Chapter 16, 17 & 18 Test Review

Attention!! Many of these items have more than one correct answer.
You must choose all of the correct answers to get maximum credit.

Many of the answer choices are not worded exactly as they are in your text.
You must choose the best answer (or answers).

The highest single score in all classes is worth **200 credits**.
The first place score in each class is worth **100 credits**.
2nd, 3rd, 4th, 5th, 6th places are worth 10 credits less than the next highest.
Credits will not be awarded for scores less than 75% of the points possible.
If two or more people are tied for a place, the credits are split evenly among them.

Name _____

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1. One unit in which energy is measured is the
   a. kilowatt b. gram c. joule d. henry

2. An example of potential energy is
   a. energy available from fuel.
   b. an object held above the earth's surface.
   c. a stretched spring
   d. all of the above

3. A diver jumping up and down on a diving board has maximum potential energy
   a. at the bottom of her jump on the board.
   b. in the middle of her jump on the board.
   c. at the top of her jump on the board.
   d. as she dives downward off the board.

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4. Raising or lowering an object changes its
   a. potential energy
   b. kinetic energy
   c. chemical
   d. velocity.

5. The burning of fuel in a heat engine releases heat energy that is changed to
   a. combustion energy.
   b. mechanical energy.
   c. chemical energy.
   d. potential energy.

6. When a bucket is carried horizontally to a cliff and then held over the edge of the cliff, its G.P.E.
   a. increases as it is moved toward the edge of the cliff.
   b. increases when it is held over the edge of the cliff.
   c. remains constant only while carried levelly over the ground.
   d. decreases as it is moved toward the edge of the cliff.

7. Kinetic energy depends upon
   a. only the velocity or speed of the matter.
   b. only the mass or weight of the matter.
   c. both the mass and velocity of the piece of matter.
   d. only on the position of the piece of matter.

8. The energy in the fuel of a rocket engine is
   a. kinetic energy.
   b. mechanical potential energy.
   c. nuclear potential energy.
   d. chemical potential energy.

9. An example of kinetic energy is a
   a. car stopped at a red light.
   b. skier hurtling through the air.
   c. parachutist about to jump out of a plane.
   d. photograph of a bicycle race.

10. Zero kinetic energy occurs when
   a. velocity reaches zero.
   b. velocity is constant but mass doubles.
   c. velocity increases.
   d. a moving object falls to the earth.

11. Kinetic energy is energy that is
   a. not capable of doing work.
   b. capable of causing change
   c. in motion.
   d. stored.

12. At the top of a ramp, a car has
   a. zero energy of any kind
   b. maximum G.P.E.
   c. maximum G.P.E. and zero K.E.
   d. maximum K.E. and zero G.P.E.

13. The conversion of mechanical energy to heat energy can be demonstrated by
   a. excess food being converted to fat
   b. sunlight heating the earth
   c. burning paper to produce heat and light
   d. rubbing hands together

14. An archer's stretched bow has energy of
   a. motion.
   b. position.
   c. the kinetic type.
   d. velocity.

15. Energy is
   a. work.
   b. the ability to produce heat.
   c. change in motion.
   d. the ability to do work or cause change.

16. When a ball hits the ground and bounces back up, it will
   a. speed up because its G.P.E. will change to K.E.
   b. slow down because its K.E. will change to G.P.E.
   c. speed up because its K.E. will change to G.P.E.
   d. slow down because its G.P.E. will change to K.E.

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17. An object has more kinetic energy
   a. at rest than in motion.
   b. when its velocity equals zero.
   c. when its mass is greater than that of an object moving near it.
   d. the faster it moves.

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18. If a moving object's mass is constant, its G.P.E. increases as it
    a. moves in contact with the surface of the earth.
    b. has an increase in velocity.
    c. moves toward the surface of the earth.
    d. moves away from the surface of the earth.

19. An example of chemical energy being released or converted to
    a. excess food being converted to fat
    b. sunlight heating the earth
    c. burning paper to produce heat and light
    d. rubbing hands together

20. The maximum kinetic energy of a girl on a moving swing is
    a. as she approaches the bottom of the arc of her swing path
    b. at the top of the arc of her swing path
    c. in the middle of the arc of her swing path
    d. just about a foot into the backswing of the arc of her swing path

21. The most concentrated form of energy is
    a. nuclear.
    b. electromagnetic.
    c. chemical.
    d. heat.

22. The sun's energy as used by green plants to make food is an example of
    a. light energy converted to kinetic energy.
    b. light energy converted to heat energy.
    c. light energy converted to mechanical energy.
    d. light energy converted to chemical energy.

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23. The maximum G.P.E. of a ball thrown up into the air is reached
    a. when it leaves the thrower's hands.
    b. as it speeds up.
    c. at the top of its path.
    d. at the bottom of its path.

24. The kind of energy released when atoms are rearranged to form new bonds is called
    a. mechanical.
    b. electromagnetic.
    c. chemical.
    d. nuclear.

25. Changes in forms of energy are called
    a. conversions.
    b. engines.
    c. turbines.
    d. conservations.

26. Temperature is ....
    a. the amount of heat in an object
    b. the same thing as heat
    c. the total kinetic energy of the particles in an object
    d. the average of the kinetic energy of the particles in a piece of matter.

27. What happens to the particles in a piece of matter when it is heated?
    a. they are enlarged
    b. they slow down
    c. they lose energy
    d. they gain energy
    e. they speed up
    f. they take up more space
    g. they take up less space

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28. What happens to the particles in a piece of matter when it is being cooled?
    a. they are enlarged
    b. they slow down
    c. they lose energy
    d. they gain energy
    e. they speed up
    f. they take up more space
    g. they take up less space

29. How does radiation (electromagnetic energy) cause heating in matter?
    a. it is absorbed by particles of matter and converted to kinetic energy
    b. it causes the particles to catch on fire making them hot
    c. it causes the particles to lose kinetic energy
    d. it causes the particles to dry up and give off potential energy.

30. How does the sun produce heat on earth?
    a. the energy from the sun passes through the air and is absorbed by solids and liquids on the surface of the earth.
    b. the energy from the sun is absorbed by the atmosphere which heats the earth.
    c. the sun does not help heat the earth. All of our heat comes from the hot core of the earth.
    d. the sunlight is converted into electricity by the clouds and the lightning sets forest fires which warm us up.

31. Which of the following correctly describes the difference between the particles in the solid, liquid, and gaseous states of a piece of matter? (except water)
    a. the particles in the solid state are farthest apart.
    b. the particles in the gaseous state are farthest apart.
    c. the particles in the gaseous state have the most energy.
    d. the particles in the solid state are moving the slowest.
    e. the particles in the liquid state have more energy than those in the solid state.
    f. the particles in the solid state have the most energy.
    g. the particles in the liquid state are free to move around each other easily.
    h. there are more particles per cubic centimeter in the liquid state than in the gaseous state.

32. When boiling water is poured into a cup that is at room temperature and resting on a table, what happens to the energy of the water molecules after they are in the cup?
    a. some is lost to the cup.
    b. some is lost to the molecules in the air.
    c. some is lost when water molecules leave the surface because of evaporation.

d. nothing happens to the energy and none is lost or transferred.

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33. A vacuum is .....?
    a. a good insulator against conduction of heat energy.
    b. a space without any matter in it.
    c. what some people have inside their skull.
    d. an appliance used for mixing pancake batter.

34. The experiments performed by James Prescott Joule led to the conclusion that .....
    a. heat is a result of the loss of cold
    b. heat is the same as temperature
    c. heat is the kinetic energy of atoms and molecules in motion
    d. heat is a substance that can be extracted and purified

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35. Which of the following are modern units for heat?
    a. Fahrenheit degree b. calorie c. joule d. Celsius degree

36. What does the term "specific heat" mean?
    a. the amount of heat a substance can absorb per unit of mass.
    b. the amount the temperature will rise when a substance boils.
    c. the amount of potential energy possessed by a substance.
    d. the temperature of the specific material

37. What causes most materials to expand when they are heated?
    a. the particles gain energy and bounce farther apart
    b. the particles swell up from the heat
    c. the particles lose energy so fast that they explode
    d. most materials don't expand when heated

38. What is "kinetic energy"?
    a. the energy of rest or position.
    b. the energy that comes from the sun and radio waves.
    c. the energy of moving particles.
    d. the energy of particles at rest.

39. What is "potential energy"?
    a. the energy of rest or position.
    b. the energy that comes from the sun and radio waves.
    c. the energy of moving particles.
    d. the energy of particles at absolute zero.

40. What units (metric and American) are used to measure heat?
    a. BTU b. calorie c. joule d. Celsius degree

41. When we detect a rise in the temperature of a body of matter, what does that tell us about what is happening to the particles?
    a. the particles are losing speed
    b. the particles are gaining speed.
    c. the particles are moving farther apart
    d. the particles are moving closer together
    e. the particles are gaining energy.
    f. the particles are losing energy.

42. What does the term "energy" mean?
    a. the ability to cause friction.
    b. the ability to do work or cause change
    c. the amount of work done by a falling object.
    d. the tendency of particles to move slower.

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43. What is "conduction"?
    a. the transfer of kinetic energy directly from one particle of matter to another.
    b. the transfer of energy by means of currents of particles in gases and liquids.
    c. the conversion of electromagnetic energy into kinetic energy.
    d. the transfer of cold from one object to another.

44. What is "convection"?
    a. the transfer of kinetic energy directly from one particle of matter to another.
    b. the transfer of energy by means of currents in gases and liquids.
    c. the conversion of electromagnetic energy into kinetic energy.
    d. the transfer of cold from one object to another.

45. What is "radiant heating"?
    a. the transfer of kinetic energy directly from one particle of matter to another.
    b. the transfer of energy by means of currents in gases and liquids.
    c. the conversion of electromagnetic energy into kinetic energy.
    d. the transfer of cold from one object to another.

46. A piece of steel that is 270^{o} C <u>below</u> zero (-270^{o} C).....
    a. has no heat at all
    b. still has some heat.
    c. has no movement in its atoms at all.
    d. still has some movement in its atoms

47. A temperature of -273 ^{o}C is equal to
    a. zero on the Kelvin scale
    b. absolute zero
    c. 273 ^{o}K
    d. the boiling point of water

48. Molecules of a gas move faster as the gas
    a. cools b. heats up c. changes phase d. loses kinetic energy

49. Bimetallic strips consist of
    a. one kind of metal
    b. metals with the same rates of expansion
    c. metals with different rates of expansion
    d. metals with very rigid structures

50. 0 ^{o}C is the same temperature as
    a. 0 ^{o}K b. 150 ^{o}K c. 273 ^{o}K d. 288 ^{o}K