**Honors Final Exam Review**

**Worksheet 2**

1. Write electron configurations for the following:
	1. Chlorine
	2. Cerium
	3. Silicon
	4. Chromium
2. A container holds 265 ml of chlorine gas, Cl2. Assuming that the gas sample is at STP, what is its mass?
**(0.84 g)**
3. Assume that 13.5 grams of aluminum react with HCl according to the following equation, at STP:

Al (s) + HCl (aq) → AlCl3 (aq) + H2 (g)

Determine the grams of hydrogen produced. **(1.5 g)**

1. A gas is collected over water and occupies a volume of 596 ml at 43°C. The atmospheric pressure is 101.1 kPa. What volume will the dry gas occupy at 43°C and standard atmospheric pressure? The vapor pressure of water at 43°C is 8.6 kPa. **(0.549 L)**
2. Calculate the wavelength, in nanometers, of a light wave that has a frequency of 4.5 × 1012 s-1. **(6.7E5 nm)**
3. Calculate the energy of a photon that has a frequency of 3.3 × 1013 s-1. **(2.18E-20 J)**
4. What type (or types) of intermolecular attractive forces are found in the following:

HCl CH4 HF NO- CO2 H2S SO2

1. Consider the reaction: NaI + Cl2 → NaCl + I2
	1. How many grams of chlorine gas must be reacted with sodium iodide if 10.0 grams of sodium chloride are needed? **(6.12 g)**
	2. What is the limiting reactant if 150 grams of sodium iodide is combined with 2 moles of chlorine gas?
2. For each of the following, draw Lewis electron dot structures. Then use VSEPR to predict shape and indicate bond angles and polarity.: PH3, AlBr3, IO41-