**Homework #11 Chemistry 1114 due Wed 24 April 2018 15 pts (in class) Show your work !!**

**Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**1) What gas quantity is held constant in the Combined Gas Law ?**

**2) A sample of O2 gas at constant temperature initially occupies a volume of 6 L at a**

**pressure of 2 atm. What is the pressure if the volume increases to 12 L ? (3 pts)**

**\_\_\_\_\_\_\_atm= P2**

**3) A sample of He initially at 300 K occupies 6 L at 0.5 atm. What must the new temperature be if the volume decreases to 2 L and pressure of 1 atm ? (3 pts)**

**\_\_\_\_\_\_\_\_K = T2**

**4)An unknown gas can have one of six identities: (R=0.08206 atm L/K mol)**

**O2 N2 CO2 H2O SO2 H2**

**MW 32 28 44 18 64 2**

**A 1.0 gram sample of the gas occupies 1.00 L at 300 K and a pressure of 0.879 atm. Which gas are you working with and why (show work.) (4 pts)**

**\_\_\_\_\_\_ gas ID**

**5) A nitrogen oxide compound NxOy decomposes to form N2 and O2.**

**The possible choices for the compound are:**

**NO2🡪 ½ N2 + O2**

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**N2O4 🡪 N2 + 2O2**

**The Ideal Gas fairy informs you that 1 mole of the mystery gas decomposes to N2 and O2 which then occupies 73.854 L at 1 atm and 300 K.**

**What is the identity of the original NxOy compound and why ? (show work on back) (4 pts)**

**\_\_\_\_\_\_\_ NxOy ID**