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CHEMISTRY 11
UNIT ONE TEST REVIEW

Your Unit 1 test will cover all the material that we have covered until this point, the major topics include: •Nomenclature

- Safety (The WHMIS Symbols)
- Scientific Notation
- Significant Digits
- SI Base Units
- Multiples of Base Units (eg. Kilo, centi, milli and micro)
- Unit Conversions: single, multiple and metric
- Density Calculations
- Chemical vs. Physical properties + changes
- Matter- definitions, the matter tree, and separating matter

The test questions that you recieve will be based on those given in this worksheet. As well as additional ones. This worksheet will be collected at the start of class on the test day.

SAFETY:

1. What do the letters in the acronym WHMIS stand for?

_____

2. For each of the follwing, write down the appropriate WHMIS symbol and provide an example material that would have this symbol on its label.

					
					
					
					

/2

1. In the space below, write one rule for significant figures and give an example of that rule.

/2

2. When the rounding tool is five what are the two rules?

/6

3. Write either the abbreviation or the name of each of the following measurements.

ABBREVATION	NAME
Kg	
	micrometer
s	
Mol	
m	
	Liter

/4

4. How many sig figs are in each of the following?

0.000026	
4052.0	
1200	
0.07459	

/4

5. Express each of the following numbers in scientific notation.

2730	
0.000256	
602000000000000000000000	
15.2690000	

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6. When multiplying or dividing two numbers, the answer is rounded off to the _____ number of sig figs used in the calculation.

/4

7. Express each of the following in ordinary notation.

6.53×10^{-3}	
2×10^{6}	
3.4565×10^{10}	
1.01×10^{-6}	

/6

8. Perform the indicated operations, answers in exponential form.

$10^{3} \times 10^{6}$		$10^{2} / 10^{8}$	
$10^{-2} \times 10^{5}$		$10^{7} / 10^{3}$	
$10^{-1} \times 10^{10}$		$10^{2} / 10^{-5}$	

/4

9. Perform the indicated operations. Convert all answers to scientific notation, showing the correct number of significant digits.

$(5.8 \times 10^{3})(3.6 \times 10^{9}) =$	
$(3.3 \times 10^{-7})(5.5 \times 10^{-7}) =$	
$(1.5 \times 10^{7}) =$ (4.5×10^{5})	
$(4.75 \times 10^{6}) + (5.6 \times 10^{7})$	

/6

10. Using your knowledge of unitary rates, convert the following measurements.

a. 265 g ⟶ _____ kg ⟶ _____ dag
b. 0.00067m ⟶ _____ cm ⟶ _____ mm
c. 78 kg ⟶ _____ g ⟶ _____ mg

/3

11. If 3000ml of copper has a mass of 4.389 kg, what is the volume occupied by 100.0 kg of copper?

/3

12. What is the cost of 7 dozen eggs if the eggs sell for $2.59/dozen?

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13. The gas tank on my ski-doo holds 5.9 liters. If one liter is equal to 0.264 gallons in the USA and gas is $1.24 /gallon. How much would it cost me to fill my tank in the states?

/3

15. The following is a comparison of kilometers driven to the amount of gas pumped into the tank.

Km	Gas pumped (L)
360	60
24	4
72	12

a. Are the two quantities proportional? Explain.

b. Calculate the unitary rate that can be derived from this set of data.

/1

16. What is the formula for density?

/3

17. Complete the table given below.

MASS	VOLUME	DENSITY
45g	5ml	
	60ml	3g/ml
60g		4g/ml

/2

18. A solution has a density of 2.5 g/ml. How many grams are needed to obtain:

6ml of solution _____

10 ml of solution _____

/1

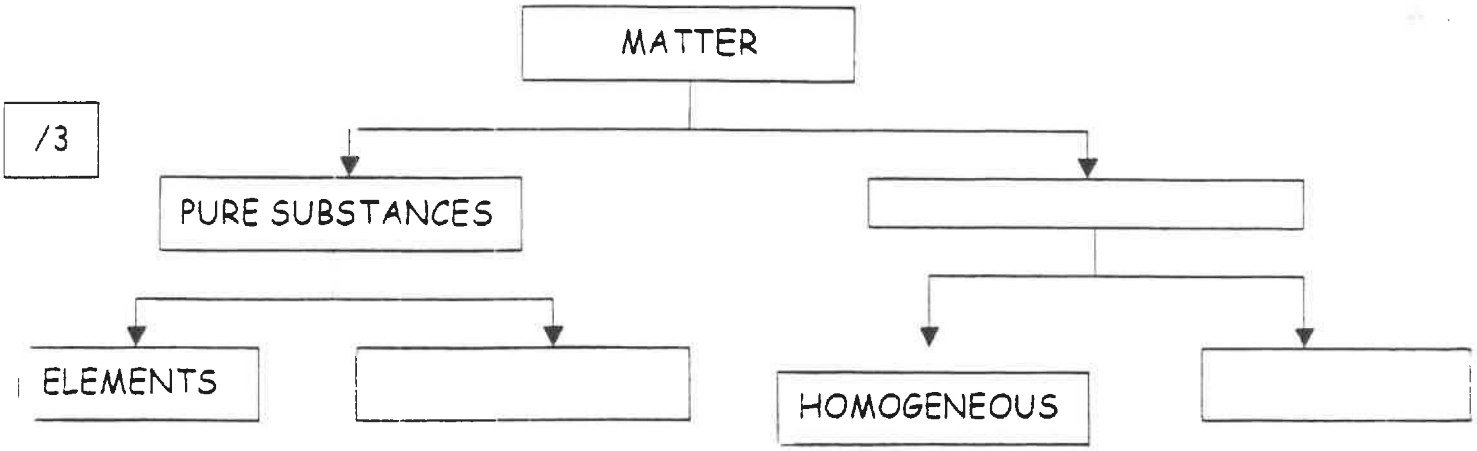
1. Define matter.

2. What are the three physical states of matter.

/3

3. Complete the following flow chart.

/3



4. Classify the following as either chemical or physical properties.

/4

	PHYSICAL PROPERTY	CHEMICAL PROPERTY
BLUE COLOUR		
DENSITY		
MELTING POINT		
FLAMMABILITY		

5. Classify the following as either a physical or chemical change:

/4

a. Slicing a pellet of sodium in two _____
b. A solid block of iron is melted _____
c. Sugar crystals are dissolved in water _____
d. Hydrochloric acid reacts with sodium carbonate and bubbles are formed. _____

6. In class, we discussed different methods of separating matter, give 2 of the methods.

/2

/17

Nomenclature:

1 Write the formulas of the following molecular compounds:

(a) chlorine monoxide

(b) tetraphosphorus hexaoxide

(c) arsenic pentafluoride

(d) nitrogen tri-iodide

2 Write the names of the following molecular compounds:

(a) P_3Br_5

(b) B_2H_6

(c) SO_3

(d) CF_4

3. Write the formulas of the following hydrated salts:

(a) sodium sulphate decahydrate

(b) calcium chloride dihydrate

(c) copper(II) acetate monohydrate

(d) chromium(III) chloride hexahydrate

4. Write the names of the following hydrated salts:

(a) $Cd(NO_3)_2 \cdot 4H_2O$

(b) $Na_2HPO_4 \cdot 7H_2O$

(c) $CuSO_4 \cdot 5H_2O$

(d) $Fe(NO_3)_3 \cdot 9H_2O$

5 Write the formulas of the following acids:

(a) hydrobromic acid

(b) chromic acid

(c) chloric acid

(d) hypochlorous acid

6 Write the names of the following acids:

(a) H_2S

(b) $HClO_4$

(c) HNO_2

(d) HSCN

7 Write the formulas of the following variety of compounds:

(a) potassium oxide

(b) permanganic acid

(c) sulphur dioxide

(d) ammonium carbonate

(e) iron(II) sulphate heptahydrate

(f) hydrocyanic acid

(g) sulphur hexafluoride

(h) calcium acetate monohydrate

(i) chromium(III) bisulphite

(j) magnesium hydroxide

Significant Figures & Calculations

1. Express the following in proper form scientific notation. Then indicate the correct number of significant figures in the value.

   (a) 4907 L _____

   (b) 0.000 052 m _____

   (c) 7900 g _____

   (d) 0.060 30 ft _____

   (e) 790.0 lb _____

2. Carry out the following operations and give the answers with the correct number of significant figures. Pay close attention to the units.

   (a) 14.6 cm × 12.2 cm × 9.3 cm

   (b) 28.0 m × 16.0 m × 7.0 m

3. A chunk of nickel has a mass of 9.0 g and a volume of 1.01 mL. What is its density?

4. The density of copper is 8.9 g/mL. What is the mass of a 10.8 mL piece of copper?

5. Carry out the following operations and give the answer with the correct number of significant figures.

   (a) 608 g + 7 g + 0.05 g

   (b) 481.33 mL − 37.1 mL

   (c) 6620 s + 35.7 s + 1.00 s

   (d) 0.007 m + 0.100 m + 0.020 m

6. Determine the answer with the correct number of significant figures:

$$\frac{1.415\ \text{g}}{1.6\ \text{mL}} + \frac{0.240\ \text{g}}{0.311\ \text{mL}} + \frac{40.304\ \text{g}}{0.2113\ \text{mL}}$$

7. Determine the answer to each the following with the correct number of significant figures:

   (a) $\dfrac{8.4\ \text{g} + 3.0\ \text{g} + 4.175\ \text{g}}{3}$

   (b) $\dfrac{9.00 \times 10^{-23}\ \text{units} \times 2.9900 \times 10^{-25}\ \text{units}}{2.9 \times 10^{-9}\ \text{units}}$

   (c) $\dfrac{(5.9 \times 10^{-12}\ \text{u} + 7.80 \times 10^{-13}\ \text{u})}{(4 \times 10^{12}\ \text{u} + 6.700 \times 10^{13}\ \text{u})}$

8. The label on a bottle of mood-elevating medication states that each tablet contains 25.0 mg of imipramine. A test conducted by the bureau of standards shows a tablet to contain 28.0 mg. Legally, drug companies are allowed to be within plus or minus 5% of their labelled quantities.

   (a) Give the *percentage* uncertainty for the imipramine tablets:

   (b) Is the drug company within the legally allowed limits for their tablets?