

Chemistry 3202 – Review Quiz

Name: _____

1. A 50.0g sample of Pentane, C₅H₁₂, is combusted in the presence of excess Oxygen Gas.

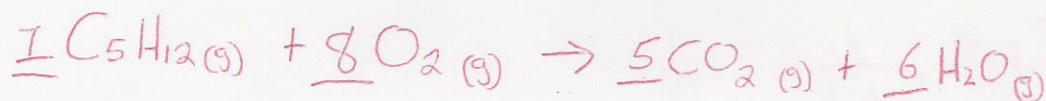
a. Determine the Molar Mass of Pentane. (1)

$$5(12.01\text{g/mol})$$

$$+ 12(1.01\text{g/mol})$$

$$\boxed{72.17\text{g/mol}}$$

b. Write out a balanced equation for the complete combustion of Pentane. (2)



c. Determine the number of moles of Pentane in the Sample. (1)

$$n = \frac{m}{M} = \frac{50.0\text{g}}{72.17\text{g/mol}} = \boxed{0.693\text{mol}}$$

d. Determine the moles of Water formed in the reaction. (2)

$$n_{\text{H}_2\text{O}} = 0.693\text{mol C}_5\text{H}_{12} \times \frac{6\text{mol H}_2\text{O}}{1\text{mol C}_5\text{H}_{12}}$$

$$\boxed{= 4.16\text{mol}}$$

e. Determine the mass of water formed in the reaction. (2)

$$2(1.01\text{g/mol})$$

$$+ 16.00\text{g/mol}$$

$$\hline 18.02\text{g/mol}$$

$$m = n \times M$$

$$= 4.16\text{mol} \times 18.02\text{g/mol}$$

$$\boxed{= 75.0\text{g}}$$