**GENERAL COLLEGE CHEMISTRY WORKSHOP on GASES NAME:**

_____1. Both hydrogen and helium have been used as buoyant gas in blimps. If a small leak were to occur, which gas would effuse more rapidly and by what factor?

_____2. At STP, 560 mL of a gas has a mass of 1.08 g. What is the molecular weight of the gas?

_____3. Measured at 65 $^{o}$C and 500.0 torr, the mass of 3.21 L of a gas is 3.5 g. What is the molar mass of this gas.

_____4. What volume would 5.30 L of $H_2$ gas at STP occupy if the temperature was increased to 70$^{o}$F and the pressure to 830 torr?

_____5. A compound that has the empirical formula, $BH_3$, was found to have a vapor density of 1.24 g /L at 0$^{o}$C and 760 torr. Calculate the molecular weight. Also write the molecular formula.

_____6. A 0.0682 g sample of aluminum metal was reacted with dilute sulfuric acid and hydrogen gas evolved was collected over mercury at a barometric pressure of 737 torr and 22$^{o}$C. What volume of hydrogen gas was collected?

_____7. A 0.605 g sample of a certain metal, X, reacts with hydrochloric acid to form $XCl_3$ and 450 mL of hydrogen gas collected over water at 25$^{o}$C and 740 mmHg pressure. What is the atomic weight of X?

_____8. Dilute hydrochloric acid is added to a 0.500 g sample of alloy containing zinc and copper. The gas evolved (79.7 mL) is collected over water at 23$^{o}$C and a barometric pressure of 737 mmHg. What is the percentage of zinc in the alloy?