Exam 1 Review Packet

Identify each substance as a compound, an element, a homogeneous or heterogeneous mixture.

Filtered tea

Selenium

Soil

Table sugar (sucrose)

Salad dressing

Aluminum oxide

Convert the following:

0.042 km to m

7.3 L to ml

The Eiffel tower in Paris, France contains 8200 tons of puddles iron in its makeup. How many grams (g) of iron is that equal to? 1 ton = 2000 lb.; 453.6 g = 1 lb.

A patient requires 2.5 g of medication. The medication is available as a 20 mg/mL solution. How many milliliters of the solution should be administered?

What volume of gold (density 19.3 g/ml) is needed to obtain 9.4 g of gold?

Determine the number of protons, neutrons, and electrons in the following elements:

N^{3-} Ca^{2+}

Classify the following compounds as ionic, molecular (covalent), or acidic and then name.

	Type	**Name**
A. **$CrPO_4$**	_____	_____
B. **SO_2**	_____	_____
C. **HBr (aq)**	_____	_____

Write the correct formula for the following compounds.

A. **Sodium Carbonate** _____
B. **Dichlorine tetrasulfide** _____
C. **Lithium bromide** _____
D. **Copper (II) phosphate** _____

Balance the following equations:

$KClO_3\,(s) \rightarrow KCl\,(s) + O_2\,(g)$ $V\,(s) + O_2\,(g) \rightarrow V_2O_5\,(s)$

Balance the following equation and use it to answer the following two questions:

$$\_\_Fe + \_\_CuSO4 \rightarrow \_\_FeSO4 + \_\_Cu$$

Calculate the grams of copper (Cu) produced if 0.500 grams of iron (Fe) react completely.

Calculate the moles of copper (II) sulfate ($CuSO_4$) needed to react completely with 3.75 moles of iron (Fe).

Determine the molecular formula of a compound with an empirical formula of CH_2O and a molar mass (molecular mass) of 180.16 g/mol.

Ascorbic acid contains 40.92% C, 4.58% H, and 54.50% O by mass. What is the empirical formula of ascorbic acid?

When 73.0 grams of octane (C_8H_{18}) is burned in the presence of 68.0 grams of oxygen, 26.2 grams of water is produced.

A. Balance the chemical reaction for this problem

B. Determine the limiting reactant and the theoretical yield in grams of water.

C. Determine the percent yield of this reaction.