**CHE Revision**

1- Calculate the volume (in liters) occupied by 40g of NH3 at STP (Molar mass NH3 is 17.03g).

2- An ideal gas originally at 2.85 atm and 66 °C was allowed to expand until its final volume, pressure, and temperature were 204 mL, 3.60 atm, and 45C, respectively. What was its initial volume?

3-At 841 torr and 84°C, 7.10 g of a gas occupy a volume of 15.40 L. What is the molar mass of the gas?

4- A sample of air occupies 3.8 L when the pressure is 1.2 atm.

What pressure is required in order to compress it to 0.075 L? (The temperature is kept constant.) \_\_\_\_.

A sample of methane gas that has a volume of 3.8 L at 15°C is heated to 32°C at constant pressure. Calculate its new volume.

5- The density of a gas was measured at 6.50 atm and 47C and found to be 1.95 g/L.

Calculate the molar mass of the gas.

6- Suppose we have 1 mole of an ideal gas at 0°C (273.2 K) and 1 atm. From the ideal gas law, the volume of the gas is given by how many moles of OH- are needed to neutralize 200 mL solution of HCl with 0.25 M concentration?

**7- Balance the following redox equation**

Cr2O7 2-(*aq*) + Fe 2+(*aq*) → Fe3+(*s*) + Cr3+(*aq*) (*acidic*)