REVIEW QUESTIONS
Chapter 7

Calculate each of the following quantities:

1. Number of moles in 112 g of aspirin, $C_9H_8O_4$

2. Mass of 3.82 moles of silver acetate, $AgC_2H_3O_2$

3. Number of molecules in 1.75 moles of CO_2

4. Number of molecules in 20.0 g of CH_4

5. Classify the type of each of the following reactions:

   a) $(NH_4)_2SO_4 \rightarrow 2\ NH_3 + SO_2 + H_2O$ _____

   b) $Br_2 + 2\ KI \rightarrow 2\ KBr + I_2$ _____

   c) $2\ Na + Cl_2 \rightarrow 2\ NaCl$ _____

   d) $Al(OH)_3 + 3\ HCl \rightarrow AlCl_3 + 3\ H_2O$ _____

6. Balance each of the equations shown below:

   a) ____C + ____$SO_2 \rightarrow$ _____CS_2 + _____CO

   b) _____$Na_3N \rightarrow$ _____Na + _____N_2

   c) _____C_3H_8 + _____$O_2 \rightarrow$ _____CO_2 + _____H_2O

   d) _____Al + _____$H_2SO_4 \rightarrow$ _____$Al_2(SO_4)_3$ + _____H_2

7. Predict the products and write a balanced equation for each of the following:

   a) Decomposition: $NaCl\ (s) \rightarrow$ _____ + _____

   b) Combustion: $C_2H_4\ (g) + O_2\ (g) \rightarrow$ _____ + _____

   c) Combination: $Li\ (s) + Br_2\ (l) \rightarrow$ _____

   d) Double replacement: $NiCl_2\ (aq) + NaOH\ (aq) \rightarrow$ _____+ _____

8. Each of the reactions below occur in the cells of the body. Identify each as endothermic or exothermic:

   a) Succinyl CoA + $H_2O \rightarrow$ Succinate + CoA + 37 kJ _____

   b) GDP + P_i + 34 kJ $\rightarrow$ GTP + H_2O _____

   c) Phosphocreatine + $H_2O \rightarrow$ Creatine + P_i $\Delta H = -42.7$ kJ _____

9. In each reaction below, identify the **bold type** substance as oxidized or reduced:

   a) $\mathbf{C_6H_{12}O_6}$ + 6 O_2 $\rightarrow$ 6 CO_2 + 6 H_2O _____

   b) $\mathbf{Fe_2O_3}$ + 2 Al $\rightarrow$ Al_2O_3 + 2 Fe _____

   c) $\mathbf{6\ CO_2}$ + 6 H_2O $\rightarrow$ $C_6H_{12}O_6$ + 6 O_2 _____

10. Chromium and oxygen combine to form chromium (III) oxide.

   a) Write a balanced equation for this reaction.

   b) How many moles of O_2 react with 4.50 mol of Cr?

   c) How many grams of chromium (III) oxide are formed when 24.8g of Cr react?