

Review - Naming, Formula and Reactions

Name - _____

1.) What type of bond would be expected to form between the atoms of each of the following?

- a.) H and O c.) Ni and Cl e.) Ca and Br g.) I and F
b.) K and I d.) P and O f.) N and F

2.) Which of the following would be expected to form a stronger bond?

- a.) Na^+Cl^- or K^+Br^- c.) K^+F^- or $\text{Ca}^{2+}\text{O}^{2-}$ e.) C-C or Si-Si
b.) C-O or Si-S d.) Cs^+I^- or $\text{Mg}^{2+}\text{O}^{2-}$ f.) B-F or $\text{N}\equiv\text{N}$

3.) Which is expected to be larger?

- a.) Na^+ or Na^- c.) As or As^{3-} e.) Se^- or S g.) Ca^{2+} or Se^{2-} i.) K^+ or Cl^-
b.) I or I^+ d.) Na^+ or Cs^+ f.) S^{2-} or S h.) O^{2-} or S^{2-}

4.) Draw the Lewis diagrams for the following.

a.) HBr	b.) SBr_2	c.) CO_2	d.) MgO	e.) $[\text{CNO}]^-$	f.) $[\text{NO}]^+$

5.) Write the formula for the following.

- a.) sodium nitride _____ f.) barium hydroxide _____
b.) hydrobromic acid _____ g.) ammonium phosphate _____
c.) iron (III) oxide _____ h.) diphosphorus tetraoxide _____
d.) carbon tetrachloride _____ i.) nitric acid _____
e.) tin (IV) sulphide heptahydrate _____

6.) Write the names of the following.

a.) H_3PO_4 _____

b.) N_2O_4 _____

c.) FePO_4 _____

d.) Na_2SO_4 _____

e.) $\text{NH}_4\text{CH}_3\text{COO}\cdot 5\text{H}_2\text{O}$ _____

f.) HF _____

g.) CaO _____

h.) OF_2 _____

i.) $\text{Fe}_2(\text{CO}_3)_3$ _____

7.) State the law of conservation of mass?

8.) For each of the following word equations, write a chemical equation, balance it, include the phases of the reactants and products and name the reaction type.

a.) Oxygen gas and nitrogen gas react to produce nitrogen dioxide gas.

b.) Aqueous beryllium iodide and aqueous tin (IV) nitrate produce beryllium nitrate and tin (IV) iodide.

c.) Hydrochloric acid and aqueous magnesium hydroxide produce magnesium chloride and water.

d.) Aqueous hydrogen carbonate produces water and carbon dioxide.

e.) Sodium and aqueous nickel (II) chloride produce sodium chloride and nickel.

f.) Ethyne gas (C_2H_2) and oxygen burn to produce carbon dioxide and water.

9.) Classify the following as endothermic or exothermic.

a.) $C + O_2 \rightarrow CO + \text{energy}$ _____

b.) $N_2O_4 + \text{energy} \rightarrow N_2 + O_2$ _____

c.) $CaCl_2 + O_2 \rightarrow CaO + Cl_2$ $\Delta H = -783 \text{ kJ}$ _____

d.) $SO_2 + CO_2 \rightarrow SO_3 + CO$ $\Delta H = 387 \text{ kJ}$ _____

10.) Draw an energy diagram for the reaction shown in 9c.



11.) Draw an energy diagram for the reaction shown in 9d.

