1st Practice Exam

1. What is the density of a metal if a 15.4 gram sample has a volume of 1.96 cm^3?

   c. 7.86 g/cm^3

2. A student does a calculation using her calculator and the number 280.27163 is shown on the display. If there are actually three significant figures, how should she show the final answer?

   e. 2.80×10^2

3. Which of the following is an example of a chemical change?

   c. natural gas burning

4. The element chlorine is obtained for commercial use by the following method:

   d. Electrolysis of aqueous NaCl solutions.

5. The density of a sodium sulfate solution is 1.07 g/cm^3. The solution is 8.00% sodium sulfate by mass. How many cm^3 of the solution are needed to supply 4.28 g of sodium sulfate?

   e. 50.0 cm^3

6. In the Millikan oil drop experiment, the charge on oil droplets was observed by their behavior between a positively charged plate and a negatively charged plate. The fundamental charge on an electron was determined as -1.60×10^{-19} coulombs by observing that:

   a. the charge on all the droplets was a multiple of 1.60×10^{-19} coulombs.

7. Which of the following is **NOT** an element of the fourth period in the periodic table?

   c. Mg

8. Zinc has a density of 7.14 g/cm^3. If you have a piece of zinc that is 0.20 cm thick, 1.5 cm wide, and 3.0 cm long, how many moles of zinc are present?

   b. 0.098 mol

9. The number of neutrons in 30 molecules of As_4 where As has the mass number of 75 is

   c. 5040.

10. Which of the following elements are in the same chemical family?

    e. Si, Sn, C, Pb

11. How many moles of fluorine **molecules** are in 5.00 grams of elemental fluorine?

    a. 0.132 mol

12. Which of the following contains the largest number of molecules: 6.00 g CH_4, 9.00 g H_2O, 15.0 g NO_2, 11.0 g C_2H_6, or 20.0 g C_2H_5OH?

    b. H_2O

13. The percentage of water in an unknown hydrate was determined by heating the sample and driving the water off the sample. Two independent measurements gave values of 19.564 and 21.731%. Its percentage should be reported as:

    a. 21%

14. What is the mass number of an atom of iodine with 76 neutrons?

    c. 129

15. In 0.50 mole of methyl formate, $HCOOCH_3$, there are

    d. 2.4×10^{24} atoms.