Chem 51A
Quiz 6 (10 points; 10 minutes)
November 28, 2005

Note: All quizzes will be photocopied prior to being returned. In the event of a grading error, please submit the original quiz along with a note explaining the grading error. Do not mark on or alter the quiz in any way. Any marks or alteration may be taken as evidence of academic dishonesty and may result in a failing grade in the class and a letter in the student’s file.

1. (Bruice, Problems 13, 28, 33, 6 points)
   a. Rank the following compounds in order of decreasing acid strength: \( \text{c > b > a} \)

   ![Chemical structures](image)

   b. Rank the following compounds in order of decreasing acidity: \( \text{c > b > a} \)

   ![Chemical structures](image)

   c. Rank the following compounds in order of decreasing acidity of the indicated hydrogen: \( \text{c > b > a} \)

   ![Chemical structures](image)

2. (4 pts)
   a. Draw the five combinations of p-orbitals that make up the five \( \pi \) molecular orbitals (\( \psi_1 , \psi_2 , \psi_3 , \psi_4 , \text{ and } \psi_5 \)) of the pentadienyl cation (\( \text{CH}_2=\text{CH-CH}=\text{CH-CH}_2^+ \)).

   ![MO diagrams](image)

   b. Which of these molecular orbitals are populated by electrons? \( \psi_1 , \psi_2 \)