

MIDTERM REVIEW –CHEMISTRY

I. MEASUREMENTS IN CHEMISTRY

- A. Rewrite the following in proper scientific notation and determine the number of significant figures in each number:

Given	Scientific Notation	Significant Figures
2300		
14010		
52.39×10^3		
0.009		
0.30010		

- B. Compute the following. Answer with correct number of SigFigs and in Scientific Notation:

301L to mL

$$3.7 \times 10^2 \text{ m} \times 1.0 \times 10^3 \text{ m} \times 1.7 \times 10^1 \text{ m}$$

Calculate volume of: 3.1cm x 2cm x 4.2cm

Calculate density (g/mL) of an object whose mass is 14.00kg and whose volume is 362L

What is the heat required to raise 6.25×10^5 g of water from 32.0°C to 96.0°C ($C_{\text{water}} = 4.184 \text{ J/g}^\circ\text{C}$)

II. MATTER

- A. Identify the following as either a chemical or physical change:

Cutting paper
Crumbling paper
Burning paper
Paper gets wet

- B. Identify mixture as either homogeneous or heterogeneous:

Black coffee
Muddy water
Gasoline
Brass

- C. Identify as either a pure substance, compound, mixture, or solution:

Salt
Air
Gold
Sugar water

III. ATOMIC STRUCTURE

A. Fill in the chart below:

Group	Name	Symbol	#P	#N	#e	Mass
	Sodium Ion					23
		Cl^{-1}		18		
	Oxygen	O				16
		Pb^{+4}				207
		$^{240}_{92}\text{U}$				
Alkaline Earth Metal			20		18	40
	Aluminum					27

B. Name two isotopes of Carbon and write their atomic structures in nuclear notation:

C. Where is the majority of the mass of an atom located?

IV. NAMING COMPOUNDS, WRITING FORMULAS, AND CHEMICAL EQUATIONS

A. Write a balanced equation and predict the products for:

1. The acid-base reaction between nitric acid and magnesium hydroxide
2. Potassium chromate + barium nitrate ---->
3. Combustion of propane (C_3H_8)
4. Iron (III) oxide and Aluminum ---->
5. Decomposition of Lead (IV) oxide
6. Synthesis of Potassium chloride

B. Using the following ions, create and name 4 different compounds:

CO_3 Na Al NO_3 PO_4 OH NH_4