

Please answer in the space provided. Show work where indicated to do so. If you have a question raise your hand. Do not leave your seat until all papers have been collected. If you finish early, turn your quiz face down on the desk and wait quietly until you are excused. Please use a pen. Good luck.

1) (3 pts) Explain how and why each and every measurement gives a numerical result that has three aspects.

2) (4pts) Indicate whether each property is intensive or extensive by **PRINTING** an **I** for intensive or an **E** for extensive in the blank next to each physical property.

Volume _____ Mass _____ Density _____ Length _____.

3) (8pts) Ions which are positively charged are called _____ while those which bear a negative charge are called _____. If two atoms have different numbers of neutrons but the same number of protons they are called _____.

In 1828, a Scottish botanist named _____ discovered evidence that molecules are in constant random motion. Today, we use this concept of molecular motion to understand changes of state. A _____ transformation occurs when a change of phase takes place. The three states of matter are _____, _____, and _____.

4) (6pts) As completely as possible in the space provided, give a physical description of the carbon atom for which the symbol is $^{12}_6\text{C}$.

5) (4pts) How many protons, neutrons, and electrons are contained in each of the following atoms or ions? Indicate the correct number of each in the spaces provided.

	$^{16}_{8}\text{O}^{2-}$	$^{15}_{7}\text{N}$	$^{55}_{25}\text{Mn}^{3+}$	$^{35}_{17}\text{Cl}$
p	_____	_____	_____	_____.
e	_____	_____	_____	_____.
n	_____	_____	_____	_____.

6) Compute the numerical answer for each question below. Make sure you give your answer with the correct number of significant figures and the proper abbreviation for units and feel free to use scientific notation if you need to. Show your work.

a) (2pts) $(6.531 \times 10^{13})(6.02 \times 10^{23}) \div [(435)(2.0000)] =$

b) (3pts) Common table sugar has a density of 1.587g/cm^3 . What would be the volume of 1.50 pounds (as **measured** on a balance) of sugar in liters? (1 pound = 453.6 g = 16 ounces)