

Review - Naming, Formulas, 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 PC c.) Ni and Cl PC e.) Ca and Br I g.) I and F PC
 b.) K and I I d.) P and O PC f.) N and F PC

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

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

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 Na_3N e.) tin (IV) sulphide heptahydrate $\text{SnS}_2 \cdot 7\text{H}_2\text{O}$
 b.) hydrobromic acid HBr f.) barium hydroxide $\text{Ba}(\text{OH})_2$
 c.) iron (III) oxide Fe_2O_3 g.) ammonium phosphate $(\text{NH}_4)_3\text{PO}_4$
 d.) carbon tetrachloride CCl_4 h.) diphosphorus tetraoxide P_2O_4

i.) nitric acid HNO₃

6.) Write the names of the following.

a.) H₃PO₄ phosphoric acid

b.) N₂O₄ dinitrogen tetraoxide

c.) FePO₄ iron (III) phosphate

d.) Na₂SO₄ sodium sulphate

e.) NH₄CH₃COO•5H₂O ammonium acetate pentahydrate

f.) HF hydrofluoric acid

g.) CaO calcium oxide

h.) OF₂ oxygen difluoride

i.) Fe₂(CO₃)₃ iron (III) carbonate

7.) State the law of conservation of mass?

Answer - mass of reactants must equal the mass of the products.

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.

Synthesis $2 \text{O}_2 (\text{g}) + \text{N}_2 (\text{g}) \rightarrow 2 \text{NO}_2 (\text{g})$

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

No Reaction $2 \text{BeI}_2 (\text{aq}) + \text{Sn}(\text{NO}_3)_4 (\text{aq}) \rightarrow 2 \text{Be}(\text{NO}_3)_2 (\text{aq}) + \text{SnI}_4 (\text{aq})$

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

Neutralization $2 \text{HCl} (\text{aq}) + \text{Mg}(\text{OH})_2 (\text{aq}) \rightarrow \text{MgCl}_2 (\text{aq}) + 2 \text{H}_2\text{O} (\text{l})$

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

Decomposition

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

Single Replacement

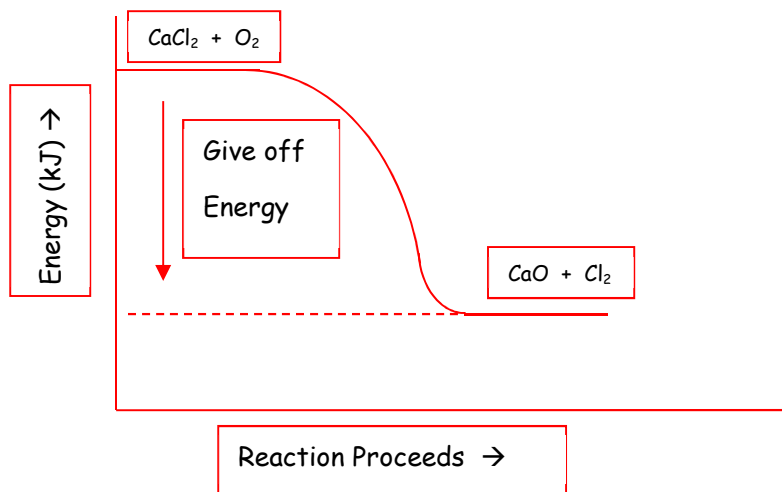
f.) Ethyne gas (C_2H_2) and oxygen burn to produce carbon dioxide and water.

Combustion

9.) Classify the following as endothermic or exothermic.



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



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

