CH 221
Sample Quiz #4 Name: _____ Lab Section: _____

Be sure to show all work, use the correct number of significant figures, circle final answers and use correct units in all problems.

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1. What mass of oxygen, O_2, is required to react completely with 37.1 grams of pentane, C_5H_{12}? (4 points)

   $C_5H_{12}(g) + 8\ O_2(g) \rightarrow 5\ CO_2(g) + 6\ H_2O(g)$

2. The reaction of 20.0 g H_2 with 30.0 g O_2 yields 12.4 g H_2O. What is the limiting reactant? What is the theoretical yield in grams? What is the percent yield of this reaction? (6 points) **$2\ H_{2(g)} + O_{2(g)} \rightarrow 2\ H_2O_{(g)}$**

3. A mass of 2.052 g of a metal carbonate, MCO_3, is heated to give the metal oxide and 0.4576 g CO_2.

   $MCO_3(s) \rightarrow MO(s) + CO_2(g)$

   What is the identity of the metal? (4 points)

4. Fill in the missing stoichiometric coefficients. **Blank entries** will be **considered** to be **zero**. All stoichiometric coefficients must be whole numbers. (6 points)

   ___ $Pb(NO_3)_2(aq)$ + ___ $LiCl(aq) \rightarrow$ ___ $PbCl_2(s)$ + ___ $LiNO_3(aq)$

   ___ $C_6H_6(l)$ + ___ $O_2(g) \rightarrow$ ___ $CO_2(g)$ + ___ $H_2O(g)$

   ___ $N_2(g)$ + ___ $H_2(g) \rightarrow$ ___ $NH_3(g)$