Weekly Lecture Schedule

CHEM 14A Instructor: Dr. Laurence Lavelle
FALL 2005

WEEK 4

Chemical Bonds

Read: Ch 2 (Omit 2.2) Note: 2.3 was covered in previous lectures.

Do Problems: 5, 7, 9, 13, 15, 17, 19(omit part e), 21, 23(omit part c), 33, 35, 37, 41, 43, 45, 49, 51, 53, 57, 63, 65, 67, 69, 77, 79, 83, 89, 91, 95

After going through the readings & problems and attending the lectures & discussion groups, you should be able to:

- Distinguish between ionic and covalent bonds.
- Draw the Lewis structure of a molecule or ion.
- Define resonance hybrid and explain its relationship to the individual Lewis structures that contribute.
- Write the resonance structure for a molecule.
- Show how formal charge, $FC = V - (L + \frac{S}{2})$ can be used to evaluate alternative Lewis structures.
- Exceptions to the octet rule.
- Explain the characteristics of Lewis acids and bases and how they form coordinate covalent bonds.
- Predict and explain periodic trends in the polarisability of anions and the polarizing power of cations.
- Explain the significance of electronegativity and what is meant by the ionic or covalent character of a bond.
- Explain how bond dissociation energy is related to bond multiplicity, atomic radius, and the presence of unpaired electrons.
- List the factors affecting bond length and explain the effect of each.