

Unit 3 Atomic Theory

1. List the major points of Dalton's atomic theory. Which of these proved incorrect by the middle of the 20th century?
2. Discuss Rutherford's gold foil experiment. How can we account for the fact that most alpha particles passed directly through, undeflected? What was discovered about the structure of the atom from his experiment?
3. How many protons, neutron and electrons are contained in a carbon-13 atom? In a potassium- 41 atom?

4. Fill in the following chart

symbol	atomic number	mass#	#p	#n	#e
_____	_____	52	_____	_____	24
_____	_____	_____	47	60	_____

5. One isotope of lithium has a mass of 6.0151214u and the other has a mass of 7.0160030u. Why is the mass of lithium on the periodic table not 6.5155622u, the simple average of the two isotope masses?

6. Calculate the average atomic mass for each of the following

isotope mass	% abundance
62.9298u	69.09%
64.9278u	30.91%

7. Calculate the average atomic mass for each of the following

isotope mass	% abundance
57.9353u	67.88%
59.9332u	26.23%
60.9310u	1.19%
61.9283u	3.66%
63.9280u	1.08%

8. Provide the symbol, the relative mass and relative charge for the
 - a. alpha particle
 - b. beta particle
 - c. gamma radiation
9. State the group number and period that the following elements are in.
 - a. calcium
 - b. oxygen
 - c. argon
10. What common name is given to the elements in the following:
 - a. group 17
 - b. group 18
 - c. group 1
11. What is the name given to elements of atomic numbers 58-71? 90-103?
12. Where are the transition metals found on the periodic table?
13. What is meant by the term periodic?