Honors Chemistry- Gases Podcast 2:

Dalton's Law Questions:

1. A container holds three gases: oxygen, carbon dioxide, and helium. The partial pressures of the three gases are 2.00 atm, 3.00 atm, and 4.00 atm, respectively. What is the total pressure inside the container?

2. A container with two gases, helium and argon, is 30.0% by volume helium. Calculate the partial pressure of helium and argon if the total pressure inside the container is 4.00 atm.

3. If 60.0 L of nitrogen is collected over water at 40.0 °C when the atmospheric pressure is 760.0 mm Hg, what is the partial pressure of the nitrogen?

Graham's Law Questions:

4. If equal amounts of helium and argon are placed in a porous container and allowed to escape, which gas will escape faster and how much faster?

5. What is the molecular weight of a gas which diffuses 1/10 as fast as hydrogen?

6. How much faster does hydrogen escape through a porous container than sulfur dioxide?

7. A total of 2.278×10^{-4} mol of an unidentified gaseous substance effuses through a tiny hole in 95.70 s. Under identical conditions, 1.738×10^{-4} mol of argon gas takes 81.60 s to effuse. What is the molar mass of the unidentified substance?

8. Compare the rate of diffusion of carbon dioxide (CO_2) & ozone (O_3) at the same temperature.

9. Two porous containers are filled with hydrogen and neon respectively. Under identical conditions, 2/3 of the hydrogen escapes in 6 hours. How long will it take for half the neon to escape?

10. If the density of hydrogen is 0.090 g/L and its rate of diffusion is 5.93 times that of chlorine, what is the density of chlorine?