Unit 1 – Cumulative Practice

Name: _____

Conversions / Significant Figures / Density / % Error / Measurements

I. CONVERSIONS *(Metric & Non-Metric)* **– Perform the following conversions by showing the FACTOR LABEL METHOD. Show units in answer!**

1) 20.5 kg = __?__ dg

2) 430 mL = __?__ L *(Scientific Notation)*

3) 10.5 atm = __?__ mmHg *(1 atm = 760 mmHg)*

4) 10.0 L = __?__ mol *(1 mol = 22.4 L)*

II. SIGNIFICANT FIGURES - *Determine the correct number of significant figures (sig figs) in each measurement below.*

5) 5306 g = _____

6) 550 sec = _____

7) 48.0 L = _____

8) 20 mol = _____

9) 1.0×10^{-3} ms = _____

10) 6.02×10^{23} molecules = _____

III. ROUNDING - Round the following numbers to the indicated number of significant figures.

11) 542,923 → (4 s.f.) _____ *(expressed in scientific notation)*

12) 0.07782 → (3 s.f.) _____ *(expressed in scientific notation)*

13) 140.85 → (2 s.f.) _____ *(expressed in scientific notation)*

IV. DENSITY / % ERROR – Show all of your work for full credit.

14) A. What is the density of a metal that has a mass of 36.8 grams and a volume of 4.00 cm^3 ?

B. The accepted value of this metal is 8.90 g/cm^3. What is the measurement's percent error?

C. What is the identity of this metal? *(Hint: Look at your reference table)*

15) A student working in a laboratory recorded measurements of a piece of metal and reported that the metal had a mass of 275.1 grams and a volume of 23.0 cm^3. What is the student's experimental density of the metal?

16) A. The water level in a graduated cylinder is 25.0 mL. When a solid is put into the graduated cylinder, the new volume is 31.0 mL. If the solid has a mass of 27.9 grams, what is its density?

   B. The accepted value of this solid is 4.5 g/mL *(1mL = 1cm³)*. What is the percent error?

   C. What is the identity of this solid? *(Hint: Look at your reference table)*

V. <u>LAB MEASUREMENTS</u> – Record the following measurements to the correct number of significant figures (sig figs). Include proper units (mL or cm).

What is the reading in milliliters for each graduated cylinder?