Chapter 3- Atomic Structure

3.1 Early Models of the Atom

What is an atom?

List the four postulates of Dalton's atomic theory of matter.

1.

2.

3.

4.

3.2 Discovering Atomic Structure

What is an electric current?

What is a cathode ray tube?

Describe J.J. Thomson's experiments and what he learned as a result of them.

Describe Robert Millikan's experiment and what he learned as a result of it.

What is radioactivity?

Describe Ernest Rutherford's experiments and what he learned as a result of them.

3.3 Modern Atomic Theory

Fill in the following table:

Subatomic Particle	Location	Charge	Relative Size	Relative Mass
Proton				
Neutron				
Electron				

What are amu's?

What does the atomic number of an element represent?

What is an ion and how are they formed?

Give an example of how chemical symbols for ions are written.

**Sample problem and practice problems on p. 107*

What are isotopes?

What does the mass number of an isotope represent?

Explain how chemical symbols for isotopes are written.

Given the mass number of an isotope, explain how the number of neutrons can be calculated.

**Sample problem and practice problems on p. 109*

What does the term **fractional abundance** of isotopes refer to?

What is atomic mass?

3.4 Changes in the Nucleus

What is a nuclear reaction?

Why are some nuclei stable and others unstable?

What is the "strong nuclear force?"

How do neutrons make the nucleus more stable?

Fill in the following table:

Type of Radiation	Symbol	Charge	Mass	Penetrating Ability
Alpha				
Beta				
Gamma				

Write sample nuclear equations for the following radioactive decays:
Alpha

Beta

Gamma

What must be true of all nuclear equations? (hint: Law of Conservation of Mass)

**Sample problem on p. 117*

What is the difference between nuclear fission and fusion?