NAME Answer Key

SECTION _____ DATE _____

INSTRUCTOR _____

EXERCISE 6

Equation Writing and Balancing I

Name the type (9.3)

Balance the following equations:

1. $2Mg + O_2 \xrightarrow{\Delta} 2MgO$ combin.
2. $2\ KClO_3 \xrightarrow{\Delta} 2\ KCl + 3O_2$ decomp.
3. $3Fe + 2O_2 \xrightarrow{\Delta} Fe_3O_4$ synthesis or combination
4. $Mg + 2HCl \longrightarrow MgCl_2 + H_2$ single replacement
5. $2Na + 2H_2O \longrightarrow 2NaOH + H_2$ single replacement

Write the name.

Beneath each word equation write the formula equation and balance it. Remember that oxygen and hydrogen are diatomic molecules.

1. Sulfur + Oxygen $\xrightarrow{\Delta}$ Sulfur dioxide combin.

$S + O_2 \rightarrow SO_2$

2. Zinc + Sulfuric acid $\longrightarrow$ Zinc sulfate + Hydrogen single repl.

$Zn + H_2SO_4 \rightarrow ZnSO_4 + H_2$

3. Carbon + Oxygen $\xrightarrow{\Delta}$ Carbon dioxide combin. or synthesis

$C + O_2 \rightarrow CO_2$

4. Hydrogen + Oxygen $\xrightarrow{\Delta}$ Water combination or synthesis

$2H_2 + O_2 \rightarrow 2H_2O$

5. Aluminum + Hydrochloric acid $\longrightarrow$ Aluminum chloride + Hydrogen single repl.

$2Al + 6HCl \rightarrow 2AlCl_3 + 3H_2$

$2Al + 6HCl \Rightarrow 2AlCl_3 + 3H_2$

EXERCISE 6 (continued) NAME Answer Key

Balance the following equations:

1. $N_2 + 3H_2 \xrightarrow{\Delta} 2NH_3$ combin.
2. $CoCl_2 \cdot 6H_2O \xrightarrow{\Delta} CoCl_2 + 6H_2O$ decomposition
3. $3Fe + 4H_2O \xrightarrow{\Delta} Fe_3O_4 + 4H_2$ single replacement
4. $2F_2 + 2H_2O \xrightarrow{\Delta} 4HF + O_2$ single replacement
5. $2Pb(NO_3)_2 \xrightarrow{\Delta} 2PbO + 4NO + 3O_2$ decomp.

Pb N O
1 2 6
1 4 12

Pb N O
2 4 12

$2Pb(NO_3)_2 \rightarrow 2PbO + 4NO + 3O_2$

Beneath each word equation write and balance the formula equation. Oxygen, hydrogen, and bromine are diatomic molecules

1. Aluminum + Oxygen $\xrightarrow{\Delta}$ Aluminum oxide

combination

$4Al + 3O_2 \rightarrow 2Al_2O_3$

2. Potassium + Water ⟶ Potassium hydroxide + Hydrogen

single repl.

$2K + 2H_2O \rightarrow 2KOH + H_2$

3. Arsenic(III) oxide + Hydrochloric acid ⟶ Arsenic(III) chloride + Water

double replacement

$As_2O_3 + 6HCl \rightarrow 2AsCl_3 + 3H_2O$

4. Phosphorus + Bromine ⟶ Phosphorus tribromide

combination or synthesis

$2P + 3Br_2 \rightarrow 2PBr_3$

5. Sodium bicarbonate + Nitric acid ⟶ Sodium nitrate + Water + Carbon dioxide

$NaHCO_3 + HNO_3 \rightarrow NaNO_3 + H_2O + CO_2$

double replacement