

**Vasquez High School -- Chemistry -- Test #1 -- Chapters 1, 2 and Basics -- 100 points**

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

- \_\_\_\_\_ 1) The boiling point of water in kelvin is 212 K
- \_\_\_\_\_ 2) The metric prefix “micro” means one-thousandth.
- \_\_\_\_\_ 3) A heterogeneous mixture, like a hot fudge sundae, are different substances throughout it.
- \_\_\_\_\_ 4) A substance with indefinite volume and indefinite shape is said to be indefinite.
- \_\_\_\_\_ 5) The metric system is based on the number ten because our number system is too.
- \_\_\_\_\_ 6) The way a substance reacts with another is a chemical property.
- \_\_\_\_\_ 7) At the freezing point, ALL motion stops.
- \_\_\_\_\_ 8) Magnesium speeds up a chemical reaction by lowering the energy necessary to start it.
- \_\_\_\_\_ 9) We added sulfuric acid to the sodium hydroxide in demo to neutralize it.
- \_\_\_\_\_ 10) I can succeed in this class (and anything else) if I put my sincere effort into it.

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

- 11) The first three steps in the scientific method are: \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
- 12) Give an example of a test and control type of experiment: \_\_\_\_\_  
\_\_\_\_\_.
- 13) Describe what scientific notation is, why we use it and how we use it: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.
- 14) Chemistry is the study of \_\_\_\_\_
- 15) Name three qualities of a scientist from the list I gave you (no making them up!):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

16) Give two branches/careers of chemistry AND a definition or description of each:

\_\_\_\_\_

\_\_\_\_\_

17) As to the origins of the SI system...SI stands for \_\_\_\_\_. It was brought into existence by \_\_\_\_\_, because he realized that all scientists needed to \_\_\_\_\_.

18) Describe the difference between quantitative and qualitative data: \_\_\_\_\_

\_\_\_\_\_

19) Describe in a few words how the particles of each of these phases of matter behave (in general):

a) solid \_\_\_\_\_

b) liquid \_\_\_\_\_

c) gas \_\_\_\_\_

20) How is a compound distinguished from a mixture? \_\_\_\_\_

\_\_\_\_\_

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

21) New experiments have determined that the core temperature of the Earth to be about 11232 °F. What is that temperature in °C?

22) 5.87 seconds is how many microseconds? \_\_\_\_\_

23) 286,000,000 nanoseconds is how many seconds? \_\_\_\_\_

25) If there are 25.4 mm in one inch, how many centimeters are in 300 yards?

26) The fastest rocket sled could travel at 690 miles per hour. If there are 5280 feet in one mile, how fast is that speed in feet per minute?

27) For one point each, express these decimal numbers in scientific notation and vice-versa:

795,000

0.0000004293

$2.68 \times 10^6$

$3.57 \times 10^{-2}$

Express this answer in S/N as well (two points):  $(4.8 \times 10^6) \div (8.0 \times 10^{-3})$

Multiple Choice Section. Write the letter that BEST answers each example. Three points each.

\_\_\_\_\_ 27) Which statement is NOT true?

- a) Pure substances always have the same composition.
- b) Matter has both physical and chemical properties.
- c) Elements can be broken down into simpler substances.
- d) Temperature affects the way particles in a substance are held together.

\_\_\_\_\_ 28) Which of the following is NOT a mixture?

- a) Salt water
- b) Coca-Cola
- c) Wood
- d) Carbon dioxide

\_\_\_\_\_ 29) We wish to calculate the volume of a box. We measure the length to be 25.4 cm, the width to be 12.65 cm, and the height to be 4.2700 cm. The best answer for the calculation of volume would have how many significant figures?

- a) Three
- b) Four
- c) Five
- d) Twelve