

Chemistry 1 Exam Review

Part 1 – Chapters 2-5

1. Explain how the following separation techniques can be used to separate mixtures (pg 68-69)

filtration

chromatography

crystallization

distillation

2. Describe/define the following and give an example of each. (pg 55, 66-71)

pure substance -

element -

compound -

mixture -

heterogeneous mixture -

homogeneous mixture -

solution -

3. Describe/define the following and give some examples of each. (pg 56-63)

physical property -

extensive physical properties -

intensive physical properties -

chemical property -

4. List properties of each of the three states of matter that naturally occur on Earth. (pg 58-59)

solid -

liquid -

gas -

What is a vapor?

5. List the different types of evidence of chemical reactions. (pg 62-63)

6. List the six different phase changes. (pg 404-408)

Are phase changes (changes of state) physical changes or chemical changes? (pg 61)

7. What is density? (pg 27-29)

What is the formula for finding density?

Describe the procedure for finding the density of a small, irregularly-shaped object.

Calculate the density of an object that has a volume of 5.3 mL and a mass of 7.25 g.

8. Complete the chart for each type of subatomic particle (pg 97)

Particle	Symbol	Location	Charge	Mass (in amu)
proton				
neutron				
electron				

9. What did each person contribute to modern understanding of the atom? (pg 89-97, 122-125, 127-132)

Dalton

Bohr

Thomson

DeBroglie

Rutherford

Schrodinger

10. Explain the relationship between atomic structure, electrons, energy states (energy levels), and atomic emission spectra. (pg 125-128)

10. Define each term: (pg 98-102)

atomic number

mass number

isotope

atomic mass

Fill in the blanks to indicate what each number represents.

6	←	_____
C		
carbon		
12.011	←	_____

14	←	_____
C		
6	←	_____

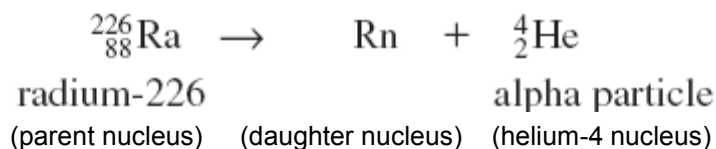
Complete the chart below.

Element Name	Element Symbol	Atomic Number	Number of Protons	Number of Electrons	Mass Number	Number of Neutrons	Abbreviated Notation
Carbon-12	C	6	6	6	12	6	${}^{12}_6\text{C}$
Nitrogen-14	N	7			14		
		2			4		
Cobalt-59							

12. Calculate average atomic mass of chromium, Cr, given the following isotope data. (pg 102-104)

mass number	exact weight (atomic mass)	percent abundance
50	49.946	4.350
52	51.941	83.79
53	52.941	9.500
54	53.939	2.360

13. The diagram below shows a nuclear reaction in which radon-226 emits an alpha particle. How many protons and neutrons will the daughter nucleus have? (pg 105-107)



The diagram below shows a nuclear reaction in which carbon-14 emits a beta particle. How many protons and neutrons will the daughter nucleus have?

