**Homework #4: Chemistry 1013 Fall 2017**

**Due Friday 13 October in class 35 pts**

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

**a) N3F6 \_\_trinitrogen hexafluoride\_\_\_\_\_\_\_ b) CaCl2\_Calcium chloride\_\_\_\_\_ FeO\_iron(II) oxide\_\_\_**

**d) Na2CrO4 \_\_sodium chromate\_\_\_\_\_\_\_\_\_ e) CuSO4 \_\_\_\_copper(II) sulfate\_\_\_\_\_\_**

**1) Express the following decimal values in scientific notation**

**a) 0.00016 g \_\_\_\_\_1.6\*104g\_\_\_\_\_\_\_\_\_\_\_\_**

**b) 150,000 m \_\_\_\_\_1.5\*105 m\_\_\_\_\_\_\_\_\_\_\_\_**

**c) 0.000000001 s \_\_\_\_\_1\*10-9 s\_\_\_\_\_\_\_\_\_\_\_\_**

**1) Express the following scientific notation values in decimal notation**

**a) 1.5\*10-6 g\_\_\_\_0.0000015 g\_\_\_\_\_\_\_\_\_\_\_\_ b) 3.5\*109 m\_\_\_\_3,500,000,000 m\_\_\_\_\_\_\_\_\_**

**2) Express the following values using the best prefixed value.**

**Example: 3000 m = 3 km**

**a) 9\*10‑9 s \_\_\_\_\_\_\_9 ns\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b) 60,000 m \_\_\_\_\_\_\_60 km\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**c) 4\*10-6  s \_\_\_\_\_\_\_\_4 μs\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**d) 0.005 g \_\_\_\_\_\_\_\_5 mg\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**3.Convert to meters:**

**a) 10 Mm \_\_\_\_\_\_\_1.0\*107 m\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b) 5 dm \_\_\_\_\_\_\_\_0.5 m\_\_\_\_\_\_\_\_\_\_\_\_\_**

**c) 120 nm \_\_\_\_\_\_\_\_1.2\*10-7 m\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4. Convert to oC (see pp 126-7) 5. Convert to K (see pp 126-7)**

**a) -40 oF \_\_\_\_\_\_\_-40oC\_\_\_\_\_\_\_\_\_\_\_\_\_ a) 100 oC \_\_\_\_\_373 K\_\_\_\_\_\_\_\_\_\_\_\_**

**b) 100 K \_\_\_\_\_\_\_-173 oC\_\_\_\_\_\_\_\_\_\_\_\_ b) -100 oF ­­­­­­­­­­­­­­­­­­\_\_\_\_~200 K\_\_\_\_\_\_\_\_\_\_\_\_**

**6. Problen 4.23a\_\_\_\_\_\_\_18.5 mL\_\_\_\_\_\_\_ Problem 4.23d\_\_\_\_\_10.90 mL\_\_\_\_\_\_\_**

**(write down the volumes to the correct sig fig count)**

**7. How many significant figures in:**

**0.0001000 \_\_\_\_\_4\_\_ 100\_\_\_\_1\_\_\_\_ 100.00\_\_\_\_\_\_5\_\_ 6.02\*1023 \_\_\_\_\_\_3\_\_\_\_\_**

**8. Compute the following expressions to the correct number of significant figures**

**1.00-0.0001 +5 = \_\_\_\_6\_\_\_\_\_\_ 6.00/2.0= \_\_\_3.0\_\_\_\_\_\_ 3.00 + (2.0000\*4.0)=\_\_11.0\_\_\_\_\_\_\_**

**9. Circle all the incorrect equalities:**

**a) 1 cg = 0.001 g b) 5.6 dL = 0.56 L c) 100 ng = 10‑9 g d) 65 Tb= 650 Gb**

**10. Convert:**

**a) 1.75\*10-6 Mg to cg \_\_\_\_\_175 cg\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b) 3.22 \*104 μm to dm \_\_\_\_\_\_0.322 dm\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**