Chemistry 141 Name

Dr. Cary Willard

Quiz 6a (20 points) October 12, 2010

All work must be shown to receive credit. PV=nRT, R=0.0821 L atm/mol K = 62.4 L torr/mol K

760 torr = 1.00 atm, STP 0oC and 1atm

1. (4 points) Methane gas, CH4, is sold in a 43.8 L cylinder with a pressure of 15.5 atm. How many liters of methane will be produced at a pressure of 735 torr?
2. (4 points) What is the density of carbon dioxide at 35.0oC and 650 torr?
3. (6 points) When 35.6 L of ammonia and 40.5 L of oxygen gas at STP burn, nitrogen monoxide and water are produced.

NH3(g) + O2(g) 🡪 NO(g) + H2O(g) (unbalanced)

After the products return to STP, how many L of nitrogen monoxide are produced?

How many grams of nitrogen monoxide are produced?

1. (3 points) Which sample contains the most molecules: 1.00 L of O2 at STP, 1.00 L of air at STP, or 1.00 L of H2 at STP?
2. (3 points) Why does a helium filled balloon lose pressure faster than an air filled balloon?

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Quiz 6b (20 points) October 12, 2010

All work must be shown to receive credit. PV=nRT, R=0.0821 L atm/mol K = 62.4 L torr/mol K

760 torr = 1.00 atm, STP 0oC and 1atm

1. (4 points) Methane gas, CH4, is sold in a 43.8 L cylinder with a pressure of 17.7 atm. How many liters of methane will be produced at a pressure of 735 torr?
2. (4 points) What is the density of carbon dioxide at 45.0oC and 550 torr?
3. (6 points) When 45.6 L of ammonia and 30.5 L of oxygen gas at STP burn, nitrogen monoxide and water are produced.

NH3(g) + O2(g) 🡪 NO(g) + H2O(g) (unbalanced)

After the products return to STP, how many L of nitrogen monoxide are produced?

How many grams of nitrogen monoxide are produced?

1. (3 points) Which sample contains the most molecules: 1.00 L of O2 at STP, 1.00 L of air at STP, or 1.00 L of H2 at STP?
2. (3 points) Why does a helium filled balloon lose pressure faster than an air filled balloon?