GASES PRACTICE QUIZ NAME________________________________

1) Your new valentines day balloon has a volume of 5.50 L when the temperature outside is 22°C. You place the balloon in your car at night and the temperature drops all the way down to -15°C due to a nasty cold spell. Assuming the pressure does not change and that your balloon does not leak any air, what will be the new volume of your balloon?

(4.81 L)

2) Your empty shampoo bottle, which is air tight and quite elastic, has a volume of 352 mL here in St. Louis where the temperature is 10°C and the pressure is 99.3 kPa. You then travel to Reno where the temperature is 25°C and the pressure is 655 mm Hg. The manufacturer of your bottle has stated that the bottle's maximum volume is 400. mL. The bottle will burst if it expands any larger than this volume. Will your bottle burst?

(V_2=422mL : YES!)

3) 2.00 grams of helium gas are placed in a balloon at a temperature of 25°C and a pressure of 845 mm Hg. What is the volume of the balloon? What is the density of the gas inside the balloon in units of grams/Liter?

(V=11.0L : 0.182 g/L)

4) You perform the reaction for the decomposition of iron (III) carbonate, and collect the gaseous product over water. If you decompose 1.00 gram of iron (III) carbonate and collect the gaseous product over water at a temperature of 35°C and a barometric pressure of 725.0 mm Hg, how many liters of gas would be collected? (The vapor pressure of water at 35°C is 42.2 torr.)

(0.290 L)

5) If the lab described in #4 had been performed dry at STP, what would have been the volume of gas collected?

(0.231 L)

6) Calculate the density (in g/L) of sulfur hexafluoride gas at STP.

(6.52 g/L)

7) It takes 7.50 minutes for 2.00 liters of chlorine gas to effuse through an opening. How many minutes will it take for 2.00 liters of hydrogen gas to effuse through the same opening?

(1.26 min)

8) A compound has the empirical formula CH_2. A 500. mL flask at 80. °C and 770. torr contains 0.735 grams of the gaseous compound. What is the molar mass of the compound? What is the actual molecular formula of the compound?

(42.0 g/mol : C_3H_6)