Name_____

Chapter 21 Review Guide: Chemical Reactions

Write BALANCED chemical equations for the following:

1. Iron combines with oxygen to form Iron(III) oxide

2. Magnesium combines with oxygen to form magnesium oxide

3. Hydrochloric acid (HCl) combines with sodium hydroxide to form water and sodium chloride

4. Barium sulfate combines with lithium phosphate to form barium phosphate and lithium sulfate

5. Calcium Iodide reacts with potassium nitride to form calcium nitride and potassium iodide

Predict the Products and balance the equation:

1. Synthesis Reaction: Lead (II) combines with oxygen → _____

   Symbols: _____ + _____ → _____

   This is also called a _____ reaction.

2. Single Replacement: Calcium combines with silver nitrate → _____ + _____

   Symbols _____ + _____ → _____ + _____

3. Double Replacement: Sodium hydroxide plus barium fluoride → _____ + _____

   Symbols _____ + _____ → _____ + _____

4. Decomposition Reaction: Iron(III) chloride → _____ + _____

   Symbols _____ → _____ + _____

5. Synthesis Reaction: Aluminum combines with oxygen → _____

   Symbols _____ + _____ → _____

6. Double Replacement: Copper (II) sulfate plus sodium hydroxide → _____ + _____

   Symbols _____ + _____ → _____ + _____

7. A substance was added to the reaction above causing it to take place at a faster rate. This substance is called a _____

8. If a substance was added to the reaction causing it to slow down or not take place at all, that substance would be called a _____

Identify the type of reaction

1. Occurs when oxygen is a diatomic on the reactants side of the equation: _____
2. Results in the formation of only one product: _____
3. When one substance breaks down into two: _____
4. When one element replaces another element in a compound: _____
5. When the positive ion of one compound replaces the positive ion in another compound: _____
6. General formula is AB → A + B _____
7. General formula is A + BC → B + AC _____
8. General formula is AB + CD → AD + CB _____
9. General formula is A + B → AB _____
10. Sodium + Silver Nitrate → Sodium Nitrate + Silver: _____
11. Hydrogen + Oxygen → Water: _____
12. Barium Sulfate + Magnesium Carbonate→ Barium Chloride + Magnesium Carbonate _____
13. Hydrogen peroxide → Water + Oxygen: _____
14. Copper (II) Chloride + Iron (II) → Iron (II) Chloride + Copper _____
15. Lithium + Oxygen → Lithium Oxide _____

Determine whether the following would be <u>exothermic</u> or <u>endothermic</u>

1. Magnesium ribbon reacts with hydrochloric acid. The test tube gets warmer. _____
2. Your ankle is swollen and you put it in a bath of Epsom salt. The water immediately gets cold. _____
3. Your body feels warm after you eat a meal. _____
4. Electricity must be added in order to split water into hydrogen and oxygen. _____
5. Steel wool is soaking in vinegar in a jar. The temperature inside the jar begins to rise. _____
6. The reactants have more energy than the products: _____
7. The products have more energy than the reactants: _____
8. Heat needs to be added to the reaction to make it take place: _____
9. Heat is released from the reaction: _____
10. Energy + Water → Hydrogen + Oxygen: _____