**AP CHEM Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_ Pd \_\_\_**

**Synthesis, Decomposition, Combustion and Roasting Equations -** Write balanced equations for each of the following reactions. Identify the type of reaction as S, D, C or R. Be sure to balance all compounds first!

1) Solid iron (III) hydroxide is heated.

2) Butane gas (C4H10) burns in excess oxygen.

3) Butane burns in limited oxygen.

4) Solid iron (III) oxide is heated.

5) Calcium reacts with phosphorus (P4).

6) Grain Alcohol (C2H5OH - ethanol) burns excess oxygen.

7) Molten sodium chloride is split by electrolysis.

8) Solid Fe3S4 is heated with excess oxygen.

9) Solid potassium carbonate is heated.

10) Oxygen reacts with sulfur (S8) to form sulfur trioxide.

11) Phosphorus (P4) reacts with nitrogen to form diphosphorus heptanitride.

12) Sulfur trioxide gas reacts with water.

13) Glucose (C6H12O6) is “burned” by your cells.

14) Nickel reacts with chlorine gas. (Nickel III ion forms.)

15) Acetone (C3H6O) burns completely in air.

16) Dinitrogen trioxide gas reacts with water.

17) Solid aluminum chlorite is heated.

18) Solid lead (IV) sulfide is heated with limited oxygen.

19) Sodium oxide reacts with water.

20) Solid manganese (VII) bromide is decomposed by heat.

21) Solid cobalt (III) bicarbonate is heated.

22) Aqueous sulfurous acid is heated.

23) Lithium oxide combines with carbon dioxide to make a carbonate compound.

24) Aqueous perchloric acid is heated.

25) Cobalt combines with carbon. (Cobalt III ion forms.)