STUDY GUIDE

Key

I Classify each reaction:

A) $PbCl_2 + AgNO_3 \rightarrow Pb(NO_3)_2 + AgCl$ — DR

B) $NH_3 + HCl \rightarrow NH_4Cl$ — Syn

C) $Al_2S_3 \rightarrow Al + S$ — Dec

D) $C_4H_{12} + O_2 \rightarrow CO_2 + H_2O$ — Com

E) $Zn + S \rightarrow ZnS$ — Syn

F) $Fe + H_2SO_4 \rightarrow FeSO_4 + H_2$ — SR

G) $Cl_2 + KBr \rightarrow KCl + Br_2$ — SR

II

~~product~~	~~liquid~~	~~acid~~	~~subscript~~
~~reactants~~	gas	hydroxide	coefficient
solid	aqueous	superscript	~~diatomic~~

1. In reaction E from Part I, ZnS is a product
2. In reaction C from Part I, the "2" in Al_2S_3 is called a subscript, and it represents the number of Aluminum atoms.
3. The only number that can be changed in balancing an equation is the coefficient
4. $H_2(g) + O_2(g) \rightarrow H_2O(l)$ The "l" means liquid
5. When a nonmetal reacts with water, an acid is formed.
6. There are seven diatomic elements.
   *They are H_2, I_2, N_2, Br_2, O_2, Cl_2, F_2
7. In reaction G, Cl_2 is part of the reactants
8. A compound dissolved in water is called aqueous
9. A metal reacts with water to form a metal hydroxide.

III Balance each equation:

A) $1\ C_4H_{12} + 7\ O_2 \rightarrow 4\ CO_2 + 6\ H_2O$

B) $2\ Na + 2\ H_2O \rightarrow 2\ NaOH + 1\ H_2$

C) $\_\ Li_2O + \_\ H_2O \rightarrow 2\ LiOH$

D) $\_\ PbCl_2 + 2\ AgNO_3 \rightarrow \_\ Pb(NO_3)_2 + 2\ AgCl$

IV Predict the products: (If no reaction, write NR)

A) $MgBr_2 + Cl_2 \rightarrow MgCl_2 + Br_2$

B) $Al + Fe_2O_3 \rightarrow Al_2O_3 + Fe$

C) $H_2SO_4 + NaOH \rightarrow Na_2SO_4 + H_2O$

D) $C_4H_8 + O_2 \rightarrow CO_2 + H_2O$

E) $BaF_2 + Ca \rightarrow NR$

F) $K_2O + H_2O \rightarrow KOH$

V Write a balanced equation for each: (show states of matter!)

A) Solid aluminum is added to aqueous copper(II) chloride to form an aluminum chloride solution and copper precipitate.

$2Al(s) + 3CuCl_2(aq) \rightarrow 2AlCl_3(aq) + 3Cu(s)$

B) Aqueous solutions of Ammonium carbonate and sodium hydroxide react to form ammonium hydroxide and sodium carbonate.

$(NH_4)_2CO_3(aq) + 2NaOH(aq) \rightarrow 2\ NH_4OH(aq) + Na_2CO_3$

C) Iodine trichloride decomposes to form iodine crystals and chlorine gas.

$2\ ICl_3(s) \rightarrow I_2(s) + 3\ Cl_2(g)$