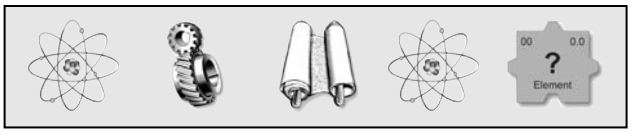
Name: _____

Date: _____ Grade: _____

SECTION QUIZ 10-3



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.

Fill in the blank or circle True or False

1. Albert Einstein is recognized as the greatest _____ of the 20th Century.

2. In the photoelectric effect, the color that gives electrons the greatest speed is: _____.
   (a) red (b) green (c) blue (d) white

3. The Michelson and Morley experiment proved that the speed of light: _____ _____.
   (a) is not so fast
   (b) is a constant in a vacuum
   (c) changes speed as the earth circles the sun
   (d) changes speed if the observer changes speed

4. When an electron is traveling near the speed of light, its mass is: _____.
   (a) greater than when it is at rest (c) less than when it is at rest
   (b) enlongated (d) the same as when it is at rest

5. A _____ reaction takes larger uranium nuclei and splits them into smaller ones.

6. A _____ reaction takes small nuclei and builds them into larger ones.

7. During a total _____ of the Sun, stars near the line of sight of the Sun are visible.

8. A particle accelerator is a device that gives high speed to: _____.
   (a) charged particles (c) mass transportation
   (b) light waves (d) neutrons

9. The device that accelerates particles by using a magnetic field to send them around a circular path is a: _____.
   (a) cyclotron (b) Geiger counter (c) linear accelerator (d) circlator

10. A positron has the same mass as a(n)_____ but with an opposite electrical charge.
    (a) hydrogen nucleus (b) proton (c) atom (d) electron

11. Particle detectors identify _____ particles and reveal their properties.

12. Most charged particles become visible because of the _____ they cause along their paths.

SECTION QUIZ 10-3

13. The device that produces audible clicks when radioactive particles caused ionization is the: _____.
    (a) telegraph key (c) cyclotron
    (b) cloud chamber (d) Geiger counter

14. When a charged nuclear particle passed through the Wilson cloud chamber, it produced: _____.
    (a) a condensation trail (c) a spark of light
    (b) rain (d) bubbles of steam

15. In order to maintain the conservation of electric charge, when a neutron changes into a proton, the neutron must release a particle with a _____ charge.

16. When both mass and energy are taken together they are _____.

17. The difference in mass between the components going into a nuclear reaction and those produced by it is the: _____.
    (a) atomic mass unit (c) critical mass
    (b) binding excess (d) mass defect

18. As a charged particle travels through a hydrogen bubble chamber, its path is made visible by: _____.
    (a) a permanent record etched on glass (c) loud explosions
    (b) small bubbles of hydrogen gas (d) a vapor trail

19. Luis Walter Alvarez was one of the best-known _____ physicists in the United States.

20. Luis Walter Alvarez received the 1968 Nobel Prize in _____.

21. After a nuclear reaction, protons and neutrons fall into a more _____ pattern.

22. The reaction that requires a temperature of millions of degrees and incredible pressure is atomic: _____.
    (a) fission (b) fusion (c) friction (d) fraction

23. A thermonuclear bomb refers to a: _____.
    (a) bomb made of TNT (c) fission bomb
    (b) red hot smoke (d) fusion bomb

24. A typical atomic power generation plant costs about _____ billion dollars.

25. The single most difficult problem facing nuclear power plants is disposal of the radioactive wastes.
    (a) True or (b) False

26. The most destructive nuclear accident took place at: _____.
    (a) Chernobyl reactor in the Soviet Union (c) Hanford, Washington
    (b) Three Mile Island, Pennsylvania (d) Oak Ridge, Tennessee

27. The _____ reactor had no containment building.

SECTION QUIZ 10-3

28. No country has succeeded in building a _____ reactor for electricity.

29. The benefits of _____ power were less than most scientists anticipated.

30. Nuclear energy has many uses on Earth and in space.
    (a) True or (b) False

31. If an element has at least one stable isotope, then the element is described as: _____.
    (a) radioactive (b) conditionally unstable (c) stable (d) synthetic

32. One example of a naturally occurring radioactive element is: _____.
    (a) carbon (b) nitrogen (c) gold (d) radium

33. Marguerite Perey of Paris, France discovered element number 87 and called it: _____.
    (a) americium (b) francium (c) neptunium (d) plutonium

34. The transuranium elements: _____.
    (a) are found in Transurania
    (b) have an atomic number less than 92
    (c) are naturally occurring
    (d) are synthetic

35. The last _____ element synthesized at the end of the 1900s was element number 118, ununoctium.

36. *"When I look at the mysteries of the universe, I cannot help but put myself in the class of deeply _____ men."*

37. *"Handle them carefully, for _____ have more power than atom bombs."*

38. *"Thoughts hidden in the _____ eventually find expression in life, revealing who we really are."*

39. *"... it is possible to discern enough of the universe's underlying order to tap energy so powerful that it can _____ its discoverers ..."*

40. *"Always hold firmly to the thought that each one of us can do something to bring some portion of _____ to an end."*