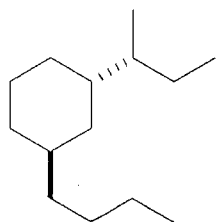
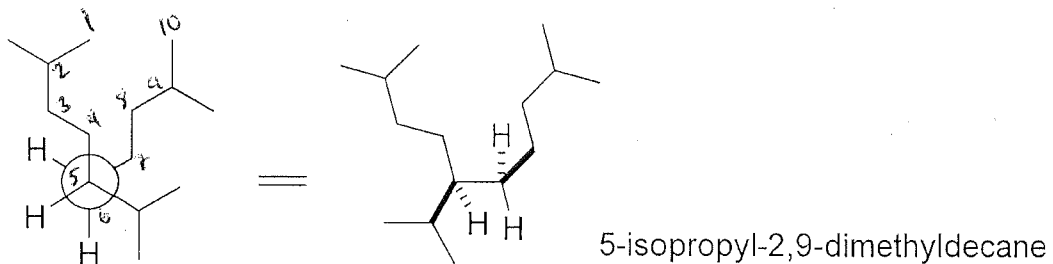


Exam 1
Organic Chemistry CH 334
October 17, 2012

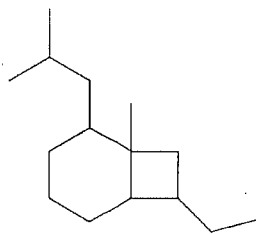
In-class number _____

Name (last, first) _____

1. Name the following compounds. (15 pts)

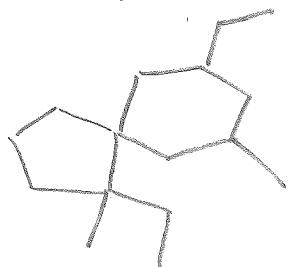


trans-1-sec-butyl-3-butylcyclohexane

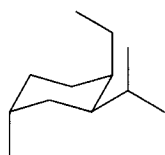


7-ethyl-2-isobutyl-1-methylbicyclo[4.2.0]octane

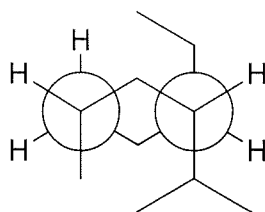
2. Draw 1,7-diethyl-1,9-dimethylspiro[4.5]decane in bond line. (5 pts)



3. The following compounds are _____. (circle your answer) 9 pts

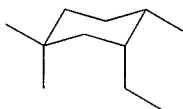


constitutional/structural
isomers

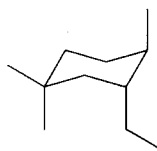


conformational
isomers

stereoisomers

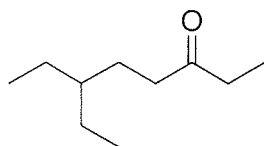


constitutional/structural
isomers

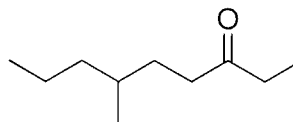


conformational
isomers

stereoisomers



constitutional/structural
isomers

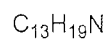
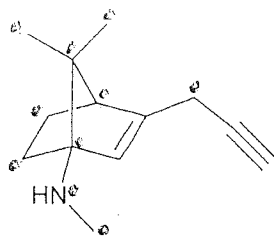


conformational
isomers

stereoisomers

4. Answer the following questions about compound X.

a. What is the molecular formula (mf) for compound X? (3 pts)

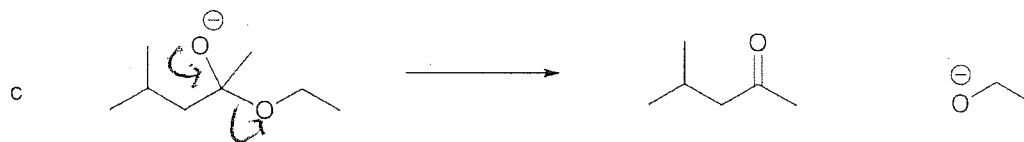
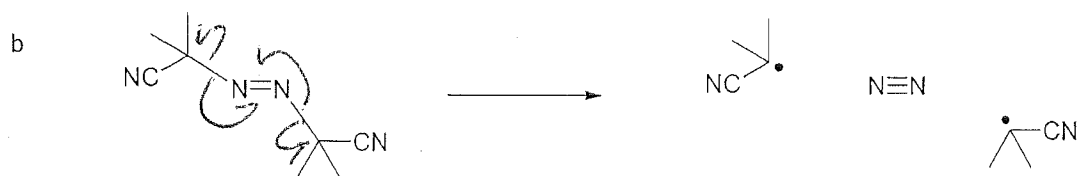
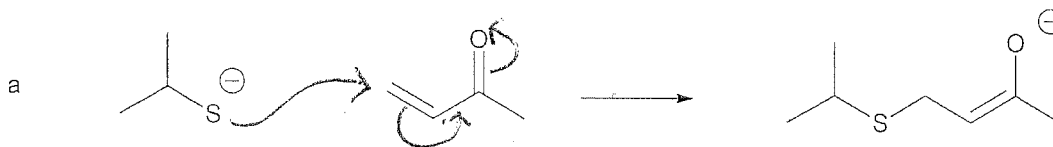


b. Compound X has 10 sp^3 atoms (2 pts)

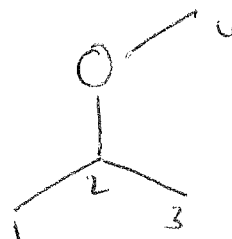
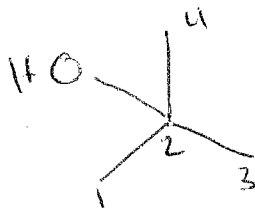
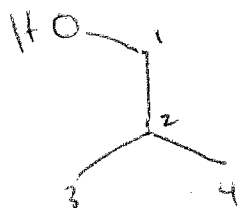
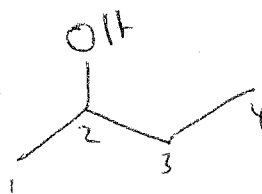
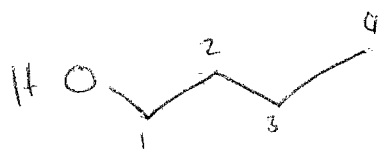
compound X

c. Compound X has 2 sp atoms (2 pts)

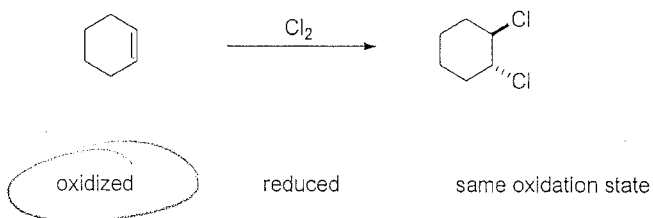
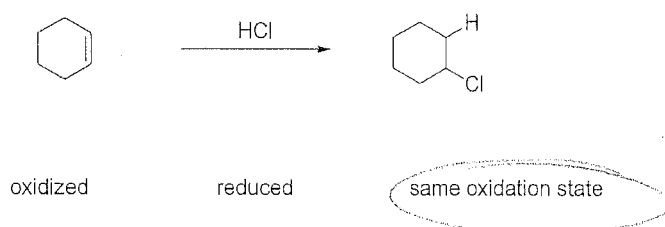
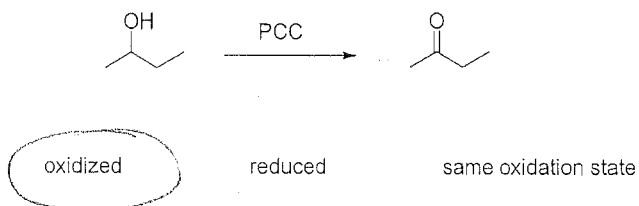
5. Fill in the missing curved arrows (electron pushing) for the following reactions. (18 pts)



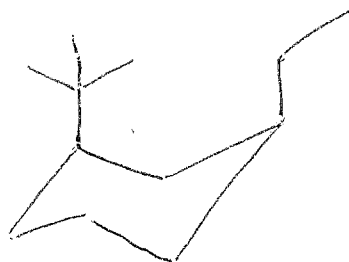
6. Draw, in bond line, all the structural isomers that have the molecular formula $C_4H_{10}O$.
(14 pts)



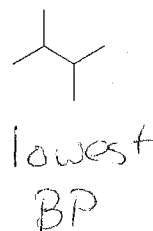
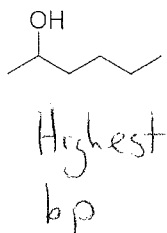
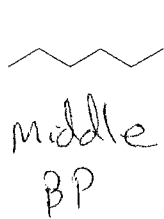
7. In the following reactions, decide if the organic molecule (not just a single atom) is oxidized, reduced, or is at the same oxidation state. Please circle your answer. (9 pts)



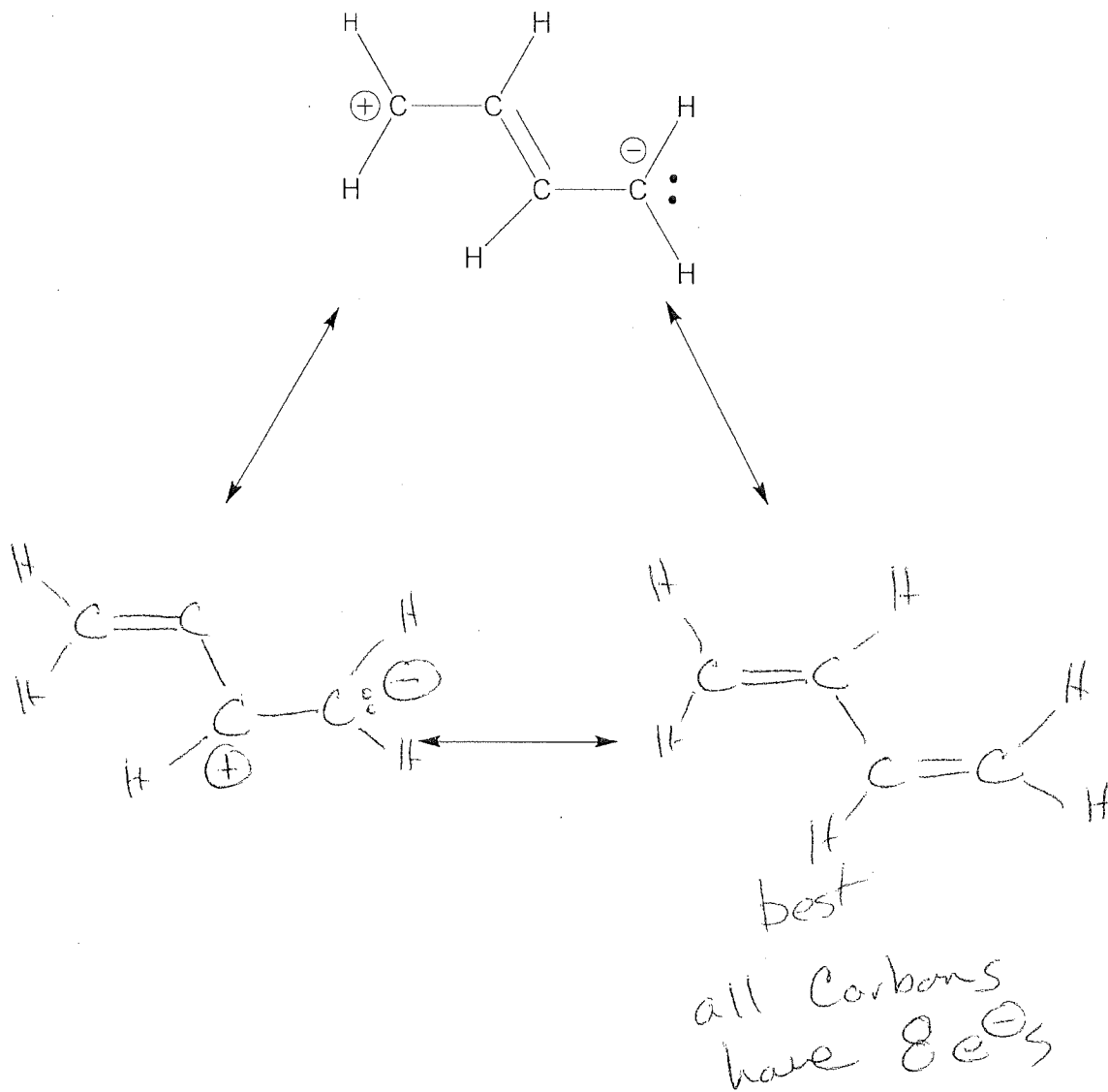
8. Draw *cis*-1-tert-butyl-3-ethylcyclohexane in its **least** stable conformation. (4 pts)
*** Poorly drawn chairs and bad bond angles **will cost points*****



9. Arrange the following compounds according to their boiling points by writing highest bp, middle bp, and lowest bp under the structure. (3 pts)

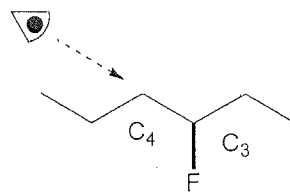


- 10 a. Draw two additional resonance structures for the following compound. (6 pts)
 b. Decide which is the better resonance structure and explain why you picked this structure. (3 pts)

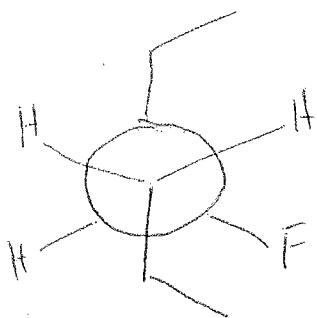


11. a. Write Newman projections for the three staggered conformations of 3-fluorohexane, looking down the C4 - C3 bond. (6 pts)

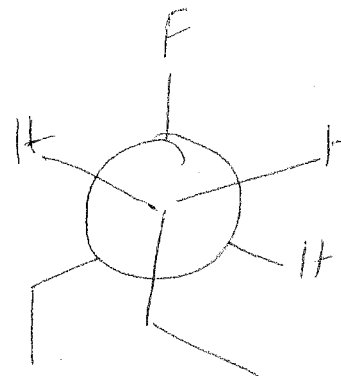
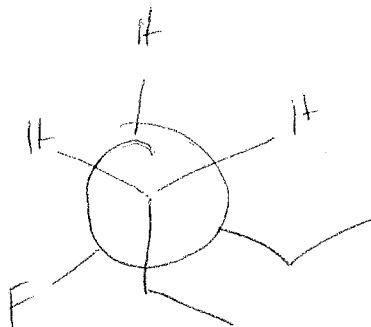
b. write most stable under the most stable conformation. (1 pt)



3-fluorohexane



Most stable



*****Insurance Question (5 pts)*****

Circle the structural isomers of $C_{12}H_{20}O$. All molecules have 12 carbons.

$IHD = 3$

