

- As energy is released during the formation of a bond, the stability of the chemical system generally will
  - decrease
  - increase
  - remain the same
- Which particles may be gained, lost, or shared by an atom when it forms a chemical bond?
  - protons
  - electrons
  - neutrons
  - nucleons
- As a chemical bond forms between two hydrogen atoms the potential energy of the atoms
  - decreases
  - increases
  - remains the same
- Given the reaction:
 
$$\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$$
 Which statement best describes the energy change as bonds are formed and broken in this reaction?
  - The breaking of the Cl-Cl bond releases energy.
  - The breaking of the H-H bond releases energy.
  - The forming of the H-Cl bond absorbs energy.
  - The forming of the H-Cl bond releases energy.
- A barium atom attains a stable electron configuration when it bonds with
  - one chlorine atom
  - two chlorine atoms
  - one sodium atom
  - two sodium atoms
- Given the electron dot diagram:
 
$$\text{H}:\ddot{\text{F}}:$$
 The electrons in the bond between hydrogen and fluorine are more strongly attracted to the atom of
  - hydrogen, which has the higher electronegativity
  - fluorine, which has the higher electronegativity
  - hydrogen, which has the lower electronegativity
  - fluorine, which has the lower electronegativity
- Which compound contains both ionic and covalent bonds?
  - $\text{CaCO}_3$
  - $\text{PCl}_3$
  - $\text{MgF}_2$
  - $\text{CH}_2\text{O}$
- Which two substances are covalent compounds?
  - $\text{C}_6\text{H}_{12}\text{O}_6$  (s) and  $\text{KI}$  (s)
  - $\text{C}_6\text{H}_{12}\text{O}_6$  (s) and  $\text{HCl}$  (g)
  - $\text{KI}$  (s) and  $\text{NaCl}$  (s)
  - $\text{NaCl}$  (s) and  $\text{HCl}$  (g)

- An ionic compound consists of positive and negative ions each with 10 electrons. Half of these ions have a charge of  $1^+$  and the other half have a charge of  $1^-$ . What is the formula of this compound?
  - $\text{KF}$
  - $\text{KCl}$
  - $\text{NaF}$
  - $\text{NaCl}$
- When a reaction occurs between atoms with ground state electron configurations 2-1 and 2-7, the predominant type of bond formed is
  - polar covalent
  - nonpolar covalent
  - ionic
  - metallic
- Which electron-dot diagram best represents a compound that contains both ionic and covalent bonds?
  - $$\begin{array}{c} \text{H} \\ \vdots \\ \text{H}:\text{S}:\text{H} \end{array}$$
  - $$\text{Ca}^{2+} \left[ \begin{array}{c} \text{O}:\text{O}:\text{O} \\ \vdots \\ \text{O}:\text{S}:\text{O} \\ \vdots \\ \text{O}:\text{O}:\text{O} \end{array} \right]^{2-}$$
  - $$\text{K}^+ \left[ \begin{array}{c} \text{Br} \\ \vdots \\ \text{Br} \end{array} \right]^-$$
  - $$\begin{array}{c} \text{Br}:\text{Br} \\ \vdots \\ \text{Br}:\text{Br} \end{array}$$
- What is the name of the salt produced by the reaction of calcium hydroxide with sulfuric acid?
  - calcium thiosulfate
  - calcium sulfate
  - calcium sulfide
  - calcium sulfite
- What is the correct name of the compound with the formula  $\text{NH}_4\text{NO}_2$ ?
  - ammonia nitrate
  - ammonia nitrite
  - ammonia nitrate
  - ammonium nitrate
- What is the correct name for the compound with the formula  $\text{CrPO}_4$ ?
  - chromium (II) phosphate
  - chromium (III) phosphate
  - chromium (II) phosphide
  - chromium (III) phosphide

## Bonding Quiz 2

15. A correct name for  $N_2O_3$  is
- 1) nitrogen (I) oxide
  - 2) nitrogen (II) oxide
  - 3) nitrogen (III) oxide
  - 4) nitrogen (IV) oxide
16. What is the chemical formula for sodium sulfate?
- 1)  $Na_2SO_3$
  - 2)  $Na_2SO_4$
  - 3)  $NaSO_3$
  - 4)  $NaSO_4$
17. A compound is made up of iron and oxygen, only. The ratio of iron ions to oxide ions is 2:3 in this compound. The IUPAC name for this compound is
- 1) triron dioxide
  - 2) iron(II) oxide
  - 3) iron(III) oxide
  - 4) iron trioxide
18. What is the chemical formula for nickel (II) hypochlorite?
- 1)  $NiCl_2$
  - 2)  $Ni(ClO)_2$
  - 3)  $NiClO_2$
  - 4)  $Ni(ClO)_3$
19. What is the chemical formula for copper(II) hydroxide?
- 1)  $CuOH$
  - 2)  $CuOH_2$
  - 3)  $Cu_2(OH)$
  - 4)  $Cu(OH)_2$
20. Base your answer to the following question on the information below.
- A scientist in a chemistry laboratory determined the molecular formulas for two compounds containing nitrogen and oxygen to be  $NO_2$  and  $N_2O_5$ .
- Write an IUPAC name for the compound  $N_2O_5$ .

Using the nomenclature systems discussed in class, name the following substances with appropriate system

1.  $B_2Cl_4$  .....
2.  $SO_3$  .....
3.  $P_2O_3$  .....
4.  $As_3P_5$  .....
5.  $IF_7$  .....
6. potassium oxalate .....
7. aluminum acetate .....
8. cesium thiosulfate .....
9. strontium phosphide .....
0. tin IV oxide .....