

\* VII-2 \_\_\_\_C \_\_\_\_NC

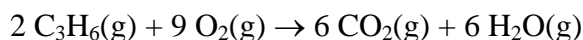
**Chemistry 151**  
**Worksheet 10**

**Name:** \_\_\_\_\_

\*A. (2.0 pts.) A 0.567g sample of pentene gas occupies a volume of 0.250L at a temperature of 100°C and a pressure of 0.992atm. Find the molar mass and molecular weight of pentene.

B. (2.0 pts.) Find the density of butane gas, C<sub>4</sub>H<sub>10</sub>, at 87°C and 0.982atm. (At.Wt C=12.0, H=1.0amu)

C. (2.0 pts.) Propene gas, C<sub>3</sub>H<sub>6</sub>, burns to produce CO<sub>2</sub> and H<sub>2</sub>O by the reaction:



Find the volume of CO<sub>2</sub> gas produced at STP when 15.4g of C<sub>3</sub>H<sub>6</sub> reacts with excess O<sub>2</sub>. (At. Wt. C=12.0, H=1.0, O=16.0amu)

D. (2.0 pts.) A sample of CO<sub>2</sub> gas is collected over water. The volume of CO<sub>2</sub> gas and H<sub>2</sub>O vapor mixture collected is 600mL at 60.0°C and a pressure of 750.0mm(Hg). The vapor pressure of water at 60.0°C is 149.4mm(Hg).

1. Find the partial pressure of the CO<sub>2</sub> gas.

2. Find the volume CO<sub>2</sub> gas would occupy in the absence of the water vapor at 750mm(Hg).

E. (1.0 pts.) A mixture of He, Ne and Kr gases in a flask has a pressure of 600mm(Hg). The mixture is 15.0% He, 35.0% Ne, and 50.0% Kr by volume. If the He is removed from the flask, find the partial pressure of the Ne.

F. (1.0 pts.) Determine the volume at STP of HCl(g) produced in the following reaction if 5.00L of TiCl<sub>4</sub> are reacted with 2.00L of H<sub>2</sub>.

