Chem 1014
In-Class Problem Set #7
InClass October 6, 1999
Fall 1999

Name_____

TA Name _____

Lab Section #_____

Here are some exta problems to practice on similar to those in ICPS7

1. Balance each of the following equations

   a) $Mg(s) + TiCl_4(l) \rightarrow Ti(s) + MgCl_2(s)$

   b) $Br_2(l) + C_2H_2(g) \rightarrow C_2H_2Br_4(l)$

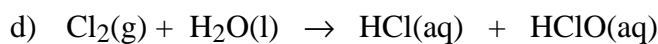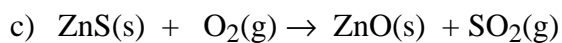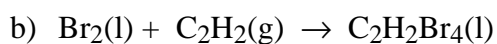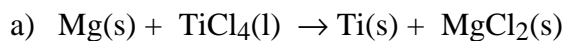   c) $ZnS(s) + O_2(g) \rightarrow ZnO(s) + SO_2(g)$

   d) $Cl_2(g) + H_2O(l) \rightarrow HCl(aq) + HClO(aq)$

   e) $H_2(g) + C_6H_6(l) \rightarrow C_6H_{12}(l)$

   f) $C(s) + H_2(g) + O_2(g) \rightarrow C_2H_5OH(l))$

   g) $Hg_2Cl_2(s) \rightarrow Hg(l) + Cl_2(g)$

   h) $Zn(s) + NaOH(aq) + H_2O(l) \rightarrow Na_2Zn(OH)_4(aq) + H_2(g)$
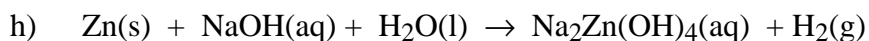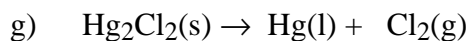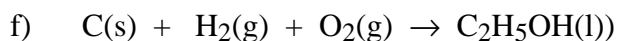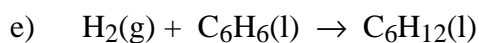
2. Write and balance the equation for each of the following

   a) A formation equation for ZnO.

   b) A formation equation for CO_2.

   c) A formation equation for HCL.

   d) The reaction for the combustion of propane (C_5H_{12}).

3. Calculate the number of atoms in each of the following;

   a) 1.00 g helium
      (note the mass of a helium atom
      is 6.645 x 10^{-24} g)

   b) 17.0 g Na atoms
      (note the mass of a sodium atom
      is 3.821 x 10^{-23} g)

4. Calculate the number of atoms in each of the following; (Use Avogadro's
   number to solve these problems.)

   a) 2.73 x 10^{-2} g carbon

   b) 5.0397 g silicon

   c) 125 g gold

   d) 1.5 mol Mg

   e) 8.12 x 10^2 mol iron

   f) 75 g Al

4. Calculate the mass in each of the following;
   a) 1.04×10^3 mol Kr
   b) 5.92×10^{22} atoms titanium

   c) 1.78 mol CO_2
   d) 0.0710 mol C_2H_6