Review Sheet for Second Exam

Topics Covered

- Lewis structures (topic continued from first exam)
- partial charges vs. formal charges vs. oxidation numbers
- polarity of bonds and polarity of ions and molecules
- geometry around central atom, including names and ideal bond angles
- valence bond theory
- hybridization and hybrid orbitals
- molecular orbitals and molecular orbital diagrams
- covalent bonds vs. ionic bonds vs. metallic bonds
- predicting formulas for ionic compounds
- bond triangle

Equations That Will be Provided to You

- $c = \lambda\nu$
- $E = h\nu$
- $KE = h\nu - BE$
- $\frac{1}{\lambda} = 1.09737\times10^{-2}\ \text{nm}\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$
- $V = \frac{kq_1q_2}{d}$
- $FC_a = V_a - N_a - \frac{B_a}{2}$
- $\delta_a = V_a - N_a - B_a\left(\frac{EN_a}{EN_a + EN_b}\right)$
- $OX_a = V_a - N_a - B_a \times (0 \text{ if least EN}; 1 \text{ if most EN})$

Constants That Will be Provided to You

- $c = 2.998\times10^{8}$ m/s
- $h = 6.626\times10^{-34}$ Js
- $N_A = 6.022\times10^{23}$ mol^{-1}

Note – much of the material covered since the first exam assumes that you are able to draw and evaluate Lewis structures. Be sure to review this topic and to practice so that you can draw them fairly quickly.