**Chapter 2 Test: Measurements and Calculations**

*Chemistry*

***Directions: Read each question CAREFULLY. You must show ALL your work for calculation questions or you will receive no credit. You may use a calculator (not your cell phones!). If you are seen talking or looking at unauthorized notes, your exam will be voided.***

1. A hypothesis is:
2. a testable statement
3. a prediction
4. usually describes a cause and effect relationship
5. All of the above
6. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the system of measurement that scientists all over the world have agreed to use.
7. The British Imperial System
8. Scientific Numbers
9. Le Systeme Internationale d’Unites (SI)
10. Popeyes
11. \_\_\_\_\_\_\_\_\_\_ is the measurement of the amount of matter.
12. mass
13. a Newton
14. length
15. weight
16. The SI standard unit for length is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
17. \_\_\_\_\_\_\_\_\_\_\_\_ is the standard unit for temperature.
18. seconds
19. Kelvin
20. Grams
21. meter
22. \_\_\_\_\_\_\_\_\_\_\_\_ is the standard unit for time.
23. seconds
24. Kelvin
25. Grams
26. Meter

1. Which of the following statements best describes volume?
2. the measure of the amount of matter
3. length times width
4. the amount of space something takes up
5. a pill to calm you down
6. The mass to volume ratio is
7. Work
8. Force
9. Density
10. Seconds per kelvin
11. Write the following values in scientific notation.

* 78 000
* 0.0000549
* 0.0003
* 0.007448
* 9 000 000 000

1. You are given a beaker with a volume of 1000 milliliter. What is this volume in liters? Show ALL your work.
2. You’re given 10 kilograms of an unknown powder. Convert this measurement to grams. Show all your work.
3. An object has a mass of 50 grams and a volume of 10 cm3. Calculate its density. Show ALL your work. (Points will be deducted if you do not show your work.)
4. An object has a density of 30 g/cm3 and a mass of 15 grams. Calculate its volume. Show ALL your work. (Points will be deducted if you do not show your work.)
5. An element has a density of 0.789 g/cm3. If you are given a sample with a volume of 40 cm3, calculate the mass of this sample. Show ALL your work. (Points will be deducted if you do not show your work.)
6. Which of the following statements BEST describes the difference between accuracy and precision?
7. precision refers to how close measurements are to each other; accuracy refers to how reliable a measurement tool is
8. accuracy refers to how close measurements are to the target or accepted value whereas precision refers to how close measurements are to each other
9. accuracy refers to how close measurements are to the target or accepted value whereas precision refers to how large the numbers are
10. accuracy refers to how close measurements are to teach other and precision refers to how close measurements are to the accepted value
11. You are given two sets of data for the length of a desk. Set A: 17.6 cm, 17.5 cm, 18.0 cm, 17.1 cm. Set B: 22.5 cm, 23.4 cm, 25.2 cm, 22.4 cm. The company that made the desk says that the length is 23.5 cm. Based on these measurements, you can conclude that:
12. Set A is precise, but not accurate
13. Set A is precise and accurate
14. Set B is accurate, but not precise
15. The answer cannot be determined
16. Determine the number of significant figures of the measurements listed below.

* 56.0004 cm
* 34.00 g
* 0.00000054 kg
* 40000. m
* 40000 m
* 7.000 000 cg

1. The mass of a drug in your cabinet is 150 grams. You’re given a volume of 30 milliliters. (Remember that milliliters and cubic centimeters are the same thing. You do not need to convert.) Calculate its density and express your answer using significant figures.
2. Add the following measurements and express your answer using the correct number of significant figures.

100.533 m

+24.3 m

1. A student calculates the density of an unknown solid. The mass is 10.04 grams, and the volume is 8.21 cubic centimeters. How many significant figures should appear in the final answer?
2. 1
3. 2
4. 3
5. 4
6. Melissa made a new cleaning product that has a density of 40 g/mL. She only wants to use 50 mL of this cleaning product and needs to know the mass.
7. Calculate the mass that she needs. (Show ALL your work!)
8. Express your answer in scientific notation.
9. Briefly explain the difference between mass and weight.
10. Write about whatever you’d like. It doesn’t have to be related to science.