LECTURE 11

1. Write the Lewis structure, including any equivalent energy resonance structures, for the following molecules.
   (a) xenon trioxide (XeO_3)
   (b) dihydrogen phosphate, $PO_4H_2^{-1}$
   (c) $(AsO_4)^{3-}$

2. For the following molecules or molecular ions, draw the Lewis structures.
   (a) $AlCl_4^{-1}$ (b) XeF_3^{+1} (c) PCl_6^{-1} (d) IF_5

3. Based on Lewis structures, arrange the following molecules in order of **increasing** bond order (a single bond has a bond order of one, a double bond has a bond order of two, etc.). Circle any molecules that are likely free radicals.
   (a) C-C bond in C_2H_2, C_2H_4, C_2H_6;
   (b) Cl-O bond in ClO_2^{-1} and ClO_3^{-1} (Note that there are no O-O bonds.)

5.111 Principles of Chemical Science
Fall 2014