Chemistry 141 Name KEY

Dr. Cary Willard

Quiz 3A (20 points) October 2, 2008

All work must be shown to receive credit.

760 torr = 1 atm = 101.3 kPa, PV = nRT, R = 0.0821 L atm/mol K = 62.4 L torr/mol K

1. (4 points) Convert 752 mmHg to atm and kPa.
2. (4 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?

They both contain the same number of molecules. (PV=nRT, n=PV/RT = constant)

1. (4 points) What is the density of krypton gas at 863 torr and 35.0 oC?
2. (8 points) Magnesium metal reacts with aqueous HCl to yield H2 gas:

Mg(s) + 2 HCl(aq) 🡪 MgCl2(s) + H2(g)

The gas that forms is found to have a volume of 2.731 L at 25oC and a pressure of 747 mm Hg. Assuming that the gas is saturated with water vapor at a partial pressure of 23.8 mm Hg, what is the partial pressure (mmHg) of the H2?

How many moles of H2 were produced in the reaction?

How many grams of magnesium were used in the reaction?

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Quiz 3B (20 points) October 2, 2008

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1. rr = 1 atm = 101.3 kPa, PV = nRT, R = 0.0821 L atm/mol K = 62.4 L torr/mol K
2. (4 points) Convert 572 mmHg to atm and kPa.
3. (4 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?

They both contain the same number of molecules. (PV=nRT, n=PV/RT = constant)

1. (4 points) What is the density of krypton gas at 633 torr and 35.0 oC?
2. (8 points) Magnesium metal reacts with aqueous HCl to yield H2 gas:

Mg(s) + 2 HCl(aq) 🡪 MgCl2(s) + H2(g)

The gas that forms is found to have a volume of 6.007 L at 25oC and a pressure of 747 mm Hg. Assuming that the gas is saturated with water vapor at a partial pressure of 23.8 mm Hg, what is the partial pressure (mmHg) of the H2?

How many moles of H2 were produced in the reaction?

How many grams of magnesium were used in the reaction?