# Chapter 5
## Study Guide

Name _____

Class Period _____

Date _____

***ATTENTION!!***
*Some* questions have more than one correct answer. You must select all of the correct answers in order to get maximum credit.



***Cheaters are losers! Make the slackers do their own work!***

1. Ancient Greeks believed that everything was made of four basic elements. What are the names of the elements?

_____ _____ _____ _____

2. Draw a diagram of an atom similar to the "Bohr" model and label the parts.

3. Who discovered that the atom is mostly empty space? _____

4. Who discovered that atoms are composed of tiny particles rather than being an indivisible unit?

_____

5. Who gave the name "atom" to the smallest piece of matter? _____

6. Explain how Rutherford determined that the nucleus of an atom was positively charged.

_____

_____

7. The sum (total) of the protons plus the neutrons in the nucleus of an atom is ...

8. The electrical charge possessed by the electron cloud of an atom is...

9. Which of the following are located in the nucleus of most atoms?

10. Orbiting the nucleus of atoms are particles called ....

11. The maximum capacity for the 1st energy level of an atom is ...

12. The maximum capacity for the 2nd energy level of an atom is ...

13. Two atoms of the element tin (Sn) that have different numbers of neutrons would be called ....

14. Which of the particles found in atoms have a positive charge?

15. Which of the particles found in atoms have a negative charge?

16. Which of the particles found in atoms have a no charge?

17. All atoms of the same element contain the same number of ...

18. Compared to an electron the mass of a proton is ...

19. The atomic mass of an element is ...

20. Most of the mass of an atom is concentrated in ....

21. In the energy levels of atoms we find ....

22. Name the two forces that are responsible for holding the atom together.

_____ _____

23. Name the two weakest forces that govern the behavior of subatomic particles.

_____ _____

24. What two things happen when an ***excited*** electron loses a ***specific*** amount of energy?

_____

25. Atoms of the same element that have the same number of protons but different numbers of neutrons are called ...

26. Particles that are smaller than an atom are called...

27. The atomic model that describes electrons as being located in “regions” around the nucleus depending on how much energy they have is ...

28. The most likely location in an electron cloud in which an electron can be found is ...

29. An “amu” is equal to the mass of one...

30. “amu” means ….

31. The atomic mass number (mass number) of an atom is the sum of its ....

32. The number of protons in an atom is called the ...

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33. In an atom, where are the electrons located?

34. The average mass of all the isotopes of a particular element as they occur in nature is called the ...

35. What charge do neutrons have?

36. In order for an electron to move from one energy level to another ...

37. The name of the particle which makes up all other subatomic particles is ...

38. According to the modern atomic model, an atom has a small, positively charged nucleus surrounded by a large region in which there are enough electrons to make the atom ...

39. The number of protons in the nucleus of an atom determines ...

40. The smallest part of an element that has the properties of that element is called...

41. Of the four forces that govern all interactions of matter and energy, which force is associated with positive and negative charges?

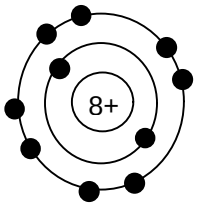
42. What is the difference between uranium-235 and uranium-238 atoms?

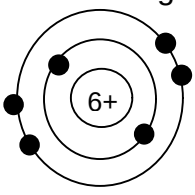
43. Of the four forces that govern all interactions of matter and energy, which force is associated with radioactive decay ?

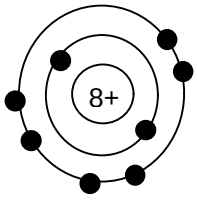
44. Of the four forces that govern all interactions of matter and energy, which force is the “glue” that holds protons together in the nucleus even though they strongly repel each other?

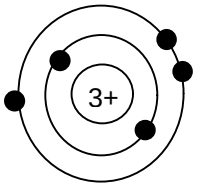
45. Electrons with the least amount of energy are found...

46. Which of the following are correct diagrams?

a. 


b. 


c. 


d. 


47. If an atom has a total of **12 electrons**, how many energy levels does it have?
a. 4 b. 3 c. 2 d. 1

48. How many energy levels are in an atom of **fluorine**?
a. 4 b. 3 c. 2 d. 1

49. How many **electrons** in an atom of uranium-238? _____
a. 23 b. 46 c. 78 d. 92

50. How many **protons** in an atom of uranium-238?
a. 23 b. 46 c. 78 d. 92

51. How many **neutrons** in an atom of uranium-238?
a. 146 b. 212 c. 238 d. 310

52. The ***atomic number*** of an atom is the number of…
a. neutrons b. protons c. positrons d. energy levels

53. What is the name of the particles that make up protons and neutrons?
a. electrons b. leptons c. postitrons d. quarks

54. How many of these particles in the previous question does it take to make up a **neutron**?
a. 10 b. 5 c. 3 d. 2

55. Approximately how many electrons does it take to equal the mass of a **proton?**
a. 2000 b. 200 c. 50 d. 10