Name: _____ Class: _____ Date: _____ ID: A

Matter Review 2

True/False
Indicate whether the sentence or statement is true or false.

____ 1. All periods on the periodic table contain the same number of elements.

____ 2. A group of elements on the periodic table is also known as a family of elements.

Modified True/False
Indicate whether the sentence or statement is true or false. If false, change the identified word or phrase to make the sentence or statement true.

____ 3. The mass of an electron is about equal to the mass of a proton. _____

____ 4. The mass number of an element can be used to determine the number of electrons in an atom. _____

____ 5. The ability to burn is an example of a physical property. _____

____ 6. The state of matter is an example of a physical property. _____

____ 7. Ice, liquid water, and water vapor are the three states of water. _____

____ 8. Burning wood is an example of physical change. _____

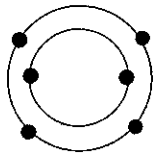
____ 9. Physical changes are difficult or impossible to reverse. _____

____ 10. Sugar dissolved in tea and sugar in a bowl are not the same substance. _____

____ 11. The cracks that form in a sidewalk during winter are the result of a physical change. _____

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

____ 12. This is the Bohr model for which element?



a. Oxygen
b. Nitrogen
c. Carbon
d. Helium

____ 13. Which Lewis Dot Model is the correct one for Be?

a. •Be•
b. Be•
c. Be•
d. •Be•

____ 14. Matter that has the same composition and properties throughout is called a(n) ____.
a. substance
b. mixture
c. atom
d. isotope

____ 15. When two pure substances are combined so that each of the pure substances retains its own properties, the result is a(n) ____.
a. compound
b. mixture
c. element
d. isotope

____ 16. How many atoms of calcium are in a unit of calcium phosphate whose formula is $Ca_3(PO_4)_2$?
a. one
b. two
c. three
d. four

____ 17. When someone stirs cocoa powder into hot water or hot milk, the cocoa changes from a ____.
a. homogeneous mixture into a compound
b. homogeneous mixture into a non-uniform mixture
c. compound into a heterogeneous mixture
d. heterogeneous mixture into a homogeneous mixture

____ 18. Which particles have almost the same mass?
a. proton and electron
b. proton and neutron
c. electron and neutron
d. all three particles

____ 19. Which item best represents Thomson's mental image of an atom?
a. a sponge
b. a chocolate-chip cookie
c. a bowling ball
d. a beach ball

____ 20. The surface tension in a cup of water is caused by ____.
a. attractive forces between the water and its container
b. attractive forces between water molecules
c. adhesive forces between water molecules
d. adhesive forces between the water and its container

____ 21. Viscosity is a measure of a fluid's ____.
a. resistance to flow
b. adhesive forces
c. average kinetic energy
d. buoyancy

____ 22. The measurement of an object's mass is a ____.
a. physical change
b. physical property
c. chemical change
d. chemical property

____ 23. The ability of an apple to change color when exposed to air is a ____.
a. physical property
b. chemical property
c. physical change
d. chemical change

____ 24. The ability of a pond to freeze over in winter is a ____.
a. physical property
b. chemical property
c. physical change
d. chemical change

____ 25. Which of the following is NOT a possible sign of a chemical change?
a. a change in state
b. a change in color
c. the release of a gas
d. the release of energy

____ 26. Which of the following is NOT a possible sign of a physical change?
a. a change in appearance
b. a change in volume
c. the release of energy
d. a change in color

____ 27. When a newspaper is left in direct sunlight for a few days, the paper begins to turn yellow. The yellow color is evidence of a ____.
a. physical property
b. chemical property
c. physical change
d. chemical change

____ 28. Three examples of physical change are ____.
a. boiling water, a nail rusting, a melting candle
b. a pond freezing, breaking glass, a burning candle
c. melting ice, mowing the lawn, carving a statue
d. applying lipstick, making lemonade, baking bread

____ 29. When Mendeleev published his periodic table, there were some spaces for undiscovered elements. Figure 4K-1 is a section of a similar table. A reasonable value for the atomic mass of the missing element is ____.

Al 27.0	**Si** 28.1	**P** 31.0
Ga 69.7	**?**	**As** 74.9
In 115	**Sn** 119	**Sb** 122

Figure 4K-1

a. 101
b. 72.3
c. 68.2
d. 34.8

____ 30. Every element has its own atomic number. The atomic number is the number of ____ in the nucleus of an atom of the element.
a. electrons
b. neutrons
c. positrons
d. protons

____ 31. In the modern periodic table, elements are arranged according to increasing ____.
a. atomic number
b. atomic mass
c. date of discovery
d. electrical conductivity

____ 32. ____ contain(s) only one kind of atom.
a. Matter
b. Elements
c. Chemicals
d. Radioactive materials

____ 33. Water is an example of a(n) ____.
a. compound
b. heterogeneous mixture
c. homogeneous mixture
d. element

____ 34. Air is an example of a ____.
a. heterogeneous mixture
b. compound
c. substance
d. homogeneous mixture

____ 35. Matter that is NOT considered to be a single substance is a(n) ____.
a. compound
b. element
c. mixture
d. isotope

Completion
Complete each sentence or statement.

36. If pure gold is classified as 24-karat gold, then 10-karat gold must be a(n) _____ mixture.

37. A pillowcase full of Halloween candy is a(n) _____ mixture.

38. To calculate the density of a sample of matter, you must divide its _____ by its _____.

39. Photosynthesis in plants is an example of a _____ change.

40. The color of a material is an example of a _____ property.

41. The main difference between physical and chemical changes is that _____ changes are not reversible.

42. The evaporation of water is an example of a change in _____.

43. An element is made up of only one kind of _____ (isotope, atom, plastic).

44. The periodic table lists _____ (common molecules, compounds, elements).

45. Atoms of the same element always have the same number of _____ (neutrons, electrons, protons).

46. The elements in a _____ (mixture, solution, compound) are always combined in the same proportion by mass.

47. The compound ammonia contains three atoms of hydrogen (H) for every atom of nitrogen (N), so the chemical formula for ammonia is _____ (NH_3, N_3H_3, N_3H).

48. An example of a homogenous mixture is _____ (vegetable soup, air, granite rock).

Unscramble the letters to form the correct word for each definition.

49. *hacclime preptory*: allows a substance to change to a new substance _____

50. *malceich hagcen*: original material is transformed into a new material _____

51. *aeioocnnrstv fo sams*: total mass is the same before and after a physical or chemical change _____

52. *chyplais gnache*: any alteration in size, shape, or form of matter _____

53. *tendisy*: relates an object's mass to the amount of space it takes up _____

54. *saphicly toppyrer*: most of these characteristics can be observed with the senses _____

55. *ulmove*: how much space an object takes up _____

56. *ttsae*: solid, liquid or gas _____

57. Shape, color, and texture are examples of _____.

58. You can tell a(n) _____ has occurred when energy is taken in or given off.

59. The rusting of metal is an example of a(n) _____ change.

60. A change of _____ is an example of a physical change.

61. Milk and gasoline are examples of the _____ of matter.

62. Mass and volume depend on the _____ of matter.

63. Energy is _____ in a chemical change.

64. Formation of a(n) _____ is an indication of chemical change.

65. The total _____ of the matter is the same before and after a physical or chemical change. This is the _____.

Matching

Match the type of property with the example.
a. physical property
b. chemical property

____ 66. a box measures 4 cm by 3 cm by 8 cm

____ 67. the liquid burned easily

____ 68. the muffins baked for 20 minutes until done

____ 69. the dessert tasted rich and chocolatey

Match the signs of chemical change with the examples of chemical change.
a. the formation of a precipitate
b. a change in color
c. release of light and heat
d. the formation of a gas

____ 70. burning wood in a fireplace

____ 71. antacid tablet in water

____ 72. solution of sodium nitrate is mixed with a solution of lead nitrate

____ 73. leaving peeled fruit on a kitchen counter

Match the following changes with the correct action.
a. physical
b. chemical

____ 74. tearing paper

____ 75. wax melting

____ 76. wood burning

____ 77. peeling a potato

____ 78. iron rusting

____ 79. sanding wood

____ 80. milk souring

____ 81. silver tarnishing

Classify each of the following properties of sucrose as **physical** *or* **chemical**.
a. physical
b. chemical

____ 82. It has a melting point of 186°C.

____ 83. It is white solid.

____ 84. It decomposes above 200°C.

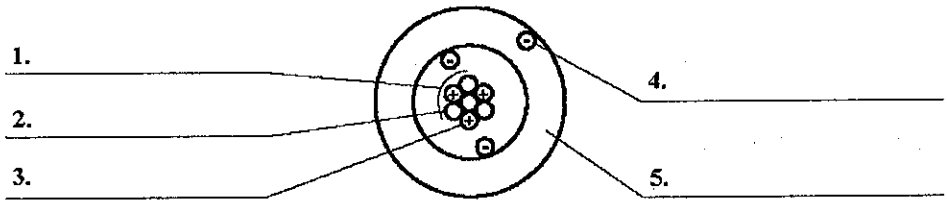
____ 85. Its density is 1.58 g/cm^3.

____ 86. Its consumption produces 52 kJ of energy per teaspoon

Short Answer

87. Study the following diagram. Then label the atom using the correct terms from the list.

electron **electron cloud** **neutron** **nucleus** **proton**



88. Fill in the missing numbers in the table.

Element	Number of protons	Number of neutrons	Number of electrons	Atomic number	Mass number
1. A	3	4	3		7
2. B	2		2	2	4
3. C	11	12		11	
4. D		6	6		12
5. E		18			35