New West Charter High School -- Chemistry/Honors -- Test #1 -- Basics -- 75/90 points

Write TRUE if the statement is true OR write the word(s) that substitutes for the underlined word(s) that would make it true. Writing false only earns partial credit. Three points each.

_____ 1) <u>Isaac Newton</u> is given credit for being the first scientist to use the Scientific Method.

_____ 2) There are a <u>billion</u> nanoseconds in a second.

_____ 3) The three types of experimental errors are personal, systematic, and <u>significant</u>.

_____ 4) At <u>the freezing point</u>, ALL motion stops.

_____ 5) The three most common temperature scales are Fahrenheit, Celsius, and <u>mercury</u>.

<u>Short Answer/Fill-in Section.</u> Write complete answers here. Three points each.

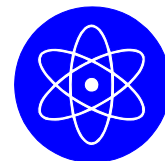6) We added _____ to the sodium hydroxide in demo to neutralize it.

7) Name three qualities of a scientist from the list I gave you (no making them up!):

_____   _____   _____

8) The two common liquids found in thermometers nowadays are _____ and _____.

9) The two substances necessary to shine up pennies (as shown in demo) are _____ and

_____.

10) Give three branches/careers of chemistry AND a definition or description of each:

_____   _____

_____   _____

_____   _____

<u>Very Short Essay</u>. Write at least two sentences. Five points.

11) Describe what scientific notation is, why we use it <u>and</u> how we use it: _____

_____

_____

12) What is the difference between heat and temperature? _____

_____

_____.

13) As to the origins of the SI system...SI stands for _____. It was

established into common practice by _____, because he realized that all

scientists needed to _____.

14) For one point each, express these decimal numbers in scientific notation and vice-versa:
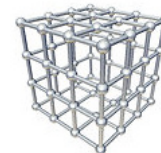
826,000   0.0000000003097 5.64×10^8 2.53×10^{-4}

Express this answer in S/N as well (two points): $(6.3 \times 10^{11}) \div (9.0 \times 10^{-4})$

Multiple Choice -- Write the letter that best answers each example. Two points each.

_____ 15) A team of chemists is trying to determine the melting point of sodium choride (salt).
Their five experiments give results of 819.42 °C, 819.47 °C, 819.44 °C, 819.49 °C
and 819.43 °C. The actual melting point is 801 °C. The team is showing

   a) accuracy   b) precision   c) neither   d) both

_____ 16) Which of the following is the <u>smallest</u> unit?

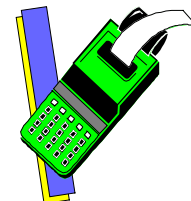   a) ng   b) cg   c) g   d) mg

_____ 17) We wish to calculate the volume of a box. We measure the length to be 65.4 cm, the width to be
14.68 cm, and the height to be 3.9100 cm. The best answer for the calculation of volume would
have how many significant figures?

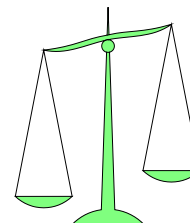   a) three   b) four   c) five   d) twelve

Calculation Section. **Show all your work here** -- writing the proper equations gets partial credit. Five points.

18) An iPod contains 160 gigabytes of disk space for songs. An average song takes up 4 megabytes of space.
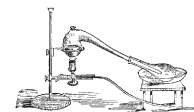How many songs can an iPod have on it when it is full?

19) 5.87 kiloliters is how many microliters? _____

20) New experiments have determined that the core temperature of the Earth to be about 11732 °F. What is that temperature in °C?

21) The fastest land animal, the cheetah, can run at a speed of up to 72 miles per hour in short bursts. How many inches per minute is that?

HONORS SECTION ONLY - Thinkers Unite! <u>You must set it up for full credit.</u> Five points each.

22) Gold is the most malleable elemental metal of all. It can be pounded into such thin sheets as to be semi-transparent. We know the density of pure gold to be 19.32 g/cm³. A jeweler buys a square piece of gold leaf, 0.300 m on a side with a mass of 0.2172 g. What is the thickness of the gold leaf the jeweler bought?

23) An Iowa-class battleship weighs about 14020 tons. How many mg is that? (1 lb = 453.6 g, 2000 lbs = 1T)

24) The United States ten-cent piece (the dime) has a mass of 2.268 g and has a thickness of 1.35 mm. Mt. Whitney has a height of 14,495 feet. How many dimes would be in a stack that equals the height of Mt. Whitney, if 2.54 cm equals one inch?