Exam #1 Objectives

CHEM 1090 General Chemistry I

Text Reading

Chapter 1: sections 1-6

Homework Assignment

McGraw-Hill LearnSmart and Connect online assignments.

Online Tutorial(s)

Dimensional Analysis

Concepts

1. Write the proper symbols (including capitalization) and correct spelling for the elements in columns 1a-2a and 3a-8a in the periodic table. You will be given either the symbol or the name and asked to provide the corresponding name or symbol.
2. Explain and discuss the scientific method.
3. Explain the difference between a number and a measurement.
4. Convert between standard (floating or decimal) and accepted scientific notation.
5. Determine the number of significant figures in numbers and measurements.
6. Demonstrate the ability to take a measurement and use the proper number of significant figures depending on the measuring instrument.
7. Distinguish between a base unit and a derived unit.
8. Know six metric prefixes: giga, kilo, deci, centi, milli, and micro.
9. Use proper dimensional analysis when doing any problems that require units.
10. Report calculations using the proper number of significant figures.
11. Distinguish between mass and weight.
12. Convert between the Fahrenheit and Celsius temperature scales and the Celsius and Kelvin temperature scales.
13. Explain and distinguish between intensive and extensive properties.
14. Explain and distinguish between physical and chemical properties.
15. Demonstrate a working vocabulary of the following terms:

accuracy	extensive property	prefix
base unit	giga	rounding
centi	intensive property	scientific notation
chemical property	kilo	SI system
chemical symbol	mass	significant figures
conversion factor	measurement	standard notation
deci	metric system	temperature
density	micro	uncertainty
dimensional analysis	milli	volume
english system	physical property	weight
exact number	precision	

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16. Memorize and demonstrate the ability to use the following equation(s):

$$d = \frac{m}{V}$$

17. Recognize and demonstrate the ability to use the following equation(s) (you will be given these equations):

$T_K = T_C + 273.15$ (exact)

$$T_F = \left(\frac{9\ ^\circ\text{F}}{5\ ^\circ\text{C}}\right) T_C + 32\ ^\circ\text{F} \qquad T_C = \left(T_F - 32\ ^\circ\text{F}\right)\left(\frac{5\ ^\circ\text{C}}{9\ ^\circ\text{F}}\right)$$