C3045 Exam 2 1998 -- Answers



A is inert. Tertiary Halides undergo substitution and elimination by the SN1 or E1 mechanisms. These reactions involve the formation of a carbocation. The carbocation formed from A - shown above is much less stable that that from B because the bridged cation cannot become planar. Non-planar cations are less stable due to reduced stabilization.

- **2.** a. 1-chlorohexane: NuI in acetone indicated SN2 Conditions. SN2 is favored by less steric hindrance. Primary less sterically hindered than secondary.
 - b. 1-bromopentane: SN2 promoted by weaker, more polarizable bond when steric hindrance is not a factor
- 3. identical enantiomers diasteromers identical



1.



(has 4 not 3 kinds of carbons)

6 carbons but only 3 C13 signals: symmetry

IR --> C=c @ 1650 cm $^{-1}$ 1H NMR --> integrals, shifts, ok 13C NMR --> 3 kinds of C , shifts ok



SODAR = 0

5 Carbons but only 3 signals in C13 NMR - symmetry

IR --> O-H @ 3500 cm ⁻¹ 1H NMR --> 4 signals,

13C NMR --> 3 signals, shifts ok



symmetric stretch does not create a dipole moment whereas the antisymmetric stretch creates a dipole moment.

IR absorption requires creation of and interaction with a dipole -- so the antisymmetroc stretch give the stronger absorption