Name \_\_\_

Period \_\_\_\_

## Honors Chemistry Practice Test Gas Laws

**Part I:** Qualitative Questions

1. With the aid of a diagram explain how a barometer works.

2. State the four postulates of the Kinetic molecular theory. Which one is the most accurate of the statements?

3. Draw a plot of pressure versus volume for an ideal gas. Be sure to label the axes.

4. Draw a plot of volume versus temperature for an ideal gas. Be sure to label the axes.

5. Draw a plot of pressure versus temperature for an ideal gas. Be sure to label the axes.

**Part II:** Solve the following word problems using units, showing work, and using sig figs.

1. A 5.0 L flask contains 0.60 g of oxygen at a temperature of  $22.0^{\circ}$  Celsius. What is the pressure inside the flask?

2. A balloon is filled with 700. mL of gas at  $20.0^{\circ}$  Celsius. The balloon is then cooled to 100K. What is the final volume?

Form P

## Form P

3. An ideal gas is in a cylinder with a volume of 500.0 mL at a temperature of 30.0° Celsius and a pressure of 710 torr. The gas is compressed to a volume of 25 mL and the temperature is raised to 820.° Celsius. What is the new pressure?

4. A container is filled with an ideal gas to a pressure of 40.0 atm and standard temperature. What will the pressure be if the container is heated to 45° Celsius?

5. Three gases, He, Ne, and Ar, are held in a container at a total pressure of 15 atm. If the Helium is at 10 atm and the Argon is at 0.5 atm what is the pressure of the Neon in the container?

6. A compound containing 37.5% carbon, 49.9% oxygen, and 12.6% hydrogen was vaporized. What is the empirical formula of the gas?

The gas is found to exert 740 torr at 95° Celsius in a 270 mL vessel. If the mass of the gas was 0.276 g what is the molar mass and molecular formula of the compound?

7. Magnesium carbonate reacts with HCl. How many liters of water at STP are formed by the reaction of 100.0 g of MgCO<sub>3</sub> with excess HCl?