**Ideal Gas Law practice questions**

1. What amount of air, in moles, is present in a house containing 6.00 × 105L of air at 20°C and 98 kPa? **(2.4 x104mol - 2marks)**
2. Calculate the volume of 16mol of oxygen at 22°C and 97.5kPa. **(4.0 x102L - 2marks)**
3. A 70.0L tank on a car is drained of liquid gasoline. How many moles of octane vapor are present in this tank at SATP? **(2.82mol - 2marks)**
4. A 10.0L sample of helium gas contains 0.650mol and is at 105kPa. What is the temperature in °C? **(-78.9°C - 2marks)**
5. Calculate the mass of neon gas in a neon sign with a volume of 50L at 10°C and

3.1 kPa. **(1.3g - 2marks)**

1. Calculate the volume of 8.4g of nitrogen gas at 200°C and 130kPa. **(9.1L - 2marks)**
2. Hydrogen gas is generated by the decomposition of water to fill a 1.1kL weather balloon at 20°C and 100kPa. What is the mass of hydrogen gas in the balloon?

**(91g- 2marks)**

1. What is the temperature of 45.3g of ammonia gas if it occupies 64.2L at 150kPa?

**(436K - 2marks)**

1. A student is conducting an experiment to determine the molar mass of a gas. She has a 2.44g sample of a gas in a volume of 15.0L. The pressure is 100kPa and the temperature is 23.0°C. Calculate the molar mass of the gas and determine the identity of the gas she was using. **(4.00g/mol- 3marks)**
2. What is the volume of 2.5mol of methane gas at 25°C and 95.0kPa? **(65L-2 marks)**
3. What mass of gaseous hydrogen chloride is needed to exert a pressure of 24.3 kPa in a container with volume of 250.0 mL at 17.0? **(9.18x102 -2 marks)**
4. What is the mass of 34.0L of carbon dioxide gas at 30°C and 115kPa? **(68g- 2marks)**
5. A sample of an **elemental** gas has a volume of 2.00L and a mass of 2.57 g at 37.0and a pressure of 785 mmHg. What is a possible identity of the gas? Show your work. **(31.7g/mol- 3 marks)**