

## Unit 5 Bonding

1. Write symbols for one cation and one monatomic anion that are isoelectronic with argon
2. Determine the expected number of electrons lost or gained when the following form ionic bonds. Write the electron configurations for each to illustrate.
  - a. Cl
  - b. O
  - c. Ca
  - d. Al
3. Using electron configurations, show how potassium and sulfur could form an ionic compound. Write the reactions, including electrons, and give the expected formula for potassium sulfide.
4. What is the octet rule? What is the maximum number of covalent bonds that can be formed between two atoms, based on this rule?
5. Draw a Lewis structure for
  - a. C
  - b. N
  - c. Br
6. Decide if the following pairs would be expected to form ionic or covalent bonds
  - a. Ca and F
  - b. C and Cl
  - c. Rb and O
7. In what general direction does electronegativity increase on the periodic table?
8. What is a polar covalent bond? Indicate the direction of the dipole for the O-H bond.
9. Provide proper Lewis structures for the following. Show all work.
  - a. HF
  - b. OF<sub>2</sub>
  - c. CH<sub>4</sub>O
  - d. C<sub>2</sub>H<sub>6</sub>
  - e. C<sub>2</sub>H<sub>4</sub>
  - f. C<sub>2</sub>H<sub>2</sub>
  - g. CH<sub>2</sub>O
  - h. C<sub>3</sub>H<sub>6</sub>
10. Provide two acceptable Lewis structures (isomers) for
  - a. C<sub>4</sub>F<sub>8</sub>
  - b. C<sub>2</sub>H<sub>5</sub>N