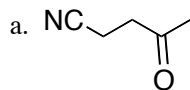


Fall 2006

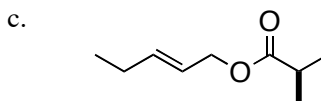
Homework #3

due: 10 a.m. Monday, September 19th

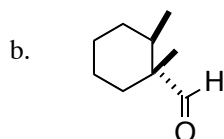
1. (12 points) Write out IUPAC names for each of the following:



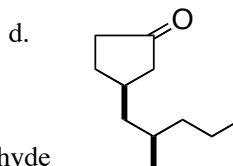
4-oxopentanenitrile



(2E)-2-pentenyl 2-methylpropanoate

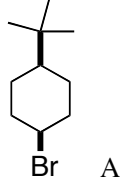


(1R, 2R)-1,2-dimethylcyclohexanecarbaldehyde

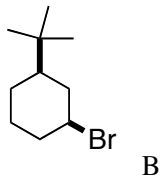


(3R)-3-((2R)-2-methylpropyl)cyclopentanone

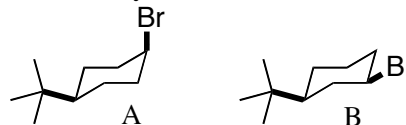
2. (12 points) a. Which is more stable, A or B? Why?



A

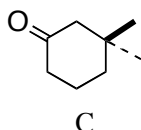


B

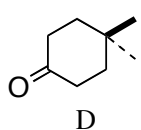


B is more stable. In more stable chairs, t-butyl group is equatorial, so in A, Br is axial, in B, Br is equatorial = more stable.

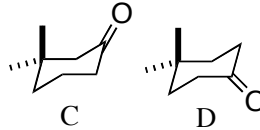
b. Which is more stable, C or D? Why?



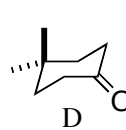
C



D



C



D

C is more stable. Symmetrical, so both chairs of C are the same, as are both chairs of D. One of the methyl groups has to be axial. In D, axial methyl sees two axial H's, in C only one.

3. (6 points) Reduction of **E** with Bu_3SnH gives **F**. Draw an arrow-pushing mechanism for the transformation of **E** to **F**.