Revision Sheets

Chapter 3 - Discovering Parts of an Atom

Part A- True/False

Indicate whether the statement is true or false.

____ 1. The mass of an electron is about equal to the mass of a proton.

____ 2. For an atom to be neutral, the number of protons must equal the number of neutrons.

____ 3. The neutrons make up most of the volume of an atom.

____ 4. Dividing an element into smaller pieces results in a molecule.

____ 5. Two isotopes of the same element contain different numbers of protons.

____ 6. Nuclear decay occurs when an unstable atomic nucleus changes into another more stable nucleus by emitting radiation.

Part B- Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 7. The atomic number of calcium is 20. What can you tell about an atom of this element?

a. the sum of its protons and neutrons is 20
b. it has 20 protons
c. it has 40 protons
d. it has 20 neutrons

____ 8. Where is the densest part of an atom?

a. electron cloud
b. space around the nucleus
c. nucleus
d. All parts of the atom are equally dense.

____ 9. How small are atoms?

a. about the size of dust specks
b. about the size of pin holes
c. about the size of grains of salt or sand
d. too small to be seen by the unaided eye

____ 10. The sum of an atom's protons and neutrons is its _____.

a. atomic mass
b. periodic number
c. atomic number
d. atomic weight

___ 11. What are the smallest particles of an element that have the same chemical properties as the element?

a. atoms
b. molecules
c. protons
d. electrons

___ 12. What did Democritus believe an atom was?

a. a solid, indivisible object
b. a tiny particle with a nucleus
c. a nucleus surrounded by an electron cloud
d. a tiny nucleus with electrons surrounding it

___ 13. What determines the identity of elements?

a. its mass number
b. the charge of the atom
c. the number of its neutrons
d the number of its protons

___ 14. If an ion contains 10 electrons, 12 protons, and 13 neutrons, what is the ion's charge?

a. 2-
b. 1-
c. 2+
d. 3+

Part C- Matching

Match each term with its correct description

a. atom
b. electron
c. neutron
d. isotope
e mass number
f. average atomic mass
g. nucleus
h. proton
i. nuclear decay
j. ion

_ _ 15. The smallest particle of an element that still has the same chemical properties of that element.

_ _ 16. A positively charged particle inside an atom's nucleus.

_ _ 17. A particle with a negative electric charge.

_ _ 18. The center of the atom which contains most of the atom's mass.

_ _ 19. A particle that is found in the nucleus of an atom and has no electrical charge.

_ _ 20. The average mass of the element's isotopes.

_ _ 21. Atoms of the same element that have different numbers of neutrons.

__ __ 22. An atom that is no longer neutral because it has gained or lost electrons.

__ __ 23. A process that occurs when an unstable atomic nucleus changes into another more stable nucleus by emitting radiation.

Part D- Short Answer

Write the correct answer for each of the following questions.

24. When the same element has different atomic masses, it is called a(n) _____

25. Electrons in an atom move throughout the _____ surrounding the nucleus.

26. How can radioactive decay produce new elements?

27. How can radioactive decay produce new elements?