**Mr Canning´s Gas Law Madness!!!**

***Remember*** *– Temperature should always be converted into Kelvin. The other units do not need to be changed unless we are using the Ideal Gas equation.*

**Easy Medium Hard**

**Question 1 -** Sketch the graph of Boyle- Marriotte´s Law and state any conditions required (constants).

**Question 2 -** A balloon contains 4 moles of an ideal gas with a volume of 5.0 L.  
If an additional 8 moles of the gas is added at constant pressure and temperature, what will be the final volume of the balloon? *(Hint: if there are twice as many then volume will be twice as much)*

**Question 3 -** What is the density (in g/L) of a gas with a molar mass of 60 g/mol at 0.75 atm and 27 °C? *(Hint: First, work out the number of moles if we had 1 litre, then work out the mass)*

**Question 4 -** State Charles´s Law and write the equation.

**Question 5 -** 4 moles of nitrogen gas are confined to a 6.0 L vessel at 177 °C and 12.0 atm. If the vessel is allowed to expand isothermically to 36.0 L, what would be the final pressure? *(Hint: The number of moles and temperature are constant)*

**Question 6 -** A 9.0 L volume of chlorine gas is heated from 27 °C to 127 °C at constant pressure. What is the final volume?

**Question 7 -** The temperature of a sample of an ideal gas in a sealed 5.0 L container is raised from 27 °C to 77 °C. If the initial pressure of the gas was 3.0 atm, what is the final pressure?

**Question 8 -** A 0.614 mole sample of ideal gas at 12 °C occupies a volume of 4.3 L. What is the pressure of the gas?

**Question 9 -** A 60.0 L tank of chlorine gas at 27 °C and 125 atm springs a leak. When the leak was discovered, the pressure was reduced to 50 atm. How many moles of chlorine gas escaped?

**Question 10 –** What assumptions do we make when dealing with Ideal Gases and why do we make them? Explain when these assumptions are most valid (which conditions)?