$\qquad$ Period $\qquad$

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

## Form P

3. An ideal gas is in a cylinder with a volume of 500.0 mL at a temperature of $30.0^{\circ}$ Celsius and a pressure of 710 torr. The gas is compressed to a volume of 25 mL and the temperature is raised to $820 .{ }^{\circ}$ 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 $45^{\circ}$ Celsius?
5. Three gases, $\mathrm{He}, \mathrm{Ne}$, 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 $95^{\circ}$ 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 $\mathrm{MgCO}_{3}$ with excess HCl ?

