Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Writing Reactions**

For the following reactions:

1. Identify the type of reaction: Synthesis=S; Decomposition=D; Single replacement=SR; Double Replacement=DR; Combustion=CB
2. Write the names of the product(s).
3. Write the equation with reactants and products (don’t forget the phases)
4. Balance the equation.
5. Write NR on the right if the reaction will not occur.

RXN type

**SR**

**D**

**S**

**CB**

**SR**

**DR**

**S**

**DR**

 **SR**

Ex. Calcium and Cobalt (III) nitrate yield **(Calcium Nitrate and Cobalt)**

**3Ca(s) + 2Co(NO3)3 (aq) → 3Ca(NO3)2 (aq) + 2 Co(s)**

* 1. Strontium Carbonate solid yields a metal oxide and a gas**(Strontium oxide and carbondioxide)**

**SrCO3 (s) → SrO (s) + CO2 (g)**

* 1. Magnesium and nitrogen yield **(Magnesium nitride)**

**3Mg (s) + N2 (g) → Mg3N2 (s)**

* 1. The complete combustion of liquid octane (C8H18) **(Carbon dioxide and water)**

**2C8H18 (l) + 25O2 (g) → 16CO2 (g) + 18H2O (g)**

* 1. Aluminum fluoride and iodine yield **(Aluminum iodide and fluorine)**

**2AlF3(aq) + 3I2(s)** **→ 2AlI3(aq) + 3F2(g) NR**

* 1. Nickel (II) bromide and sodium phosphate yield **(Nickel (II) phosphate and sodium bromide)**

**3NiBr2 (aq) + 2Na3PO4 (aq) → Ni3(PO4)2 (s) + 6NaBr (aq)**

* 1. Iron plus oxygen yields an iron (III) salt **(Iron (III) oxide)**

**4Fe (s) + 3O2 (g) → 2Fe2O3 (s)**

* 1. Sodium chloride and calcium bromide yield**(Sodium bromide and calcium chloride)**

 **2NaCl(aq) + CaBr2(aq)→ 2NaBr (aq)  + CaCl2 (aq) NR**

\

* 1. Copper and potassium phosphate yield (copper (II))**(Copper (II) phosphate and potassium)**

 **3Cu(s) + 2K3PO4 (aq) → Cu3(PO4)2(aq) + 6K (s)**  **NR**

RXN type

**SR**

**D**

**CB**

**DR**

**SR**

**S**

**DR**

**D**

**CB**

**S**

**SR**

**DR**

* 1. Calcium and mercury (I) nitrate yields **(Calcium nitrate and mercury)**

**Ca(s) + 2HgNO3 (aq) → Ca(NO3)2 (aq) + 2Hg (l)**

* 1. Water is broken into elements at 250C **(Hydrogen and oxygen)**

**2H2O (l) → 2H2 (g) + O2 (g)**

* 1. The complete combustion of propane gas (C3H8) **(Carbon dioxide and water)**

**C3H8 (g) + 5O2 (g) → 3CO2 (g) + 4H2O (g)**

12) Sodium hydroxide and lead (II) nitrate yields (**Lead(II)hydroxide and sodium nitrate)**

**2NaOH(aq) + Pb(NO3)2(aq) → 2NaNO3(aq) + Pb(OH)2(s)**

13) Zinc and tin (IV) chloride yields **(Zinc chloride and tin)**

**2Zn(s) + SnCl4(aq) → 2ZnCl2(aq) + Sn(s)**

14) Sodium and chlorine yields **(Sodium chloride)**

**2Na(s) + Cl2(g) → 2NaCl(s)**

15) Barium oxide and copper (II) chlorate yields **(Barium chlorate and copper(II) oxide)**

**BaO(aq) + Cu(ClO3)2 (aq) → Ba(ClO3)2(aq) + CuO(s)**

16) Ethanol breaks down into elements **(hydrogen, oxygen, and carbon)**

**2C2H5OH(l) → 6H2(g) + O2(g) + 4C(s)**

17) The complete combustion of solid paraffin wax (C25H52) **(carbon dioxide and water)**

**C25H52 (s) + 38O2 (g) → 25CO2 (g)  + 26H2O(g)**

18) Aluminum, sulfur, and oxygen yield a sulfate salt **(aluminum sulfate)**

**2Al(s) + 3S(s) + 6O2(g) → Al2(SO4)3 (s)**

19) Iron and aluminum iodide yields an iron(II) salt **(Iron iodide and aluminum)**

**3Fe(s) + 2AlI3(aq) → 3FeI2(aq) + 2Al(s) NR**

20) Magnesium hydroxide and phosphoric acid yields **(Magnesium phosphate and water)**

**3Mg(OH)2(aq) + 2H3PO4 (aq) → Mg3(PO4)2 (aq) + 6H2O(l)**