Deep Run High School

CHEMISTRY I HON: 2(A), 6(A)

Unit 9 Gas Laws Quiz #2

Due Date: **April 20, 2019**

Instructor: **Jennifer Krug**

ID: **6885**

Name: _____ Score: / 100

Question 1 /1

The boiling point of water is

- ☐ 273 K
- ☐ 273 °C
- ☐ 0 °C
- ☐ 373 K

Question 2 /1

A weather balloon is inflated to a volume of 28.7 L at a pressure of 735 mmHg and a temperature of 32.3 °C. The balloon rises in the atmosphere to an altitude where the pressure is 360 mmHg and the temperature is -16.7 °C. What is volume at this altitude?

- ☐ 49 L
- ☐ 68 L
- ☐ 97 L
- ☐ 23 L

Name: _____

Question 3 /1

A 3.00 L sample of gas at 780.0 mm Hg exists at a temperature of 22.0 °C. What is the temperature in Celsius if the volume is increased to 5.00 L and the pressure is decreased to 630.0 mm Hg?

- ☐ 404 °C
- ☐ 397 °C
- ☐ 273 °C
- ☐ 124 °C

Question 4 /1

The total pressure above a liquid is 0.780 atm. What is the pressure of the dry air, if the vapor pressure of the liquid is 0.275 atm at 25 °C.

- ☐ 0.505 atm
- ☐ 1.06 atm
- ☐ 2.83 atm
- ☐ 0.353 atm

Name: _____

Question 5 /1

Blast furnaces give off many unpleasant and unhealthy gases. If the total air pressure is 745 mm Hg, the partial pressure of carbon dioxide is 250 mm Hg, and the partial pressure of hydrogen sulfide is 380 mm Hg, what is the partial pressure of the remaining air?

- ☐ 115 mm Hg
- ☐ 275 mm Hg
- ☐ 630 mm Hg
- ☐ 365 mm Hg

Question 6 /1

Use Graham's Law to compare the speeds of neon gas and argon gas.

- ☐ Neon gas will travel at twice the speed of argon gas.
- ☐ Argon gas travels 1.4 times faster than neon gas.
- ☐ Neon gas travels 1.4 times faster than argon gas.
- ☐ Argon gas will travel at half the speed of neon gas.

Name: _____

Question 7 /1

A chemist calculated the speed of carbon dioxide molecules to be 410 m/s. Use this information to predict the speed of methane molecules.

- ☐ 1200 m/s
- ☐ 680 m/s
- ☐ 1600 m/s
- ☐ 840 m/s

Question 8 /1

A helium balloon with a volume of 3.0 liters is at a temperature of 27 °C and a pressure of 1.0 atm. How many moles of helium are in the balloon?

(R = 0.0821 atm·L/mol·K)

- ☐ **1.2 moles**
- ☐ **0.60 moles**
- ☐ **0.12 moles**
- ☐ **6.0 moles**

Name: _____

Question 9 /1

What is the volume of 1.00 mole of hydrogen gas at STP, given R= 8.314 kPa•L/mol•K?

- ☐ 32.8 L
- ☐ 13.0 L
- ☐ 22.4 L
- ☐ 17.9 L

Question 10 /1

A student measured the pressure of the gas contained in a tank at 646 mm Hg. What is the pressure in atmospheres?

- ☐ 1.2 atm
- ☐ 1 atm
- ☐ 0.85 atm
- ☐ 646 atm

Instructions for grading: Grade each question and tally the score to obtain the total test points. If the factor does not equal 1, multiply the total points by the factor to obtain the student's final score.

Question 1

The boiling point of water is

☐ **373 K**

1 possible pts.

Question 2

☐ 49 L

1 possible pts.

Question 3

A 3.00 L sample of gas at 780.0 mm Hg exists at a temperature of 22.0 °C. What is the temperature in Celsius if the volume is increased to 5.00 L and the pressure is decreased to 630.0 mm Hg?

☐ 124 °C

1 possible pts.

Question 4

The total pressure above a liquid is 0.780 atm. What is the pressure of the dry air, if the vapor pressure of the liquid is 0.275 atm at 25 °C.

☐ 0.505 atm

1 possible pts.

Question 5

Blast furnaces give off many unpleasant and unhealthy gases. If the total air pressure is 745 mm Hg, the partial pressure of carbon dioxide is 250 mm Hg, and the partial pressure of hydrogen sulfide is 380 mm Hg, what is the partial pressure of the remaining air?

☐ 115 mm Hg

1 possible pts.

Question 6

Use Graham's Law to compare the speeds of neon gas and argon gas.

☐ Neon gas travels 1.4 times faster than argon gas.

1 possible pts.

Question 7

A chemist calculated the speed of carbon dioxide molecules to be 410 m/s. Use this information to predict the speed of methane molecules.

☐ 680 m/s

1 possible pts.

Question 8

A helium balloon with a volume of 3.0 liters is at a temperature of 27 °C and a pressure of 1.0 atm. How many moles of helium are in the balloon?

(R = 0.0821 atm·L/mol·K)

☐ **0.12 moles**

1 possible pts.

Question 9

What is the volume of 1.00 mole of hydrogen gas at STP, given R= 8.314 kPa•L/mol•K?

☐ 22.4 L

1 possible pts.

Question 10

A student measured the pressure of the gas contained in a tank at 646 mm Hg. What is the pressure in atmospheres?

☐ **0.85 atm**

1 possible pts.