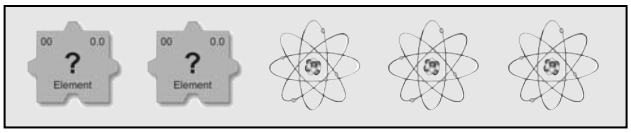
Name: _____

Date: _____ Grade: _____

SECTION QUIZ 10-2



Remember:
Score an average of 85% or higher on all three quizzes and you may be exempt from the chapter test!



Congratulations! You have completed this section!
Answer the following questions to test your understanding of the material. When you are finished, hand in your quiz to your teacher. Each answer is worth 2.5 points.

Answer each question correctly.

1. The weld holding two steel pipes together can be checked by _____.

2. The names Rutherford gave to the radiation from radioactive elements were _____, beta and gamma.

3. An alpha particle can be thought of as a(n) _____ nucleus.
   (a) helium (b) hydrogen (c) uranium (d) carbon

4. Beta particles are high-speed: _____.
   (a) positrons (c) electrons
   (b) electromagnetic waves (d) helium nuclei

5. Beta particles come from: _____.
   (a) a proton (c) outer space
   (b) the nucleus of an atom (d) electrons

6. The waves that can penetrate through several feet of concrete are the: _____.
   (a) gamma rays (c) visible light rays
   (b) omega particles (d) X–rays

7. Half-life is a measure of the: _____.
   (a) average time between failures of an atomic reactor
   (b) length of time for a single radioactive atom to disintegrate
   (c) the age of the universe
   (d) time for one-half of a sample of radioactive material to disintegrate

8. Half-life can vary by elements and _____.

9. The americium in smoke detectors has a half-life of: _____.
   (a) 563 years (b) 462 years (c) 231 years (d) 10 years

10. The one that penetrates deeper into the body is a(n): _____.
    (a) omega ray (c) beta particle
    (b) alpha particle (d) gamma ray

11. When ions attach themselves to nearby molecules and cause chemical changes, a person develops _____.

12. Symptoms of radiation poisoning include nausea, vomiting, _____ _____, and lack of muscle control.

13. Bone marrow transplants are given to radiation victims to help them generate: _____.
    (a) gray matter in the brain
    (b) more calcium
    (c) white blood cells to fight infection
    (d) red blood cells

14. A _____ is used to measure radiation exposure.

15. Pierre and Marie did not attend the Nobel ceremony in Stockholm because of: _____.
    (a) illness from undiagnosed radiation poisoning
    (b) they were not invited
    (c) World War II
    (d) weather conditions

16. Marie Curie was the first person to win _____ Nobel prizes.

17. By bombarding nitrogen with alpha particles, it is possible to change it into a different element.
    (a) True or (b) False

18. The symbol, $_8O^{17}$, shows that the number of protons in oxygen is: _____.
    (a) nine (b) eight (c) 17 (d) 25

19. Most of the elements found in plants and animals: _____.
    (a) are highly radioactive
    (b) have a huge positive charge in the nucleus
    (c) are not stable
    (d) have a low atomic mass similar to that of carbon

20. In _____, Irène and Frédéric Joliot bombarded aluminum with alpha particles that changed the aluminum into phosphorus.

21. Elements above phosphorus on the periodic chart exert repulsion so great that the alpha particle _____ hits the nucleus.
    (a) sometimes (b) never (c) always (d) tries to

22. Atomic nuclei have a(n) _____ electric charge.
    (a) explosive (b) negative (c) neutral (d) positive

23. A thermal neutron has a speed equal to the speed of molecules: _____.
    (a) at absolute zero
    (b) at rest
    (c) at room temperature
    (d) on the surface of the Sun

24. Fermi showed that bombardment with _____ caused changes in almost every element.
    (a) high speed electrons
    (b) positrons
    (c) alpha particles
    (d) thermal neutrons

25. The naturally occurring element with the highest atomic number is: _____.
    (a) hydrogen (b) iron (c) carbon (d) uranium

26. Lise Meitner realized that when slow neutrons bombarded uranium, it: _____
    _____.
    (a) split into two roughly equal pieces
    (b) changed into a element heavier than uranium
    (c) fused into helium
    (d) could possibly be explosive

27. Fission means to: _____.
    (a) explode (b) bubble (c) split (d) melt together

28. A reaction in which the cause of the reaction is also one of the products is a
    _____ reaction.

29. The extra energy that holds a nucleus together is the: _____.
    (a) binding energy (c) electrostatic force
    (b) fission energy (d) fusion energy

30. "The Italian navigator has entered the new world" refers to: _____.
    (a) Enrico Fermi's first controlled and sustained nuclear chain reaction
    (b) the invasion of North Korea by General Douglas MacArthur
    (c) Columbus discovering America
    (d) the bomb that exploded over Hiroshima

31. One reason uranium-235 is difficult to separate from uranium-238 is because their atoms:
    _____.
    (a) diffuse at the same rate
    (b) have the same chemical properties
    (c) are acted upon identically by a mass spectroscope
    (d) are so close together

32. The amount of material to maintain a chain reaction is the _____ mass.

33. Fermi's first nuclear reactor was cooled by: _____.
    (a) oil (b) air (c) water (d) isotopes

34. A containment building is intended to: _____.
    (a) prevent acid rain from affecting the nuclear reaction
    (b) contain the coolant for a reactor
    (c) old radioactive elements in a safe place so they cannot be stolen
    (d) prevent the accidental release of radioactive elements

35. No new commercial nuclear power plants were built in the United States between 1978 and 2000.
    (a) True or (b) False

Complete the Life Principles.

36. *"Most people talk themselves into _____ or failure."*
37. *"Too many people spend _____ they haven't earned to buy things they don't want to impress people they don't like."*
38. *"Human felicity [happiness] is produced not so much by great pieces of good fortune that seldom happen, as by _____ advantages that occur every day."*
39. *"He who has begun is half done. Dare to be wise; _____!"*
40. *"We can do anything we want if we _____ to it long enough."*