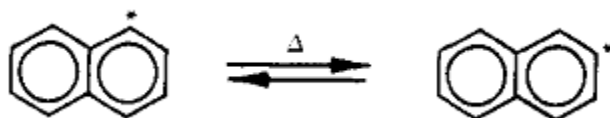
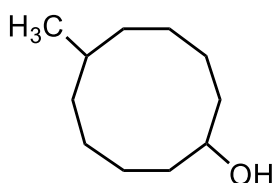


1) A <sup>13</sup>C-labelling experiment revealed a carbon shift in naphthalene at *very* high temperatures. Describe a mechanism for this transformation. Can you describe more than one? Which is most plausible?



2 a) The following tertiary alcohol was prepared as a 60:40 mixture of isomers. Upon exposing the material to FSO<sub>3</sub>H/SO<sub>2</sub>ClF, a spectrum with a highly upfield shifted proton was found to exist (~ -3.9 ppm). Explain this observation, consider that the t-butyl carbocation (formed from butylfluoride + SbF<sub>5</sub>) shows a singlet at 4.15 ppm.



b) The ketoalcohol A was subjected to the following sequence of reactions. Identify unknown products B-E. D is thought to exist predominantly in the enol form. D → E requires C-C bond cleavage.

