Chemistry 141 Name KEY

Dr. Cary Willard

Quiz 5A (20 points) March 1, 2011

1 atm = 101.3 kPa = 14.7 psi = 760 torr = 760 mm Hg, PV=nRT, R=0.0821 L atm/mol K=62.4 L torr/mol K

1. (4 points) The pressure of a tire is 2150 torr. Determine the pressure of the tire in atm and psi.
2. (6 points) A piece of dry ice (solid carbon dioxide) with a mass of 42.5 g is allowed to sublime (convert from solid to gas) into a large balloon. Assuming that all of the carbon dioxide ends up in the balloon, what will be the volume of the balloon at a temperature of 22oC and a pressure of 751 torr?
3. (6 points) What is the density of chlorine gas (Cl2) at a temperature of 63oC and a pressure of 3.65 atm?
4. (4 points) Carbon monoxide can be converted to methyl alcohol by the following reaction.

CO(g) + 2 H2(g) 🡪 CH3OH(l)

Determine the L of hydrogen gas at a pressure of 582 torr and a temperature of 28oC are required to react with 4.25 L of carbon monoxide under the same conditions.

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Quiz 5B (20 points) March 1, 2011

1 atm = 101.3 kPa = 14.7 psi = 760 torr = 760 mm Hg, PV=nRT, R=0.0821 L atm/mol K=62.4 L torr/mol K

1. (4 points) The pressure of a tire is 1850 torr. Determine the pressure of the tire in atm and psi.
2. (6 points) A piece of dry ice (solid carbon dioxide) with a mass of 68.3 g is allowed to sublime (convert from solid to gas) into a large balloon. Assuming that all of the carbon dioxide ends up in the balloon, what will be the volume of the balloon at a temperature of 22oC and a pressure of 751 torr?
3. (6 points) What is the density of chlorine gas (Cl2) at a temperature of 63oC and a pressure of 2.07 atm?
4. (4 points) Carbon monoxide can be converted to methyl alcohol by the following reaction.

CO(g) + 2 H2(g) 🡪 CH3OH(l)

Determine the L of hydrogen gas at a pressure of 582 torr and a temperature of 28oC are required to react with 3.45 L of carbon monoxide under the same conditions.