CHE 171
Fall, 2005
Specific Objectives for Quiz 2

1. Be able to draw organic compounds as condensed structures and skeletal structures (bond line form).

2. Understand trends associated with bond length and strength and know the relative lengths and strengths of common types of C-C bonds and C-H bonds

3. Know what electronegativity is and how to predict the relative electronegativity values of atoms.

4. Be able to recognize polar bonds.

5. Be able to predict whether or not a molecule is polar based on the bonds present and the overall geometry.

6. Understand what constitutes Bronsted acids and bases.

7. Be able to show electron flow (curved arrow notation) for an acid-base reaction.

8. Understand what pK_a is and how pK_a values correspond to relative acid strength.

9. Be able to predict the outcome of a given acid-base reaction (in which direction does the equilibrium lie?).

10. Understand how the following factors affect acid strength: elemental/periodic trends, induction, resonance, hybridization.

11. Be able to rank a given set of compounds in terms of increasing or decreasing acidity (or basicity).

12. Be able to recognize acidic and basic components (or sites) of a given molecule (see, for example, morphine on the top of page 56 in Smith).

13. Understand what constitutes a Lewis acid (electrophile) and Lewis base (nucleophile).

14. Be able to show how (curved arrow notation) a given electrophile reacts with a given nucleophile; be able to show the product(s) of such a reaction.