Chemical Equations

Chemistry Name

*Balance the following equations and indicate the type of reaction taking place.*

1) \_\_\_ NaNO3 + \_\_\_ PbO → \_\_\_ Pb(NO3)2 + \_\_\_ Na2O

2) \_\_\_ AgI + \_\_\_ Fe2(CO3)3 → \_\_\_ FeI3 + \_\_\_ Ag2CO­3

3) \_\_\_ C2H4O2 + \_\_\_ O2 → \_\_\_ CO2 + \_\_\_ H2O

4) \_\_\_ ZnSO4 + \_\_\_ Li2CO3 → \_\_\_ ZnCO3 + \_\_\_ Li2SO4

5) \_\_\_ V2O5 + \_\_\_ CaS → \_\_\_ CaO + \_\_\_ V2S5

6) \_\_\_ Mn(NO2)2 + \_\_\_ BeCl2 → \_\_\_ Be(NO2)2 + \_\_\_ MnCl2

7) \_\_\_ AgBr + \_\_\_ GaPO4 → \_\_\_ Ag3PO4 + \_\_\_ GaBr3

8) \_\_\_ H2SO4 + \_\_\_ B(OH)3 → \_\_ B2(SO4)3 + \_\_\_ H2O

9) \_\_\_ S8­ + \_\_\_ O2 → \_\_\_ SO2

10) \_\_\_ Fe + \_\_\_ AgNO3 → \_\_\_ Fe(NO3)2 + \_\_\_ Ag

11) \_\_\_\_ NaBr + \_\_\_\_ H3PO4 → \_\_\_\_ Na3PO4 + \_\_\_\_ HBr

12) \_\_\_\_ Ca(OH)2 + \_\_\_\_ Al2(SO4)3 → \_\_\_\_ CaSO4 + \_\_\_\_ Al(OH)3

13) \_\_\_\_ Mg + \_\_\_\_ Fe2O3 → \_\_\_\_ Fe + \_\_\_\_ MgO

14) \_\_\_\_ C2H4 + \_\_\_\_ O2 → \_\_\_\_ CO2 + \_\_\_\_ H2O

15) \_\_\_\_ PbSO4 → \_\_\_\_ PbSO3 + \_\_\_\_ O2

16) \_\_\_\_ NH3 + \_\_\_\_ I2 → \_\_\_\_ N2I6 + \_\_\_\_ H2

17) \_\_\_\_ H2O+ \_\_\_\_ SO3 → \_\_\_\_ H2SO4

18) \_\_\_\_ H2SO4 + \_\_\_\_ NH4OH → \_\_\_\_ H2O + \_\_\_\_ (NH4)2SO4

19 What is the purpose of balancing equations?

20 What is represented by the numbers (coefficients) that are placed in front of the formulas in a balanced equation?

21 Explain how endothermic reactions differ from exothermic reactions.

22 Classify the following as an endothermic or exothermic reaction:

(a) freezing water (b) the reaction inside an ice pack

(c) burning wood (d) combustion of Mg in dry ice (e) melting ice

23 Balance this equation, using the smallest possible whole numbers. Then determine how many atoms of oxygen appear on each side of the equation:

\_\_\_\_\_ P4O10 + \_\_\_\_\_ HClO4  🡪\_\_\_\_\_ Cl2O7 + \_\_\_\_\_ H3PO4

24 Suppose that in a balanced equation the term 7 Al2(SO4)3 appears.

(a) How many atoms of aluminum are represented?

(b) How many atoms of sulfur are represented?

(c) How many atoms of oxygen are represented?

(d) How many atoms of all kinds are represented?

25 Make a drawing to show the combustion reaction of one molecule of methane, CH4.