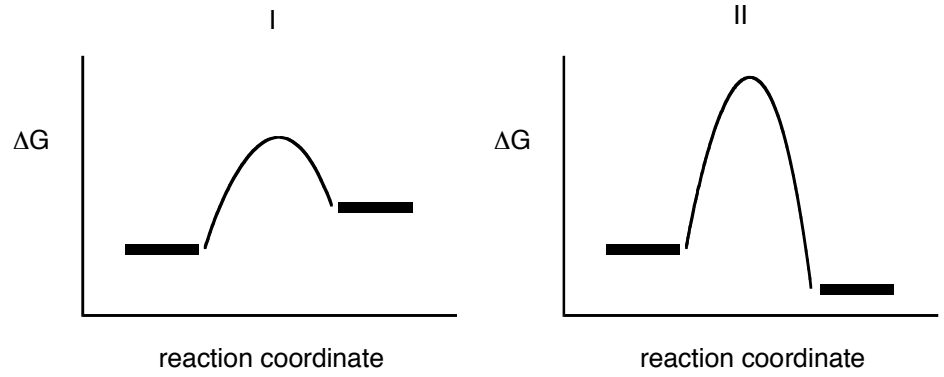
c.



d.



4. The following questions refer to the energy level diagrams drawn below.

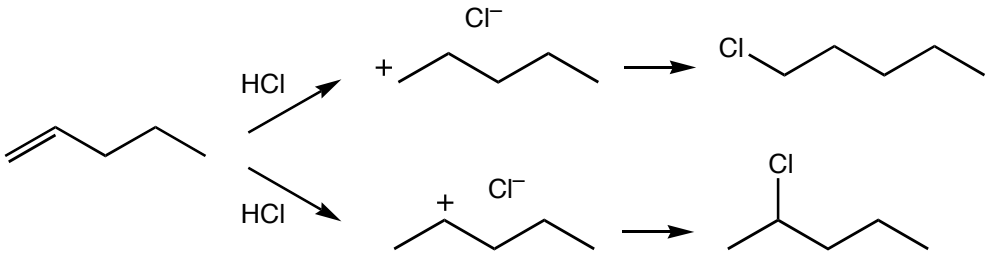


a. (3 pts.) Which reaction is faster?

b. (3 pts.) Which reaction has a more favorable equilibrium constant?

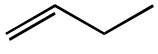
c. (3 pts.) Which reaction has a negative ΔG?

5. (10 pts.) The reaction of HCl with 1-pentene produces 2-chloropentane.

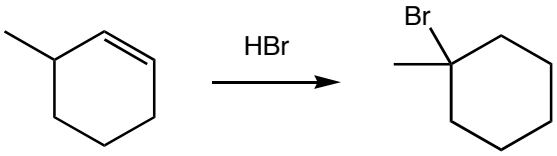


Explain why 2-chloropentane is produced instead of 1-chloropentane.

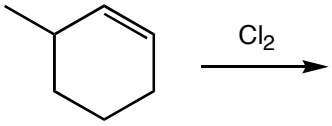
6. (2 pts. each) Label each of the following as nucleophile, electrophile, or neither.

Cl^-	H^+	
HSO_4^-	$Hg(O_2CCH_3)_2$	H_2O
Cl_2	HI	I^-

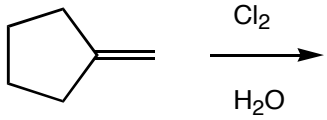
7. (10 pts.) Draw a mechanism for the following reaction.

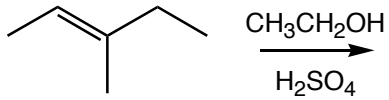


8. (10 pts.) Predict the product of the following reaction, and explain why this reaction's intermediate does not rearrange.



9. (6 pts. each) Predict the major product(s) for the following reactions.

a. 

b. 

c.