Name _____

Classifying Chemical Reactions (p. 641 – 645)

I. Types Of Reactions

1. List the five main types of chemical reaction.

p. 641

Use Boyfriend-Girlfriend Analogy

1. Combustion
2. Synthesis
3. Decomposition
4. Single-Replacement
5. Double-Replacement

2. Define the term combustion reaction.

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$ (Burning natural gas)

$2H_2 + O_2 \rightarrow 2H_2O$ (Water Formation)

Combustion Reaction – reaction that occurs when a substance reacts with oxygen to produce energy (in form of heat + light)

3. Combustion reactions sometimes fit into other reaction type categories.

Circle One : True False

4. Define the term synthesis reaction.

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Synthesis Reaction – two or more substances combine to form another substance

5. Write out the general formula for a synthesis reaction.

$A + B \rightarrow AB$

6. Circle the letter of the equation that represents a synthesis reaction.

a. $2Na + Cl_2 \rightarrow 2NaCl$
b. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
c. $2H_2O \rightarrow 2H_2 + O_2$
d. $Ba(NO_3)_2 + K_2SO_4 \rightarrow BaSO_4 + 2KNO_3$

$2H_2 + O_2 \rightarrow 2H_2O$

7. Define the term decomposition reaction.

Decomposition Reaction – one substance breaks down into two or more substances

8. Write out the general formula for a decomposition reaction.

$AB \rightarrow A + B$

9. Circle the letter of the equation that represents a decomposition reaction.

a. $2Na + Cl_2 \rightarrow 2NaCl$
b. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
c. $2H_2O \rightarrow 2H_2 + O_2$
d. $Ba(NO_3)_2 + K_2SO_4 \rightarrow BaSO_4 + 2KNO_3$

$CaCO_3 \rightarrow CaO + CO_2$

makes cement

Name _____

10. Define the term single-replacement reaction.

Single-Replacement Reaction – one element replaces another element in a compound

11. Write out the general formula for a single-replacement reaction.

$A + BC \rightarrow AC + B$

12. Circle the letter of the equation that represents a single-replacement reaction.

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a. $2Na + Cl_2 \rightarrow 2NaCl$
b. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
c. $2H_2O \rightarrow 2H_2 + O_2$
d. $Ba(NO_3)_2 + K_2SO_4 \rightarrow BaSO_4 + 2KNO_3$

$2K + 2H_2O \rightarrow H_2 + 2KOH$ (ignites)

13. In replacement reactions, a metal will replace any less active metal.

Circle One : True False p. 643 Top

14. Define the term double-replacement reaction.

Double-Replacement Reaction – positive ion of one compound replaces the positive ion of the other to form two new compounds

15. Write out the general formula for a double-replacement reaction.

$AB + CD \rightarrow AD + CB$

16. Circle the letter of the equation that represents a double-replacement reaction.

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a. $2Na + Cl_2 \rightarrow 2NaCl$
b. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
c. $2H_2O \rightarrow 2H_2 + O_2$
d. $Ba(NO_3)_2 + K_2SO_4 \rightarrow BaSO_4 + 2KNO_3$

17. Define the term precipitate.

Precipitate – insoluble compound that comes out of solution during a double-replacement reaction

18. Define the following terms.

$2Ca + O_2 \rightarrow 2CaO$

Oxidation – loss of electrons

$(Ca \rightarrow Ca^{+2} + 2e^-)$

Reduction – gain of electrons

$Na^+ + Cl^- \rightarrow NaCl$

LEO Goes GER

19. Which reactive element is often involved in redox reactions?

Oxygen

p. 645