Exam #1 Objectives

CHEM 1050 Chemistry and the Citizen

Text Reading

Chapter 1: sections 1-4
Chapter 2: sections 1-7
Chapter 3: sections 1-7

Homework Assignment

Chapter 1: 25, 28, 48
Chapter 2: 1, 3, 6, 8, 9, 13, 14, 18, 21, 22, 24, 26, 27, 39, 41, 51, 54, 56, 59, 62, 79, 84
Chapter 3: 1, 2, 4, 9, 11, 14, 18, 26, 35ad, 38c, 43

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 as discussed in class. You will be given either the symbol or the name and asked to provide the corresponding name or symbol.
2. Classify matter using the following terminology: substance, element, compound, and mixture.
3. Explain and discuss the scientific method as presented in lecture.
4. Explain the difference between a number and a measurement.
5. Convert between standard (floating) and accepted scientific notation.
6. Count the number of significant figures in numbers and measurements.
7. Demonstrate the ability to take a measurement and use the proper number of significant figures depending on the measuring instrument.
8. Distinguish between a base unit and a derived unit.
9. Know the six metric prefixes discussed in lecture.
10. Use dimensional analysis when doing any problems that require units.
11. Report calculations using the proper number of significant figures.
12. Distinguish between mass and weight.
13. Convert between the Fahrenheit and Celsius temperature scales and the Celsius and Kelvin temperature scales.
14. Distinguish between the three common physical states of matter.
15. Demonstrate the ability to do problems that involve specific heat.

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16. Demonstrate a working vocabulary of the following terms:

accuracy	giga	scientific method
base unit	heat	scientific notation
calorie	heterogeneous	SI system
centi	homogeneous	significant figures
chemical symbol	hypothesis	solid
compound	joule	specific heat
condensation	kilo	standard notation
conversion factor	liquid	state of matter
deci	mass	sublimation
density	measurement	substance
dimensional analysis	melting	temperature
element	metric system	theory
energy	micro	uncertainty
evaporation	milli	volume
exact number	mixture	weight
experiment	precision	work
freezing	prefix	
gas	rounding	

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

$$d = \frac{m}{V} \qquad \text{heat} = (\text{specific heat})(\text{mass})(\Delta T)$$

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

$T_K = T_C + 273.15$ (exact) $\qquad T_F = 1.8(T_C) + 32 \qquad T_C = \frac{(T_F - 32)}{1.8}$