Quiz no. 5
Chem 211
Fall 2006
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This will count as a quiz, but it is open book, notes and there is no time limit (though you are encouraged to finish it up in 30-40 minutes or so). Due: Monday after break

Please answer the following questions succinctly in the space provided. No essays please.

1. Using conformational analysis (you must write structures and delineate energy raising interactions) explain the following energies regarding 1,3-diaxial interactions in substituted cyclohexanes. 5 points

   ethyl-hydrogen, 1,3-diaxial interaction 0.95 kcal/mol
   isopropyl-hydrogen, 1,3-diaxial interaction 1.1 kcal/mol
   t-butyl-hydrogen, 1,3-diaxial interaction 2.7 kcal/mol

   For those calibrated in kj - 5 kcal/mol is about 20 kj/mol

2. Draw the lowest energy conformation for 1R, 2S, 4R-1,4-diethyl-2-isopropylcyclohexane. 5 points
3. The following labeled bottles were found in a chemistry lab. If the contents of the bottles are studied by polarimetry, which should give an optical rotation? (5 points)

- 3R, 5S-dimethylheptane
- 1-ethyl-4-iodocyclohexane