**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chemistry 101 Friday Discussion Week 13 - Lewis Structures 1**

1. Review: How many total valence electrons do these atoms or ions have?
   1. Se
   2. N-3
   3. C
   4. O-2
2. Review: Which is the most polar (most ionic) bond shown below?
   1. Na – Br
   2. I – Cl
   3. Cl – O
   4. O –O
3. **Set 1** – Warm Up: Draw the Lewis structures for each of the following molecules. These follow the octet rule and have no multiple bonds.
   1. H2
   2. H2O
   3. CH4
   4. F2
   5. SiF4
   6. NH3
4. **Set 2** – Multiple Bonds: Draw the Lewis Structures for the following molecules. Some may contain multiple bonds. Pay close attention to when multiple bonds are necessary. Carbon is generally always the central atom.
   1. CO
   2. CN-
   3. CH2O
   4. C2H4 (Hint: each of the carbons is a central atom. Make the molecule as symmetric as possible.)
5. **Set 3**: The following molecules display resonance. Draw all of the structures possible for each of the molecules.
   1. CO3-2
   2. O3
   3. SO2
6. **Set 4:** Miscellaneous Lewis Structures –If resonance structures are necessary, please draw all the structures.
   1. O2
   2. NCl3
   3. SO4-2
   4. OCN- (C is the central atom)
   5. HCl
7. Determine the electron pair geometry, molecular shape, and polarity for each of the molecules below. Note: you should have already drawn the Lewis structures for each in the space above.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Formula** | **Molecular Geometry** | **Molecular Shape** | **Bond Angles** | **Polar or Nonpolar?** |
| 1 | NH3 |  |  |  |  |
| 2 | SiF4 |  |  |  |  |
| 3 | H2O |  |  |  |  |
| 4 | CO |  |  |  |  |
| 5 | CO32- |  |  |  |  |
| 6 | CH2O |  |  |  |  |

**Additional Practice!**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Formula** | **Lewis Structure (& resonance structures)** | **Molecular Geometry** | **Molecular Shape** | **Bond Angles** | **Polar or Nonpolar?** |
| 1 | CO2 |  |  |  |  |  |
| 2 | C2H2 |  |  |  |  |  |
| 3 | Br2 |  |  |  |  |  |
| 4 | CH3F |  |  |  |  |  |
| 5 | ClO3- |  |  |  |  |  |
| 6 | NH4+ |  |  |  |  |  |
| 7 | CH2Br2 |  |  |  |  |  |