Chem 634 Exam 2 December 8, 2006 3 hours Prof. Fox

Your Name_____

1. Provide reagents for the following transformation. More than one step may be required. Do not write mechanisms.







2. Provide an arrow pushing mechanism 16 points



3. Provide an arrow pushing mechanism for the conversion of (R,R)-1 into (S,S)-2. Your answer must explain the stereospecificity of the transformation. 16 points



4. Provide structures for compounds A, B and C. Arrow pushing mechanisms are not necessary. However, be sure to indicate the relative stereochemistry.



CF₃ CF₃

20 points

5. The reaction of **1** with catalytic amounts of $Rh_2(OAc)_4$ produces styrene (**2**), presumably via the rhodium carbene intermediate **3**. A plausible mechanism is shown:





The reaction of 4 with $Rh_2(OAc)_4$ produces an intermediate 5 which rearranges to 6.



(a) Provide an arrow pushing mechanism for the transformations.

(b) Assign the stereochemistry of **5** as (E)- or (Z). Formulate your answer by assuming that the transformation of **5** into **6** is stereospecific. Provide a model for the transformation of **5** to **6** that explains the stereochemistry of **5**.

6. Suggest a multistep synthesis



