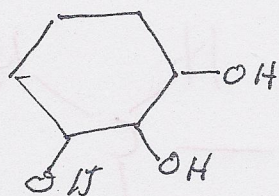


Scan Solutions to Problem

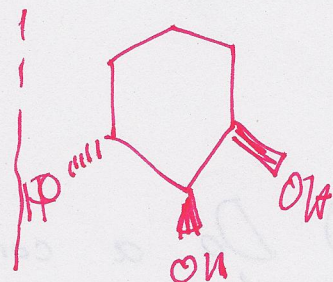
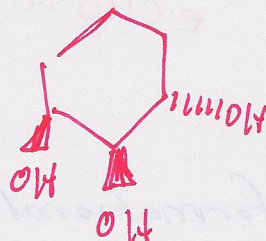
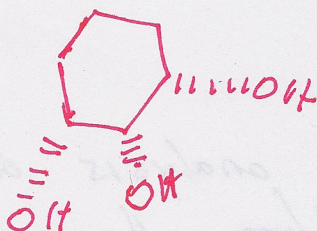
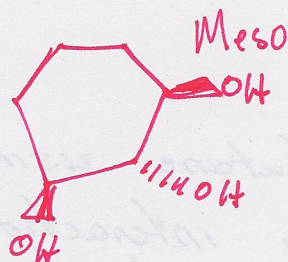
Worksheet 1 Friday

October 8, 2010

① Draw all stereoisomers

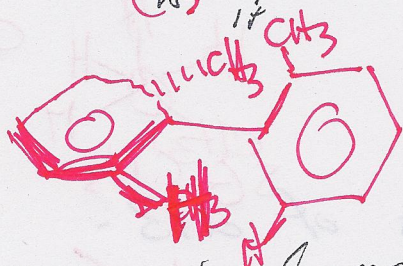
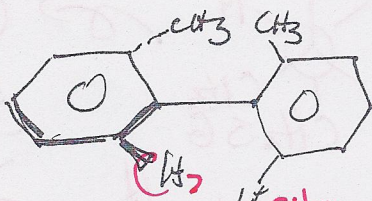


Establish relationships
State whether or not each molecule is chiral
I identify Meso compds.

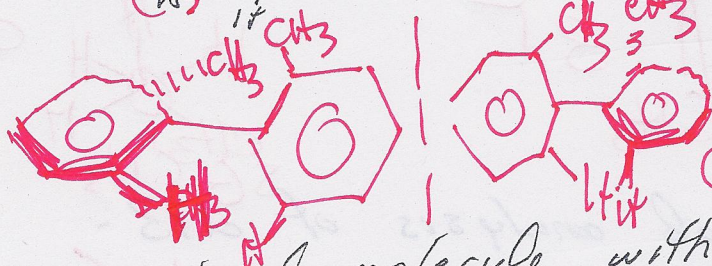
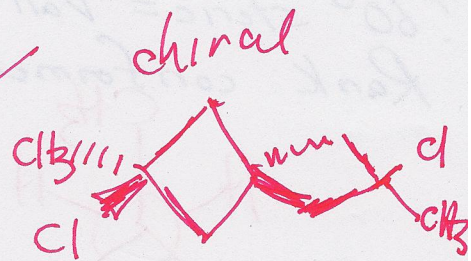
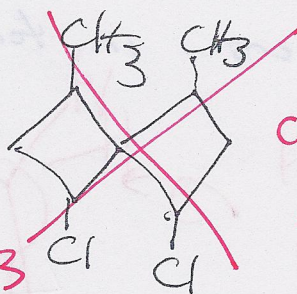


2. Is the molecule chiral

a.



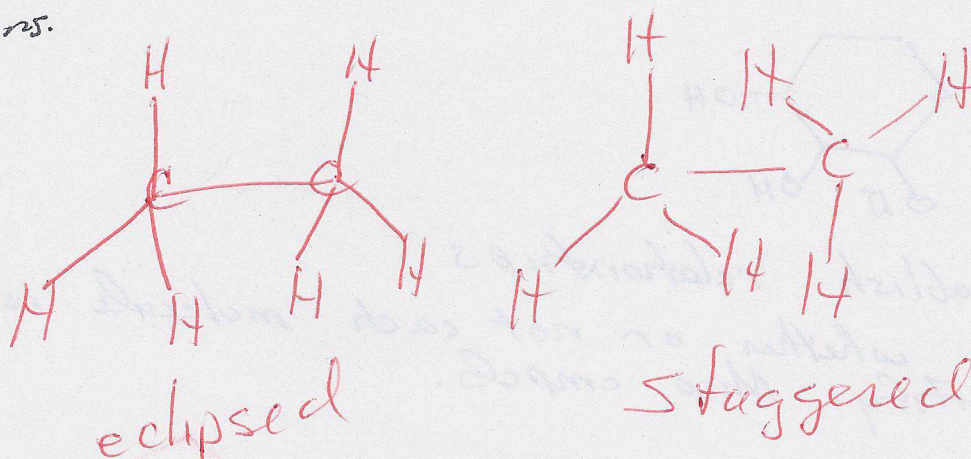
b.



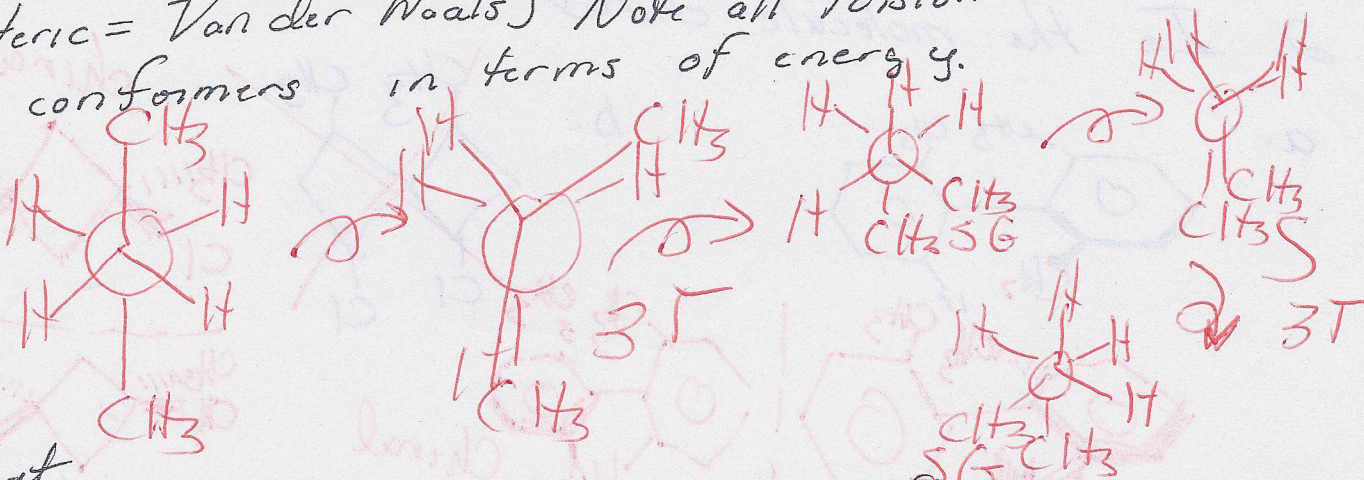
3. If a chiral molecule with one asymmetric carbon has a carbon and an "S" asymmetric carbon has a specific optical rotation of $+60^\circ$ and a sample believed to be this compound gives a specific optical rotation of $+40^\circ$, what is the % optical purity. ~~What~~ If the only possible contaminant is the "R" molecule, what is the ratio of S:R in the sample.
See attached

Worksheet 2. FRIDAY, October 8, 2010

① Draw the sawhorse and Newman projections of ethane in eclipsed and staggered conformations.

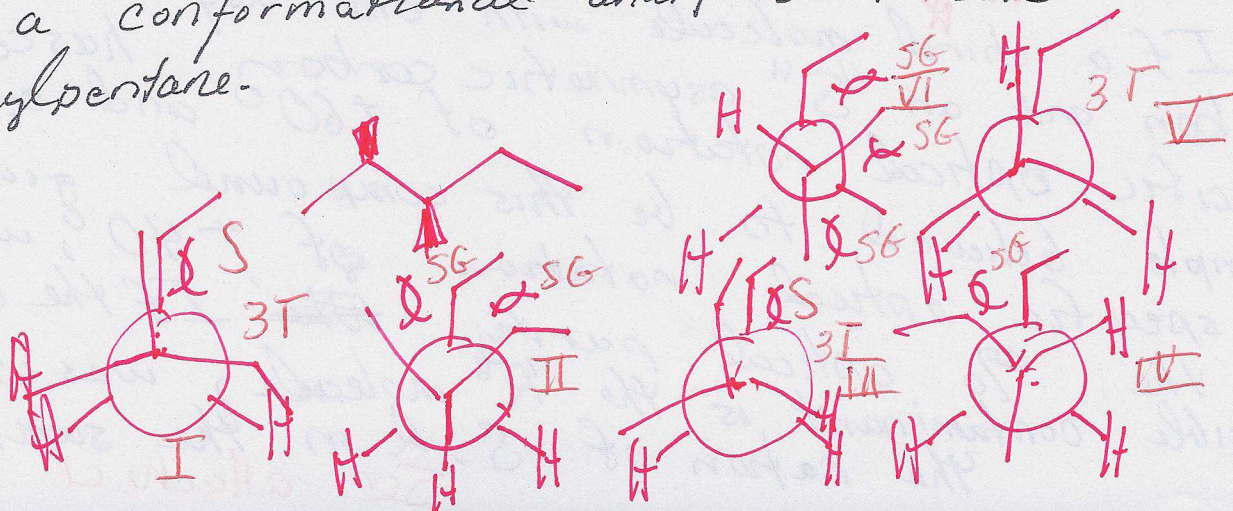


② Do a conformational analysis of butane using Newman projections. Note all gauche interactions (60° steric = Van der Waals). Note all torsional interactions. Rank conformers in terms of energy.



Carryout

③ Do a conformational analysis of 2,3-dimethylpentane.



#3-

$$S + 60 = [α]_{25}^{25}$$

$$\text{Contaminated} = +40^\circ = [α]_{25}^{25}$$

∴ sample if presumed to be
at most consisting of enantiomers
Sample is Net S but
has some racemate

$$\% \text{ optical purity} = \frac{40}{60} \times 100 = 66.7\%$$

Assuming the rest is racemate ^{S free and clear}
& rest is racemate

66.7 is S other 33.3 is
a 50:50 mixture
racemates

$$\begin{aligned} & \text{if } 100 \text{ molecules} \\ & 66.7 + \frac{1}{2} 33.3 = S = 83.4\% \\ & \frac{1}{2} 33.3 = R = 16.6\% \end{aligned}$$

Name: _____

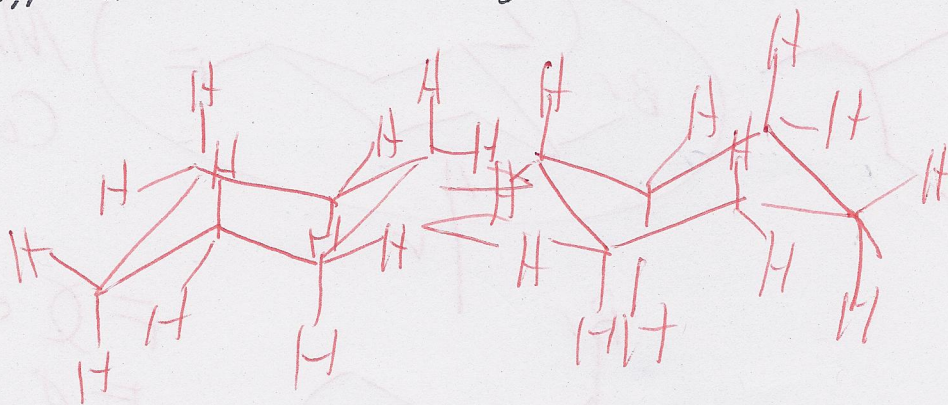
Date: _____

Quiz no. 6
Chem 211
Fall 211
Nerz

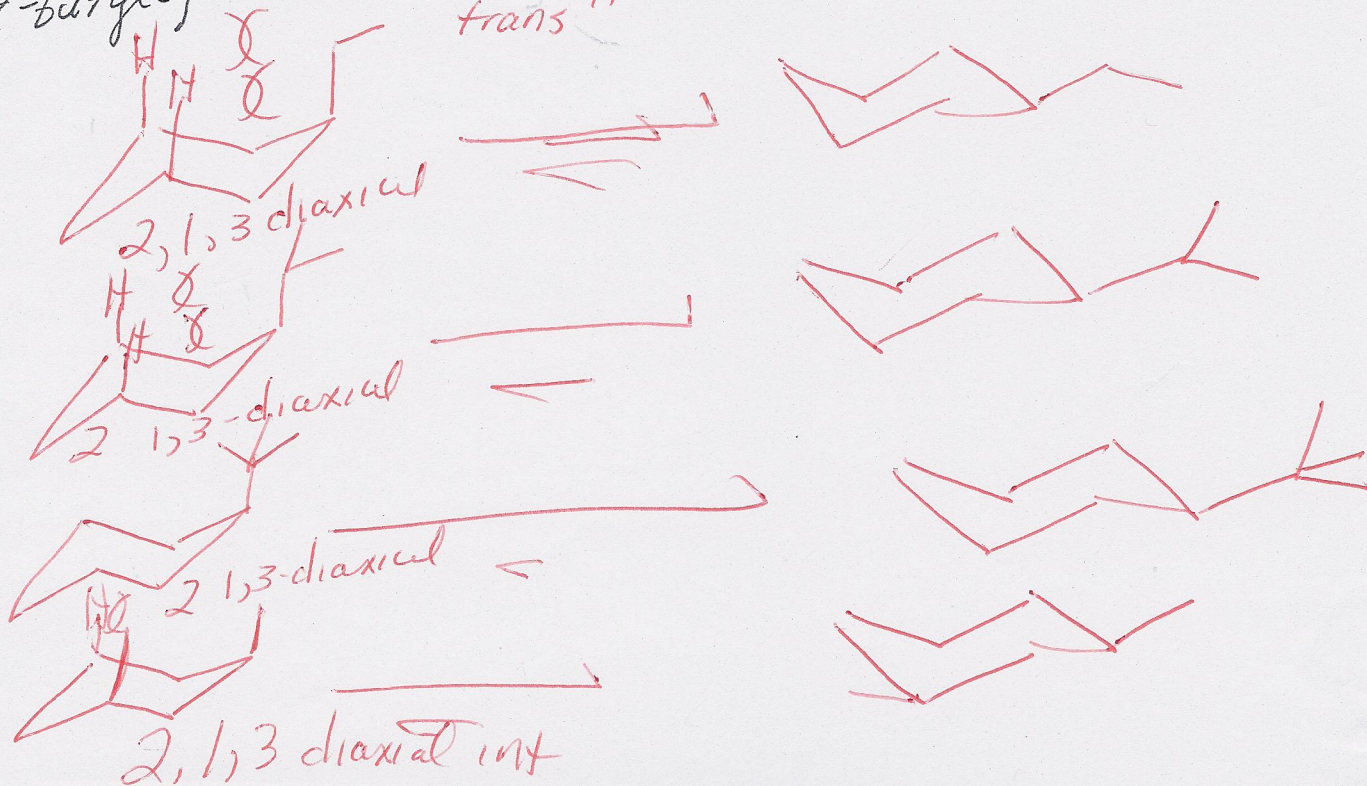
Using Newman projections, carry out a conformational analysis of 3R, 4R 3, 4 - dimethylhexane. Identify the lowest and highest energy conformers. 16 points

You have 12 minutes to complete the quiz and then the quiz will be collected promptly.

③ Draw the two chairs two times each (the flipped chairs). Write in all axial and equatorial hydrogens.



④ Carry out a conformational analysis of ethylcyclohexane, isopropylcyclohexane, *t*-butylcyclohexane, *cis* 1,3-diethylcyclohexane, *trans* "



5. Write the most stable conformation of (1R,2S,4R)-1-bromo-2-ethyl-4-fluorocyclohexane

