

Organic Chemistry Week 3 test. 15th May 2009

1. One of the main differences between an alkene and alkane is the reactivity. What is the reason for this difference and how does it change the isomerism?
2. Alkanes have sp^3 hybridisation, while alkenes have sp^2 . What difference does this make?
3. Why do alkanes not show optical isomerism?
4. Define the term "structural isomerism" and give 2 examples. Your starting compound for this is octane.
5. What are the three steps for halogenation of an alkane and give an example of each. You should include any possible products and conditions for the first step.
6. Draw the following molecules
 - i. 1,3,5-dibromo, 2-chloro-cyclohexane (boat form)
 - ii. 1,1,1-trichloroethane
 - iii. 1-methyl, 3,3-diiodo-cyclobutane
 - iv. 1-ethyl, 2,4,6-trimethyl-cyclohexane (chair form)
 - v. 1-chloro, 3-cyclopropane, 4-iodo-pentane
7. Why is cyclobutane more stable than cyclopropane?