

### Multiple Choice Questions

2. What is the symbol notation for the element potassium?  
(d) K
3. How many neutrons are in the nucleus of the atom  ${}^{35}_{17}\text{Cl}$ ?  
(c) 18
8. How many half-lives would it take for a sample of a radioactive isotope to decrease its activity to 1/32 of the original amount?  
(a) 5

### Fill In The Blank Questions

1. Na is the symbol for the element sodium.
3. The collective name for the neutrons and protons in a nucleus is nucleons.
4. Carbon-12, carbon-13, and carbon-14 are isotopes.

### Short Answer Questions

1. What are the chemical symbols for
  - a. Carbon  
C
  - b. Chlorine  
Cl
  - c. Lead  
Pb
2. What are the names of the elements with the following symbols?
  - a. N  
Nitrogen
  - b. He  
Helium
  - c. Fe  
Iron

3. Why do some symbols for elements seem to bear no relationship to their names?  
Because their original names were in a different language, for example Greek

4. Name the three particles that make up an atom. How do they compare in mass and charge?

	Mass	Charge
Proton	~1 AMU	Positive
Neutron	~1 AMU	Neutral
Electron	~0 AMU	Negative

7. How does the diameter of an atom compare with that of its nucleus.

The diameter of the nucleus is about 10,000,000,000 times smaller than the diameter of the atom. Or simply, really, really small!

8. About what percentage of the mass of an atom is contained in the nucleus?  
Over 99.9%

9. What do the letters Z, A and N in nuclear notation stand for?

Z – Atomic Number  
A – Mass Number  
X – Chemical Symbol

10. State the special names by which the isotopes  $^1\text{H}$ ,  $^2\text{H}$  and  $^3\text{H}$  are known.

$^1\text{H}$  – Hydrogen  
 $^2\text{H}$  – Deuterium  
 $^3\text{H}$  – Tritium

FOR CHECKING YOUR WORK ONLY