

ASSIGNMENT

At the top of your assignment, please print “**T35 – Classifying Chemical Reactions Part 3**”, your **LAST then First name, block and date**. Complete these questions in the order given here. *[Marks indicated in italicized brackets.]*

1. What types of reactants are involved in a single replacement reaction? *[2]*
2. What types of reactants are involved in a decomposition reaction? *[1]*
3. What is the other reactant involved in a combustion of a hydrocarbon reaction? *[1]*
4. What types of compounds are produced when hydrocarbons or carbohydrates are burned in air? *[2]*
5. What types of reactants are involved in a double replacement reaction? *[2]*
6. Write balanced chemical equations for the reaction between these reactants. Be sure you include states. *[16]*
 - a. copper(II) nitrate and magnesium chloride
 - b. Barium hydroxide and iron(III) sulphate
 - c. magnesium hydroxide and sulphuric acid
 - d. ammonium sulphide and iron(II) sulphate
7. Classify these chemical equations as a synthesis, decomposition, combustion, single replacement, double replacement or neutralization reaction. You are not required to balance them. *[10]*
 - a. $\text{Al}_{(s)} + \text{Pb}(\text{NO}_3)_{2(aq)} \rightarrow \text{Pb}_{(s)} + \text{Al}(\text{NO}_3)_{3(aq)}$
 - b. $\text{C}_3\text{H}_{8(g)} + \text{O}_{2(g)} \rightarrow \text{CO}_{2(g)} + \text{H}_2\text{O}_{(g)}$
 - c. $\text{Fe}_{(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{Fe}_3\text{O}_{4(s)} + \text{H}_2(g)$
 - d. $\text{KNO}_{3(aq)} \rightarrow \text{KNO}_{2(aq)} + \text{O}_{2(g)}$
 - e. $\text{Ni}_{(s)} + \text{I}_{2(g)} \rightarrow \text{NiI}_{3(s)}$
 - f. $\text{C}_{(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{CO}_{(g)} + \text{H}_{2(g)}$
 - g. $\text{AlBr}_{3(aq)} + \text{Cl}_{2(g)} \rightarrow \text{AlCl}_{3(aq)} + \text{Br}_{2(l)}$
 - h. $\text{HNO}_{3(aq)} + \text{Ba}(\text{OH})_{2(aq)} \rightarrow \text{Ba}(\text{NO}_3)_{2(aq)} + \text{H}_2\text{O}_{(l)}$
 - i. $\text{Sr}(\text{C}_2\text{H}_3\text{O}_2)_{2(aq)} + \text{AgNO}_{3(aq)} \rightarrow \text{AgC}_2\text{H}_3\text{O}_{2(s)} + \text{Sr}(\text{NO}_3)_{2(aq)}$
 - j. $\text{H}_2\text{SO}_{4(aq)} + \text{Ca}(\text{NO}_3)_{2(aq)} \rightarrow \text{HNO}_{3(aq)} + \text{CaSO}_{4(s)}$
8. Predict the possible products when these combinations of reactants are mixed together. If no reaction occurs, state so. You are not required to balance them. *[10]*
 - a. $\text{C}_4\text{H}_{8(l)} + \text{O}_{2(g)} \rightarrow$
 - b. $\text{Ni}_{(s)} + \text{FeSO}_{4(aq)} \rightarrow$
 - c. $\text{Sr}_{(s)} + \text{N}_{2(g)} \rightarrow$
 - d. $\text{CoBr}_{2(s)} \rightarrow$
 - e. $\text{CH}_3\text{OH}_{(l)} + \text{O}_{2(g)} \rightarrow$
 - f. $\text{H}_3\text{PO}_{4(aq)} + \text{Al}(\text{OH})_{3(aq)} \rightarrow$
 - g. $\text{Pb}(\text{NO}_3)_{4(aq)} + \text{NaCl}_{(aq)} \rightarrow$
 - h. $\text{Br}_{2(aq)} + \text{CuI}_{2(aq)} \rightarrow$
 - i. $\text{Zn}_{(s)} + \text{CuCl}_{2(aq)} \rightarrow$
 - j. $\text{AlCl}_{3(aq)} + \text{Pb}(\text{NO}_3)_{2(aq)} \rightarrow$

[44 marks in total]

BRING A CALCULATOR WITH YOU TO THE NEXT CLASS