Name: _____

Date: _____ Grade: _____

Integrated Physics & Chemistry

CHAPTER 12 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 2 points.***

Fill in the blank or circle True or False

1. The expression "total distance divided by total time" calculates: _____.
   (a) acceleration (b) average speed (c) density (d) mechanical advantage
2. A kilometer is _____ meters.
3. Velocity measures the speed of an object as well as its: _____.
   (a) density (b) direction (c) gravitational attraction (d) mass
4. Most energy changes produce _____.
5. The form of energy most difficult to recover is: _____.
   (a) mechanical (b) potential (c) heat (d) kinetic
6. A lever is an example of a _____ machine.
7. An effort force acts over 18 feet to raise a load three feet. The mechanical advantage is: _____.
   (a) 3 (b) 6 (c) 18 (d) 54
8. If the wheel is larger than the axle, the mechanical advantage is _____ (greater/less) than one.
9. The expression "change in velocity divided by change in time" calculates: _____.
   (a) acceleration (b) average speed (c) density (d) work or energy
10. Cars that continue in a straight-line motion at a constant speed on icy pavement are following: _____.
    (a) the First Law of Motion (c) the Third Law of Motion
    (b) the Second Law of Motion (d) the Law of Universal Gravitation
11. When two skaters push away from each other, the lighter skater receives the: _____.
    (a) greater acceleration and higher final speed
    (b) lower acceleration and lower final speed
    (c) same acceleration and speed as the heavier skater
    (d) none of these

12. The force of gravitational attraction between two objects is inversely proportional to the square of the: _____.
    (a) sum of their masses (c) distance separating them
    (b) distance to them (d) their circumferences

13. The one in which heat transfer is by radiation is: _____.
    (a) a breeze blowing in from the ocean
    (b) a cat sitting in sunlight in a window
    (c) heat being transferred from stones to the inside wall of a house
    (d) all of these

14. Radiant energy is a form of: _____.
    (a) atomic particles (c) gravitational energy
    (b) electromagnetic waves (d) motions of atoms and molecules

15. Convection is the transfer of heat energy: _____
    (a) by contact of one body to another (c) by currents in fluids such as water or air
    (b) by flames (d) through the vacuum of space

16. Air pressure is _____ at Death Valley, which is below sea level, than on the top of a mountain.

17. The upward force of a fluid acting on a submerged body is known as: _____.
    (a) buoyancy (b) compensation (c) density (d) pressure

18. To cause air to expand, it should be _____.

19. Sound and light are both types of: _____.
    (a) disturbances in the air (c) methods of heat transfer
    (b) magnetic waves (d) wave motions

20. Sound waves with a high frequency have a _____ wavelength.

21. Sound waves are used to: _____.
    (a) produce radar images (c) tan a person's skin
    (b) make sonograms (d) make X–ray photographs

22. The expression "waves per second" is a measure of: _____.
    (a) amplitude (b) frequency (c) light intensity (d) wavelength

23. The one with the lowest frequency and longest wavelength is: _____.
    (a) gamma rays (b) radio waves (c) light waves (d) alpha waves

24. The observation that frequency changes because the observer or source of the waves is in motion is known as: _____.
    (a) Bernoulli's Principle (b) the Doppler effect (c) Hubble's Law (d) Ohm's Law

25. An object with the same electrical charge as an electron has a _____ charge.

26. Metals are _____ of electricity.
(a) generators (b) conductors (c) storage units (d) nonconductors

27. The ampere is the metric unit of: _____.
(a) charge (b) pressure (c) electric current (d) power

28. The one with but one path for electricity to follow is a _____ circuit.

29. If a circuit has the voltage doubled, but the resistance stays the same, then the current will: _____
(a) double (b) be reduced in half (c) increase fourfold (d) stay the same

30. The total resistance in a series circuit is equal to the _____ of each resistance in the circuit.

31. Ohm's Law states that current and voltage are _____ related.

32. Ohm's Law states that current is _____ proportional to resistance.
(a) not (b) directly (c) routinely (d) inversely

33. The total current in a parallel circuit is found by adding the current in each of the paths.
(a) True or (b) False

34. In a parallel circuit, most of the current goes through the path with _____ resistance.

35. Work is: _____.
(a) force times distance the force is applied (c) how quickly energy is supplied
(b) very difficult (d) force plus distance plus difficulty

36. Power is how quickly: _____.
(a) a car starts (b) work is done (c) voltage is applied (d) success

37. A kilowatt-hour is a measure of electrical energy (work).
(a) True or (b) False

38. The Mars Climate Orbiter burned up in the Martian atmosphere because the ground control navigation team confused _____ and _____ units of measure.

39. A fuse acts quickly enough to keep a person from being electrocuted.
(a) True or (b) False

40. The primary purpose of an electric motor is to produce: _____.
(a) heat (b) light (c) mechanical action (d) electricity

41. Geiger counters click several times every minute even when no _____ material is present because of background radiation and cosmic rays.

42. Naturally _____ elements in the Earth's crust produce some background radiation.

43. Cosmic rays are one source of _____ radiation.

44. Physicists study the interaction of _____ and _____.

45. Pure research is also known as _____ research.

46. Cryogenics deals with: _____.
    (a) mechanical intelligence
    (b) very cold temperatures
    (c) cosmic energy
    (d) life on other planets

Circle the letter of the statement that best explains each Life Principle:

47. "*Fear of failure is the father of failure*
    (a) Failure is a poor father.
    (b) Fear of failure often precedes failure.
    (c) The father of fear is failure.

48. "*We are not here to merely make a living. We are here to enrich the world, and we impoverish ourselves if we forget this errand."*
    (a) Our purpose in the world is to give of ourselves to others — without that purpose, we rob ourselves
    (b) In merely trying to make a living, we impoverish ourselves
    (c) Enriching the world means impoverishing ourselves.

49. "*Listen to advice and accept instruction, and in the end you will be wise."*
    (a) Listening to advice makes one smart.
    (b) Wisdom comes from listening to good counsel and accepting instruction.
    (c) "Street smarts" come from listening to peer advice.

50. "*Wealth brings many friends, but a poor man's friends desert him."*
    (a) Poor people have a problem keeping friends.
    (b) Rich people are better at making friends than are poor people.
    (c) A person with money has a lot of "friends" as long as his money lasts, but his "friends" leave when the money runs out.