Name: _____

Date: _____ Grade: _____

Integrated Physics & Chemistry

CHAPTER 2 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 1.92 points.***

Fill in the blank or circle True or False.

1. Physics is the study of matter and: _____.
   (a) energy (b) inertia (c) stars (d) body

2. Galileo discovered the Principle of the Pendulum.
   (a) True or (b) False

3. Galileo believed an object in motion came to a stop because friction acted on it.
   (a) True or (b) False

4. To measure the speed, Galileo needed to measure distance and _____.

5. Speed is the change in distance divided by: _____.
   (a) change in momentum
   (b) change in distance
   (c) change in time
   (d) amount of force applied

6. Galileo decided the speed of light was: _____.
   (a) "extraordinarily rapid"
   (b) infinite
   (c) immeasurable
   (d) exceptionally slow

7. Acceleration is the change of speed divided by _____.

8. Christiaan Huygens invented the: _____.
   (a) pendulum
   (b) balance spring
   (c) first accurate clock
   (d) smokeless gunpowder

9. When a distant cannon fires, the first to arrive at an observer is the: _____.
   (a) sound (b) flash of light (c) gunpowder (d) cannonball

10. Which of the following cannons has the greatest range? _____
    (a) a cannon level with the ground pointing left
    (b) a cannon pointing straight up
    (c) a cannon level with the ground pointing right
    (d) a cannon pointing up at 45°

11. The orbit of Mars is a(n): _____.
    (a) perfect circle (b) ellipse (c) parabola (d) spiral

12. Weight measures the amount of matter an object contains.
    (a) True or (b) False

13. A large, heavy object that is on Earth, on the surface of the Moon or floating in space has the same weight.
    (a) True or (b) False

14. Inertia causes a body to slowly lose speed.
    (a) True or (b) False

15. Force is equal to mass times: _____.
    (a) inertia (b) mass (c) velocity (d) acceleration

16. If the force acting on a body doubles, the acceleration of the body: _____.
    (a) doubles (c) stays the same
    (b) is divided by two (d) cannot be measured

17. If the same force acts on a mass twice as great, the acceleration will double.
    (a) True or (b) False

18. Although a cannon may fire a cannonball horizontally, gravity will cause its path to curve toward the: _____.
    (a) Moon (b) Sun (c) Earth (d) center of the universe

19. The force of gravitational attraction between two objects is related to the _____ of the distance separating them.
    (a) fraction (b) half (c) product (d) square

20. If the Moon were three times as far away, the gravitational attraction between it and the Earth would be _____ as great.
    (a) nine times (b) one-ninth (c) three times (d) one-third

21. The force of attraction between two bodies is directly proportional to the product of their volumes.
    (a) True or (b) False

22. Gravity follows the Inverse _____ Law.

23. Momentum is the mass of an object times its: _____.
    (a) acceleration (c) kinetic energy
    (b) distance from the center of the Earth (d) velocity

24. If an object is given an _____, it is also given a change in its momentum.

25. An impulse applies a _____ for a period of time to an object that causes a change in the velocity of the object.

26. The mechanical _____ of a simple machine is equal to the load divided by the effort.

27. When something appears to be created from nothing, scientists: _____.
    (a) start laughing
    (b) call it a law of conservation
    (c) become cautious
    (d) calculate the gravitational force

28. Torque is a force that causes a twisting motion.
    (a) True or (b) False

29. Power is how quickly _____.

30. Work is equal to force times _____.

31. Energy is the capacity to do _____.

32. Latent energy, such as that of water behind a dam, is called: _____.
    (a) moving (b) kinetic (c) dangerous (d) potential energy

33. Kinetic energy is energy due to motion.
    (a) True or (b) False

34. The formula for kinetic energy is K. E. = _____.

35. The kinetic energy of an object is directly proportional to its: _____.
    (a) mass
    (b) velocity
    (c) weight
    (d) distance from the center of the Earth

36. Should a car increase its speed by a factor of three, its kinetic energy increases by a factor of: _____.
    (a) one (b) three (c) six (d) nine

37. Heat is measured by how much it raises the _____ of a fixed amount of water.

38. Heat is generated when energy changes from one form to another.
    (a) True or (b) False

39. A wound-up spring is an example of _____ energy.
    (a) heat
    (b) life
    (c) mechanical
    (d) nuclear

40. Science is a process that: _____.
    (a) changes as new information is learned
    (b) never changes
    (c) never stays the same
    (d) is without error

41. Isaac Newton showed humility with greatness when he said: *"If I have been able to see farther, it is because I have stood on the shoulders of giants."* He meant: _____ _____.
    (a) tall people can help you get a better view of various events
    (b) if giants can see a long way, people on their shoulders can see even further
    (c) if I have been able to accomplish more in life, it is because I have learned from great men who have gone before me

Match the following laws with their definitions.

42. _____ First Law of Motion
43. _____ Second Law of Motion
44. _____ Third Law of Motion
45. _____ Law of Conservation of Energy
46. _____ Law of Simple Machines

(a) When two bodies interact, the force exerted by the first body on the second is equal and opposite to the force exerted by the second body on the first.
(b) The acceleration of an object is directly proportional to the force acting upon it and inversely proportional to its masses, and it is in the same direction as the force.
(c) The total energy in the universe does not vary. Energy cannot be created or destroyed, but it may change form.
(d) The load times the distance the load is moved equals the effort times the distance the effort is applied.
(e) A body at rest will remain at rest and a body in motion will remain in constant straight-line motion unless acted upon by an outside force.

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

47. *"Nothing happens unless first a dream."*
    (a) Worthwhile accomplishments are preceded by dreams and goals.
    (b) Day dreaming about the future is better than working now.
    (c) Some dreams become nightmares.

48. *"You cannot run the race until you learn to walk."*
    (a) The order of things goes from simple to complex. Learn well the simpler things so you may master the more difficult ones.
    (b) Walking is a prerequisite to running.
    (c) Walking and running are related. You cannot have one without the other.

49. *"If you want to achieve excellence, you can get there today. As of this very second, quit doing less-than-excellent work."*
    (a) Begin today to achieve excellence and never settle for mediocrity.
    (b) Excellence is a reachable destination today.
    (c) Stop doing less-than-excellent work now.

50. *"Wise people greet words of hate and anger with an equal and opposite reaction of love and kindness."*
    (a) Words of hate and anger are words with which to greet wise people so an equal and opposite reaction will result.
    (b) Since equal and opposite things cancel each other, wise people neutralize hate and anger with love and kindness.
    (c) Do unto others before they do unto you.

51. *"This most beautiful (solar) system could only proceed from the dominion of an intelligent and powerful Being."*
    (a) The (solar) system is both powerful and intelligent.
    (b) The (solar) system comes from a beautiful, intelligent dominion.
    (c) Only an intelligent, powerful Being could create such a beautiful (solar) system.

52. *"Teamwork divides the effort and multiplies the effect."*
    (a) Working with others multiplies the effort, diminishing the effect.
    (b) Teamwork is better than individual effort.
    (c) Many hands tend to make lighter work and increase the outcome.