

Exam #5 Objectives



CHEM 1050 Chemistry and the Citizen

Text Reading

Chapter 8: sections 1-7
Chapter 5: sections 1-6

Homework Assignment

Chapter 8: 1, 5, 6, 10, 12, 18ab, 23, 24, 28bc, 29a, 34b.
(and the additional worksheet for extra practice)
Chapter 5: 1, 2, 4, 6, 8, 10, 12, 13, 16, 20, 23, 26, 30, 34, 39, 40, 43.

Concepts

1. Discuss how pressure, volume, temperature, and moles of gas relate to each other and how they change with respect to each other.
2. Demonstrate the ability to use the combined gas law and its various simplified forms to do calculations.
3. Demonstrate the ability to use the ideal gas law to do calculations.
4. Identify and describe the basic types of radiation, their corresponding nuclear particles, and their corresponding nuclear symbols.
5. Write balanced nuclear equations.
6. Discuss the penetrating ability of the basic types of radiation and methods of shielding.
7. Demonstrate the ability to do simple half-life calculations.
8. Discuss one medical application that uses radioactivity.
9. Discuss the processes of fission and fusion.
10. Demonstrate a working vocabulary of the following terms:

alpha emission	fission	neutron (${}^1_0\text{n}$, n)
alpha particle (${}^4_2\text{He}$, α)	fusion	positron (${}^0_{+1}\text{e}$, β^+)
atm	gamma emission	pressure
bar	gamma particle (${}^0_0\gamma$, γ)	proton (${}^1_1\text{H}$, ${}^1_1\text{p}$)
beta emission	half-life	radiation
beta particle (${}^0_{-1}\text{e}$, β)	ideal gas	radioactive
carbon dating	ideal gas constant	radioisotope
chain reaction	ideal gas law	shielding
combined gas law	Kelvin	Torr
Dalton's Law of Partial Pressures	mm Hg	

11. Memorize and demonstrate the ability to use the following equations:

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

$$PV = nRT$$