Physical Science 10 Review: Chemical Reactions

1. Consider the following chemical reaction:

$$\begin{array}{c} 2 \operatorname{NaCl} + \operatorname{Ca(OH)}_2 \to \operatorname{CaCl}_2 + 2\operatorname{NaOH}_{1919} & 749 & 1859 \\ \end{array}$$

If the mass of NaCl reacted is 191 grams and calcium hydroxide is 74 grams, and 80 grams of sodium hydroxide is produced, what mass of calcium chloride is produced?

2. If $A + B \rightarrow C$, what mass of A is needed to react with 27.0 grams of B to produce 81.5 grams of C? $A + B \rightarrow C$ 54.5g 27.0g 81.5g

3. Identify the type of reaction indicated by the following reactants:

a) two compounds double replacement

b) two elements synthesis

c) a compound decomposition

d) an element and a compound single replacement

4.a)
$$\underline{2}$$
 Fe + $\underline{3}$ H₂SO₄ \rightarrow _Fe₂(SO₄)₃ + $\underline{3}$ H₂
b) $\underline{2}$ C₂H₆ + $\underline{7}$ O₂ \rightarrow $\underline{6}$ H₂O + $\underline{4}$ CO₂
c) $\underline{3}$ KOH + _ H₃PO₄ \rightarrow _K₃PO₄ + $\underline{3}$ H₂O
d) _SnO₂ + $\underline{2}$ H₂ \rightarrow _Sn + $\underline{2}$ H₂O
e) $\underline{4}$ NH₃ + $\underline{5}$ O₂ \rightarrow $\underline{4}$ NO + $\underline{6}$ H₂O
f) $\underline{2}$ KNO₃ + _ H₂CO₃ \rightarrow _K₂CO₃ + $\underline{2}$ HNO₃
g) _ B₂Br₆ + $\underline{6}$ HNO₃ \rightarrow $\underline{2}$ B(NO₃)₃ + $\underline{6}$ HBr
h) $\underline{2}$ BF₃ + $\underline{3}$ Li₂SO₃ \rightarrow _B₂(SO₃)₃ + $\underline{6}$ LiF
i) $\underline{4}$ (NH₄)₃PO₄ + $\underline{3}$ Pb(NO₃)₄ \rightarrow _Pb₃(PO₄)₄ + $\underline{3}$ NH₄NO₃

5. For each of the following word equations, identify the type of reaction, and write a complete balanced chemical equation.

a) calcium + lithium oxide \rightarrow lithium + calcium oxide

b) iron (III) oxide \rightarrow iron + oxygen

c) sodium sulfate + barium chloride \rightarrow sodium chloride + barium sulfate

d) silver + bromine \rightarrow silver bromide

e) zinc + copper (II) nitrate \rightarrow copper + zinc nitrate

c) Na2SO4 + Bacl2 -> 2Nacl + Baso4 Type: Double Replacement

d)
$$2A_{g} + B_{r_2} \rightarrow 2A_{g}B_{r}$$

Type: Synthesis

e) $Z_{n} + (u(NO_3)_2 \rightarrow (u + Z_n(NO_3)_2)$ Type: Single Replacement