Name: _____ Per: ____

Heat POST Test V6

1. The law of _____ states that energy cannot be created or destroyed.
   a) Conservation of Energy c) Conservation of Matter
   b) Conversion of Energy d) Energy Transformation and Transference

2. Which equation represents combustion?
   a) food + oxygen → water + carbon dioxide + heat energy
   b) sugar + carbon dioxide → water + oxygen + heat energy
   c) light + carbon dioxide + water → sugar + carbon dioxide + heat energy
   d) wood + oxygen → carbon monoxide + light + heat energy

3. What one of the following is not a temperature scale?
   a) Kelvin b) Celsius c) Molarity d) Fahrenheit

4. What part of the electromagnetic spectrum does thermal imaging camera "see"?
   a) Ultra Violet b) X-rays c) Infrared waves d) Gamma rays

5. In heat imaging, which color usually represents the "hottest"?
   a) Red b) White c) Blue d) Green

6. In heat imaging, which color usually represents the "coldest"?
   a) Red b) Yellow c) Black d) Blue

7. How do we feel heat?
   a) Through our hair sensors
   b) By seeing heat rising with our eyes
   c) Through sensors in our skin that covers most of our body surface
   d) Concentrated sensors in our skin on the back of our hands

8. When things cool down they _____.
   a) Expand b) Warp and bend c) become less dense d) contract

9. What did Anders Celsius use for this low temperature mark?
   a) Has yet to be discovered c) Boiling point of water
   b) Freezing point of pure water d) Freezing of salt water

10. What is the fixed high point for the Celsius scale?
    a) 98.7 degrees b) 1000 degrees c) 212 degrees d) 100 degrees

11. What material is liquid at the temperatures water freezes and boils that is used in thermometers?
    a) Silver b) Uranium c) Gallium d) Mercury

12. What did Daniel Fahrenheit use to determine the bottom (zero) of his scale?
    a) Has yet to be discovered c) Boiling point of water
    b) Freezing point of pure water d) Freezing of salt water

13. On the Fahrenheit scale pure water freezes at _____ and water boils at _____
    a) 0, 100 degrees b) 32, 212 degrees c) 100, 0 degrees d) 32, 220 degrees

14. Room temperature is _____ Celsius and _____ Fahrenheit.
    a) 22, 71 b) 15, 64 c) 32, 68 d) 72, 21

15. With gasses, there is a relationship between temperature, _____, and _____.
    a) heat, pressure b) pressure, volume c) pressure, heat d) size, density

16. What happens when pressure is applied to a gas, squeezing the size down?
    a) volume expands c) temperature goes up
    b) temperature goes down d) pressure decreases

17. This lowest temperature occurs at _____ degrees Celsius.
    a) minus 273 b) minus 100 c) minus 1000 d) zero

18. What is the temperature of deep space?
    a) minus 200 F c) very low, near absolute zero
    b) minus 200 K d) minus 1000 C

19. What organ in the brain controls temperature? _____
    a) Hippocampus c) hippopotamus
    b) Hypothalamus d) hyperthermos

20. Where does water boil at only 60ϒC?
    a) In deep space when there is a vaccum c) in death valley, the lowest place on earth
    b) It never boils at that temperature d) on top of a tall mountain

21. What scale is used to measure the "heat" of chili peppers?
    a) Kelvin b) skolville c) habanero d) chili heat units

22. What is 22.0 degrees Celsius on the Fahrenheit scale?
    a) 75 b) 69.4 c) 71.6 d) 81.2

23. What is 200°C on the Kelvin scale?
    a) 463 b) 473 c) 511 d) 397

24. What is 120°F on the Celsius Scale?
    a) 393 b) 212 c) 49 d) 35

25. As the kinetic energy of the molecules in a substance increases, the
    a) Temperature of the substance increases.
    b) Temperature of the substance decreases.
    c) Potential energy of the substance changes.
    d) Temperature remains the same.

26. Temperature is
    a) associated with the sensation of hot and cold.
    b) proportional to the average kinetic energy of molecules.
    c) measured with thermometers.
    d) all of the above

27. The transfer of energy as heat caused by the collision of molecules is called:
    a) Conduction b) Convection c) Kinetic Energy d) Radiation

28. Energy from the sun reaches Earth by
    a) Light b) Radiation c) Thermal photons d) Kinetic storms

29. Hot convection currents rise in air because:
    a) Cold air is more dense and pulled down by gravity, therefore pushing hot air up
    b) Hot air is less dense and naturally rises on its own
    c) Heat always rises and never falls down because it has more energy
    d) Hot air has bouncier molecules that collide more often with more energy

30. The transfer of energy by the movement of fluids or gases with different temperatures is called

a) convection. b) conduction. c) contact. d) radiation.

31. Which of the following substances is the best conductor of transferring energy as heat?
a) wood b) water c) iron d) rubber

32. How much heat energy will cause the temperature of 7.0 kg of carbon to increase its temperature by 15 K? The specific heat of iron is 449 J/kg*K. Use E = cm∅t.
a) 6.8×10^4 J b) 4.7×10^4 J c) 7.0×10^4 J d) 3.0×10^4 J

33. Heat is everywhere, in every object of the universe.
a) True b) False

34. A degree on the Fahrenheit scale is a bigger unit then a degree on the Celsius scale.
a) True b) False

35. A degree on the Kelvin scale is a bigger unit then a degree on the Celsius scale.
a) True b) False

36. Energy is transferred as heat from a substance at high temperature to a substance at low temperature.
a) True b) False

37. Cool objects don't emit any radiation.
a) True b) False

38. On the Fahrenheit scale water freezes at 43°F.
a) True b) False

39. Radiation is the only method of energy transfer that can take place in the vacuum of space.
a) True b) False

40. How much the temperature of an object increases when energy is transferred as heat to the object depends only on the mass of the object.
a) True b) False

41. The energy transferred between the particles of two objects because of the temperature differences between the two objects is called:
a) Convection b) Radiation c) Conduction d) Convection Current

42. _____ is the transfer of energy by the movement of fluids with different temperatures.
a) Convection b) Radiation c) Conduction d) Convection Current

43. _____ is the transfer of energy by electromagnetic waves.
a) Convection b) Radiation c) Conduction d) Convection Current

44. A(n) _____ is a material through which energy can be easily transferred as heat.
a) Insulator b) Conductor c) Convector d) Radiator

45. _____ is a measure of the average kinetic energy of all the particles within an object.
a) Joules b) Radicals c) Kelvin d) Kilowatt

46. _____ is the energy transfer as heat between particles as they collide within a substance or between two objects in contact.
a) Convection b) Radiation c) Conduction d) Convection Current

47. Radio waves, infrared radiation, visible light, ultraviolet rays, and X rays are forms of _____.
a) EM waves b) magnetic fields c) light spectrum d) both a and c

48. A(n) _____ is a material that is a poor energy conductor.

a) Insulator b) Conductor c) Convector d) Radiator

49. What does specific heat mean? _____
    a) The amount of energy that increases one gram of substance by one degree C
    b) The amount of energy that changes one gram of solid to liquid
    c) The amount of energy that changes one gram of liquid to gas
    d) The heat required to expand the substance by 1%.

50. Water has a _____ specific heat compared to most common compounds.
    a) High b) Moderate c) Low

51. Metals, e.g. silver, iron, and aluminum, have a _____ specific heat.
    a) High b) Moderate c) Low

52. What are the units of specific heat?
    a) Kg/J*K b) K/kg*J c) J/kg*K d) J/K*kg

53. Why do substances expand when energy is added to them as heat?
    a) Electrons expand their energy ring and take up more space
    b) The nucleus spits out neutrons, which bounce off other nucleii
    c) Atoms and molecules vibrate with more energy, taking up more space
    d) Atoms expand in size with a greater force field

54. About how many energy calories are in 1 gram of fatty food?
    a) 1 calorie b) 100 calories c) 3,000 cal d) 100 Cal

55. Which food source has the most calories per gram?
    a) Proteins b) carbohydrates c) fats d) sugars and fats have the same calories

56. The calorie is defined as the amount of energy to raise ___ gram(s) of water ____ degree C.
    a) 1, 1 b) 2, 2 c) 100, 100 d) 1 kilo, 1

57. The food combustion lab shows that _____ energy can transform into _____ energy.
    a) Heat, light b) chemical, heat c) kinetic, potential d) potential, kinetic

58. The metal tea bag lab shows how heat can transfer/transform by:
    a) Conduction b) convection c) radiation d) conservation

59. What is a calorie?
    a) Specific heat unit b) Cal. c) 1 joule d) energy to heat 1g H_2O 1ϒC

60. What is a kilocalorie
    a) one food Cal. b) 1,000 calories of energy c) 1,000,000 calories d) a and b

61. Which food groups have the highest calories per gram (caloric content)?
    a) Fats and oils c) short chain polymers
    b) sugars and complex carbohydrates d) organic proteins

62. Which part of the earth is the main reservoir of heat energy from the sun?
    a) earth mantle b) oceans c) continents d) earth core

63. When you bring water to a rolling boiling serves to keep the food moving and mixing in the water. This represents:
    a) convection b) conduction c) evaporation d) condensation

64. Which phases of matter expand and contract with increase and decrease of temperature?
    a) Liquids c) liquids and gases

b) Liquids and solids d) gases, liquids and solids

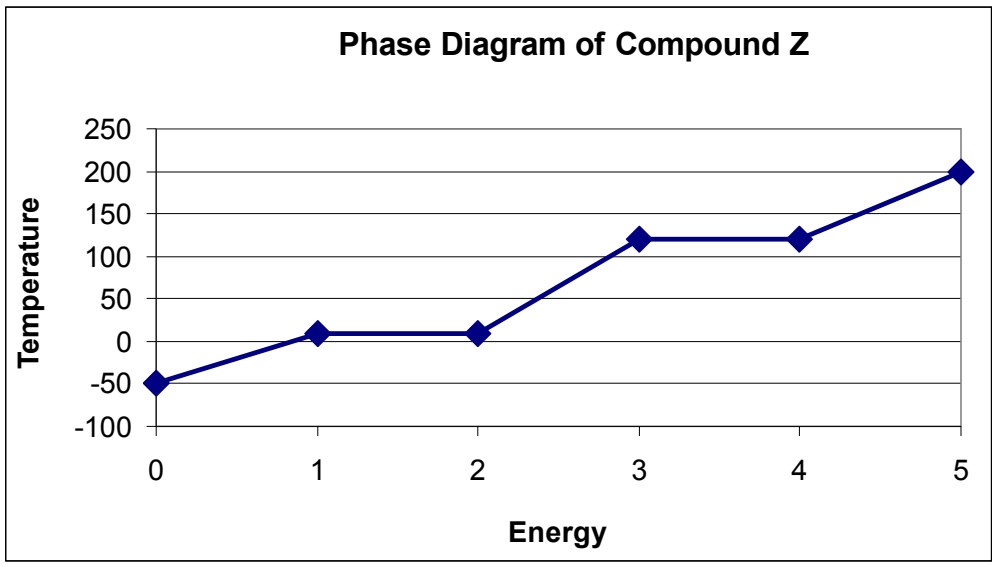
65. Density can be represented by:
a) Mass/volume b) g/mL c) kg/L d) all a, b, and c

66. What are the units of J?
a) m/s^2 b) $kg*m^2/s^2$ c) g/mL d) kilocalories

67. What is the equation for gravitational potential energy?
a) J = mgh b) kg/m2s2 c) meters*9.8*height d) both a and c

68. What is the equation for kinetic energy?
a) Kgs^2/m^2 b) mass*velocity c) ½ * m * v^2 d) KE=mgh

69. How does a refrigerator work?
a) uses energy to transfer heat from inside to outside the unit
b) gets energy from transferring heat from inside to outside
c) moves the colder air from the freezer portion to the refrigerator portion
d) uses energy to transfer cold air from refrigerator to the freezer



In the phase change diagram above,

70. the section between energy 0 and 1 represents _____
a) solid increases temp. c) liquid increases temp. e) gas increases temp.
b) boiling, melting d) melting, condensing

71. the section between energy 1 and 2 represents _____
a) solid increases temp. c) liquid increases temp. e) gas increases temp.
b) boiling, melting d) melting, condensing

72. the section between energy 2 and 3 represents _____
a) solid increases temp. c) liquid increases temp. e) gas increases temp.
b) boiling, melting d) melting, condensing

73. the section between energy 3 and 4 represents _____
a) solid increases temp. c) liquid increases temp. e) gas increases temp.
b) boiling, melting d) melting, condensing

74. the section between energy 4 and 5 represents _____

a) solid increases temp. c) liquid increases temp. e) gas increases temp.
b) boiling, melting d) melting, condensing