CH 222
Sample Quiz #1 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.

---

1. What mass of oxygen, O_2, is required to react completely with 37.1 grams of pentane, C_5H_{12}? (6 points)

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

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? (8 points) $\mathbf{2\ H_{2(g)} + O_{2(g)} \rightarrow 2\ H_2O_{(g)}}$

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? (6 points)

CH 222
Sample Quiz #1 Name: _____ Lab Section: _____
Answers

---

1. What mass of oxygen, O_2, is required to react completely with 37.1 grams of pentane, C_5H_{12}? (6 points)

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

132 g O_2

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? (8 points) **$2\ H_{2(g)} + O_{2(g)} \rightarrow 2\ H_2O_{(g)}$**

LR = O_2
TY = 33.8 g
% yield = 36.7%

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? (6 points)

M = Barium