Name: _____

Date: _____ Grade: _____

Integrated Physics & Chemistry

CHAPTER 5 TEST

Congratulations on completing this chapter! ***Answer the following questions to test your understanding of the material. When you finish, hand in your test to your teacher for a final grade. Each answer is worth 1.9 points.***

Fill in the blank or circle True or False.

1. A body with more electrons than protons has a(n) _____ charge.
   (a) negative (b) positive (c) inverted (d) greater

2. The Law of Conservation of Charge states: _____.
   (a) the force between two charged bodies is directly proportional to the product of their charge and inversely proportional to the square of the distance separating them
   (b) current is directly proportional to voltage and inversely proportional to resistance
   (c) electric charge can neither be created nor destroyed
   (d) chemical properties of the elements repeat

3. Two objects charged by rubbing them together have _____ charges.
   (a) the same (b) opposite (c) negative (d) positive

4. An object charged by contacting a charged body has _____ charge as the object it touched.
   (a) the same (b) an opposite (c) a positive (d) a negative

5. An object charged by induction has a charge that is _____ to the charge of the body that was brought near.
   (a) the same (b) very close to (c) opposite (d) positive

6. The person who showed that lightning and static electricity are the same phenomenon was: _____.
   (a) John Kepler (c) Benjamin Franklin
   (b) William Gilbert (d) John Newton

7. A tall building under a cloud becomes charged with electricity by: _____.
   (a) direct contact (b) friction (c) proximity (d) induction

8. Coulomb's Law of Electrostatic Force states: _____.
   (a) the force between two charged bodies is directly proportional to the product of their charge and inversely proportional to the square of the distance separating them
   (b) current is directly proportional to voltage and inversely proportional to resistance
   (c) electric charge can neither be created nor destroyed
   (d) chemical properties of the elements repeat

9. An electrolyte is made of ions and will conduct electricity.
   (a) True or (b) False

10. The three main parts of a battery are the anode, the cathode and the electrolyte.
    (a) True or (b) False

11. The ampere is the metric unit for measuring: _____.
    (a) charge (b) current (c) electromotive force (d) resistance

12. An increase in resistance causes _____ current to flow.
    (a) more (b) less (c) much (d) little

13. An increase in voltage causes _____ current to flow.
    (a) more (b) less (c) much (d) little

14. An increase in the length of a wire in a circuit causes _____ current to flow.
    (a) more (b) less (c) much (d) little

15. Ohm's Law states: _____.
    (a) the force between two charged bodies is directly proportional to the product of their charge and inversely proportional to the square of the distance separating them
    (b) current is directly proportional to voltage and inversely proportional to resistance
    (c) electric charge can neither be created nor destroyed
    (d) chemical properties of the elements repeat

16. Calculate the current that flows in a 6.0 volt circuit with a resistance of 16 ohms
    _____.

17. Humphry Davy's life was cut short because of a: _____.
    (a) lack of caution around chemicals (c) Naval battle
    (b) mining accident (d) railroad accident

18. Members of the sodium family are: _____.
    (a) active (b) inert (c) soft (d) money

19. A chemical that gives foods such as lemon and grapefruit the sour taste is: _____.
    (a) an acid (b) a base (c) vinegar (d) francium

20. The sodium metals all have the same: _____.
    (a) number of protons (b) atomic weight (c) density (d) valence

21. $NaHCO_3$ is the formula for _____.

22. The formula for sodium hydroxide is _____.

23. K_2CO_3 is the formula for potassium: _____.
    (a) carbonate (b) hydroxide (c) oxide (d) sulfate

24. When light gives electrons enough energy to escape from the surface of a metal, the process is called: _____.
    (a) electrolysis (c) radioactivity
    (b) photoelectric effect (d) reduction

25. The formula for magnesium hydroxide is _____.

26. Most magnesium is extracted from seawater.
    (a) True or (b) False

27. Limestone is calcium carbonate.
    (a) True or (b) False

28. Caves are formed when slightly acidic water dissolves: _____.
    (a) barite (b) limestone (c) potassium nitrate (d) strontium hydroxide

Using the Periodic Table of the Elements, write the valence of:

29. calcium _____

30. carbonate group _____

31. hydroxyl group _____

32. sodium _____

33. sulfate group _____

34. $MgCO_3$, $CaCO_3$, $SrCO_3$ are magnesium _____, calcium _____ and strontium _____ (same word.)

35. $BaSO_4$ is the formula for _____.

36. Radium is naturally radioactive.
    (a) True or (b) False

37. Atomic number is the total number of protons in an atom.
    (a) True or (b) False

Using the Periodic Table of the Elements, write the correct element name for each symbol below.

38. *Li* _____

39. *C* _____

40. F _____

41. *Na* _____

42. *Si* _____

43. *Cl* _____

44. The Periodic Law states that: _____.
    (a) bases neutralize acids
    (b) chemical properties of the elements repeat
    (c) electrolysis generates hydrogen and methane gas
    (d) elements change valence depending on the phase of the moon

45. A family is a _____ of the periodic table.
    (a) horizontal row (b) vertical column (c) product (d) pigment

46. Elements in the same _____ share similar properties.
    (a) family (b) period (c) room (d) country

47. According to Benjamin Franklin, lost time is never found.
    (a) True or (b) False

Circle the letter of the statement that gives the best meaning of each Life Principle.

48. *"Challenges make you discover things about yourself that you never really knew."*
    (a) Challenge yourself to discover more.
    (b) Challenges often reveal hidden aspects of our personalities.
    (c) Discovering who you really are is a challenge.

49. *"If you would not be forgotten, as soon as you are gone, either write things worth reading, or do things worth the writing."*
    (a) Most people are forgotten as soon as they die.
    (b) Reading and writing are ways to be remembered after you leave this world.
    (c) Doing or writing about something of lasting value are ways to be remembered long after death.

50. *"The more we learn of science, the more we see that its wonderful mysteries are all explained by a few simple laws so connected together and so dependent upon each other, that we see the same mind animating (giving life to) them all."*
    (a) Because scientific laws are so connected and interdependent, we can logically think they all come from the same intelligent mind.
    (b) The key to understanding simple yet "mysterious" scientific laws is to have an animated mind.
    (c) An animated mind is the logical result of thinking in turns of simple, yet interconnected, scientific laws.