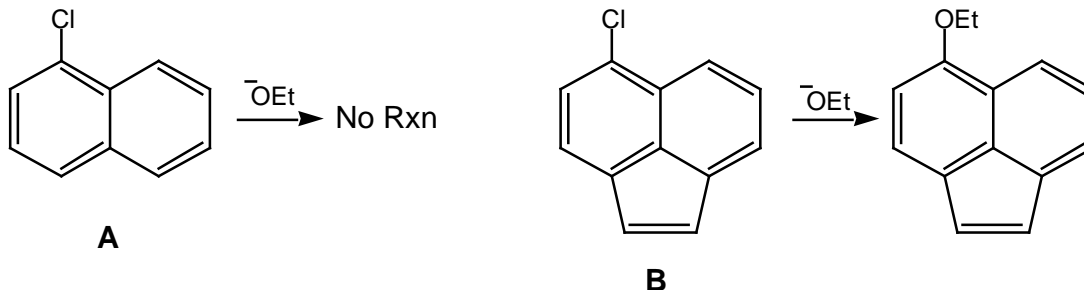
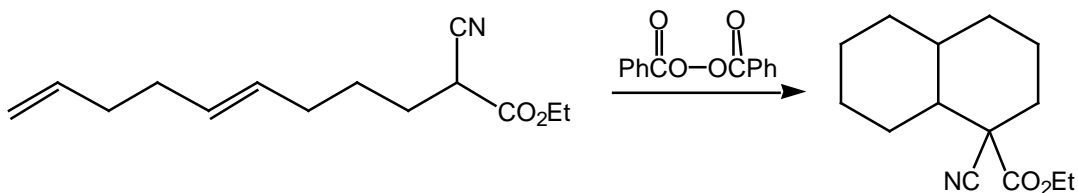


Problem Set #4
CH242-2002S

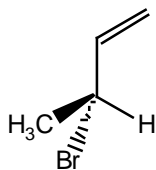
- [1] No reaction occurs when 1-chloronaphthalene (**A**) is treated with ethoxide. The related compound **B**, however, reacts smoothly to give a substitution product. Why?



- [2] Propose a reasonable mechanism for the following reaction.



- [3] In the absence of peroxides, addition of HBr across the double bond of the following compound gives two products one of which is optically inactive. However, in the presence of peroxides, HBr addition leads to a single optically active product. Explain.



- [4] (a) The mass spectrum of dibromomethane has three peaks at m/z 172, 174, and 176 in the ratio 1:2:1. Explain.
 (b) The mass spectrum of an unknown compound has a molecular ion peak with a relative intensity of 21.88% and an $M+1$ peak with a relative intensity of 1.69%. How many carbon atoms does the compound have?
 (c) One of the following isomers shows a base peak at m/z 119 and the other at m/z 105. Tell which isomer is responsible for which base peak, and why?

