

General Chemistry I
Problem Set 3
Due Friday, October 1, 2004 (at 5 p.m.)

Note my standard policy on Lewis structures: (1) Every valid Lewis structure must have all non-zero formal charges labeled, even if your textbook does not ask for this. (2) Don't bother labeling any formal charges that are zero, even if your textbook does ask for this. (3) If it is possible to eliminate formal charge by invoking valence expansion (for atoms in the 3rd period and below), you should always do it! (4) If it helps you to write down how you calculate the number of valence electrons or formal charges for a species, you are free to do so. But, unless I tell you otherwise, you are not required to do so for full credit.

1. Silberberg 9.5 (6 points)
2. Silberberg 9.27 (6 points). Note that in class, I used the (more common) convention that the lattice energy is **positive**; that is, the lattice energy is the energy required to separate completely an ionic compound into its constituent ions in the gas phase.
3. Silberberg 10.6 (6 points)
4. Silberberg 10.14 (4 points)
5. Silberberg 10.18 (6 points). Draw all resonance structures that are required by the symmetry of the species. You do not need to label oxidation numbers.
6. Silberberg 10.20 (6 points). You do not need to state the type of octet rule exception.
7. Silberberg 10.26 (4 points). Copy the three structures onto your homework paper and label all non-zero formal charges.