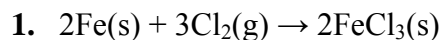


CHAPTER 7	Gravimetric Stoichiometry Problems Answer Key	BLM 7.2.3A
ANSWER KEY		

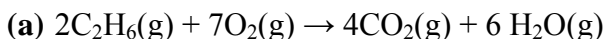


(a) $n_{\text{Fe}} = 1.3 \text{ mol Fe} \times \frac{2 \text{ mol Fe}}{3 \text{ mol Cl}_2} = 0.87 \text{ mol Fe(s)}$

(b) $m_{\text{Cl}_2} = 4.65 \text{ mol Fe} \times \frac{3 \text{ mol Cl}_2}{2 \text{ mol Fe}} \times 70.90 \frac{\text{g}}{\text{mol}} \text{Cl}_2 = 495 \text{ g Cl}_2\text{(g)}$

(c) $m_{\text{FeCl}_3} = 0.520 \text{ g Cl}_2 \times \frac{\text{mol}}{70.90 \text{ g}} \text{Cl}_2 \times \frac{2 \text{ mol FeCl}_3}{3 \text{ mol Cl}_2} \times 162.20 \frac{\text{g}}{\text{mol}} \text{FeCl}_3 = 0.793 \text{ g FeCl}_3\text{(s)}$

2.

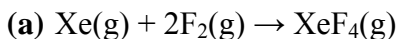


(b) $n_{\text{O}_2} = 10.8 \text{ mol C}_2\text{H}_6 \times \frac{7 \text{ mol O}_2}{2 \text{ mol C}_2\text{H}_6} = 37.8 \text{ mol O}_2\text{(g)}$

(c) $m_{\text{CO}_2} = 0.550 \text{ mol O}_2 \times \frac{4 \text{ mol CO}_2}{7 \text{ mol O}_2} \times 44.01 \frac{\text{g}}{\text{mol}} \text{CO}_2 = 13.8 \text{ g CO}_2\text{(g)}$

(d) $m_{\text{C}_2\text{H}_6} = 10.6 \text{ g H}_2\text{O} \times \frac{\text{mol}}{18.02 \text{ g}} \text{H}_2\text{O} \times \frac{2 \text{ mol C}_2\text{H}_6}{6 \text{ mol H}_2\text{O}} \times 30.08 \frac{\text{g}}{\text{mol}} \text{C}_2\text{H}_6 = 5.90 \text{ g C}_2\text{H}_6\text{(g)}$

3.



(b) $n_{\text{Xe}} = 3.54 \times 10^{-1} \text{ mol F}_2 \times \frac{1 \text{ mol Xe}}{2 \text{ mol F}_2} = 0.177 \text{ mol Xe(g)}$

(c) $m_{\text{XeF}_4} = 4.35 \text{ g F}_2 \times \frac{\text{mol}}{38.00 \text{ g}} \text{F}_2 \times \frac{1 \text{ mol XeF}_4}{2 \text{ mol F}_2} \times 207.29 \frac{\text{g}}{\text{mol}} \text{XeF}_4 = 11.9 \text{ g XeF}_4\text{(g)}$

(d) $m_{\text{Xe}} = 15.7 \text{ g F}_2 \times \frac{\text{mol}}{38.00 \text{ g}} \text{F}_2 \times \frac{1 \text{ mol Xe}}{2 \text{ mol F}_2} \times 131.29 \frac{\text{g}}{\text{mol}} \text{Xe} = 27.1 \text{ g Xe(g)}$