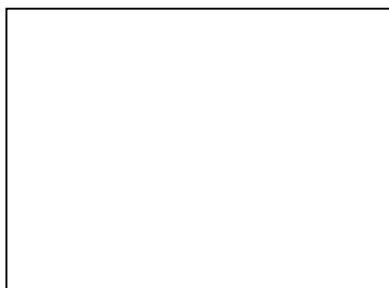


Practice sheet #5: Covalent Bond, Lewis structures, Resonance.

1. Draw a reasonable Lewis Structure for the following compounds:



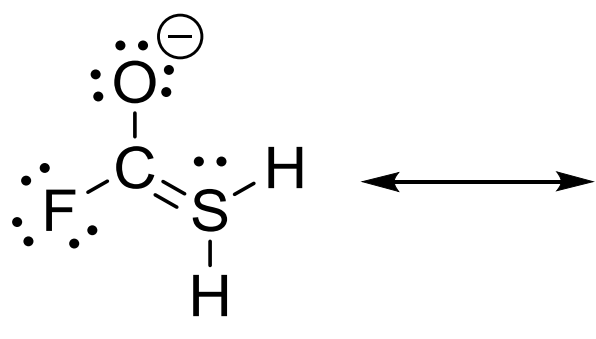
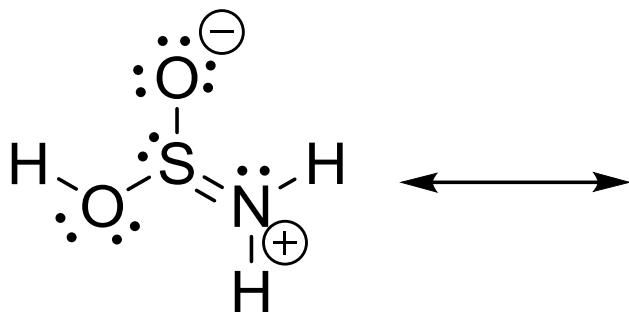
2. For each structure from problem 1, list all the exceptions to the octet rule and explain why it is an acceptable exception.



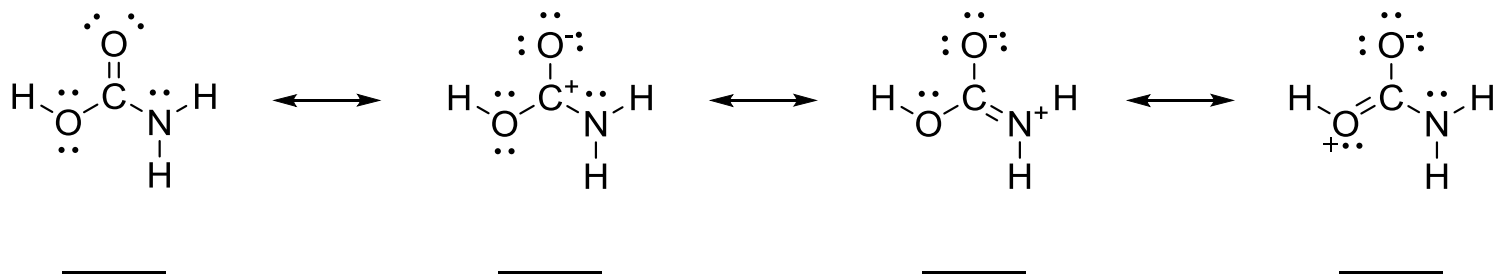
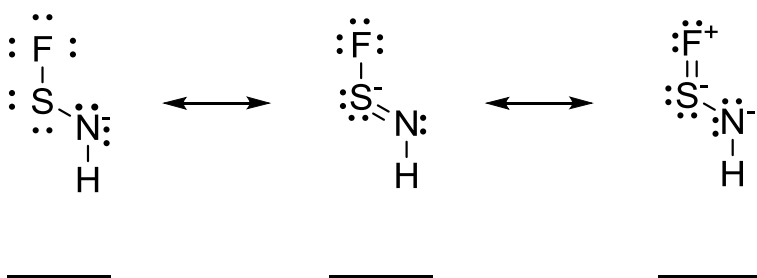
3. For each of the molecules in problem 1, assign the formal charge of each atom.
4. For each of the molecules in problem 1, assign the bond order to each bond.
5. Is any of the bonds in the molecules in problem 1 ionic or are all covalent bonds?

6. Resonance:

a. Draw an allowed resonance structure for the following molecules:



b. Rank the following resonance structure in order of stability: (1 being the most stable)



7. Bond energy

- a. List all the bonds present in the following molecules and label them as σ or π (you'll need to draw their Lewis structures first):



- b. Calculate how much energy is necessary to break all bonds of the molecules above.

