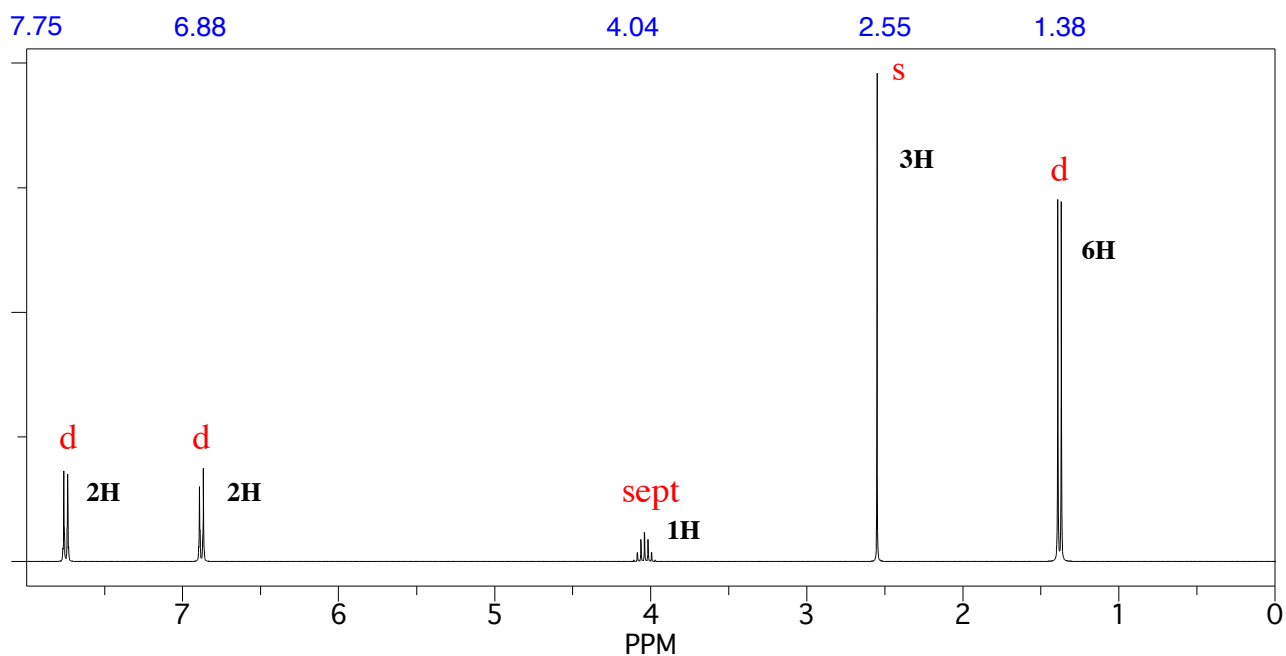
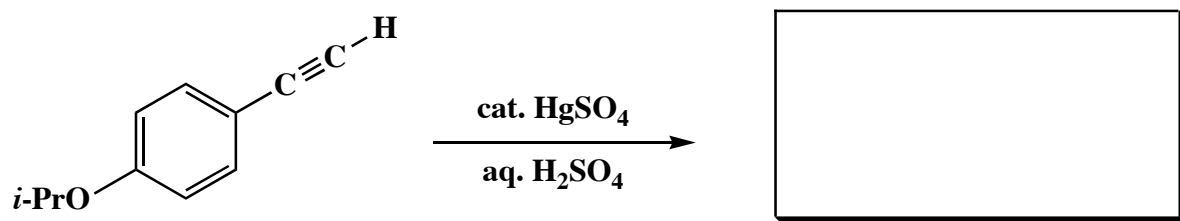


## Quiz #1

1. Draw the major organic product that is formed from the following reaction. The  $^1\text{H}$  NMR spectrum of the product is shown below. The labels next to each of the resonances signify the integrals and multiplicities observed in the spectrum (s = singlet, d = doublet, sept = septet). Use this spectroscopic evidence to determine the identity of the compound. Make clear assignments of all resonances to explain your reasoning. (A  $^1\text{H}$  NMR correlation table is included on page 4.)



**<sup>1</sup>H NMR assignments:**

**chemical shift (ppm)**

**assignment**

**explanation of multiplicity**

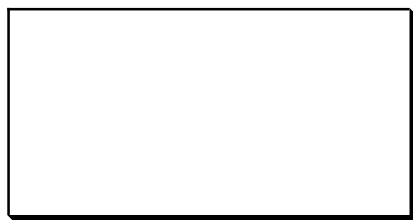
7.75

6.88

4.04

2.55

1.38



2. Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility. Finally, explain the mechanistic basis for the regiochemical and stereochemical control that is observed in this reaction.

