Science Reviewer – Mock Test

_____1. What is the term for the change of state from solid to gas without passing through the liquid state?
A. Sublimation B. Condensation C. Evaporation D. Deposition

_____2. What is the name of the process that forms clouds in the water cycle?
A. Precipitation C. Condensation
B. Transpiration D. Evaporation

_____3. What is the name of the graph that shows the relationship between temperature and pressure for a substance at different phases?
A. Phase diagram C. Phase chart
B. Phase curve D. Phase plot

_____4. What is the term for the process that occurs when ice cubes turn into water vapor in the freezer?
a. Sublimation c. Evaporation
b. Condensation d. Deposition

_____5. What is the name of the phenomenon that causes water droplets to form on the outside of a cold glass of water?
A. Precipitation C. Condensation
B. Transpiration D. Evaporation

_____6. How can you distinguish between physical and chemical changes of matter using a simple experiment?
a. Physical changes can be observed by measuring or observing the appearance or state of the substance without changing its identity, while chemical changes can be observed by performing a chemical reaction that changes its identity and observe the products.
b. Physical changes can be observed by changing the shape or size of the substance without changing its identity, while chemical changes can be observed by changing the composition or structure of the substance by adding or removing atoms or molecules.
c. Physical changes can be observed by examining the type and arrangement of atoms or molecules in the substance without changing its identity, while chemical changes can be observed by examining the interactions and bonds between atoms or molecules by using a microscope or spectrometer.
d. Physical changes and chemical changes are not different at all.

_____7. How do you differentiate between pure substances and mixtures?
a) Pure substances chemically bonded; mixtures are mixed physically.
b) Pure substances do not change their composition; mixture changes their composition when mixed.
c) Both pure substances and mixtures can have distinguishable single phase.
d) Pure substances are unique; mixtures are common.

_____8. What are the names of the six common phase changes of water?
a. Melting, freezing, vaporization, condensation, sublimation and deposition
b. Melting, solidification, evaporation, condensation, sublimation and deposition
c. Fusion, solidification, vaporization, liquefaction, sublimation and deposition
d. Fusion, freezing, evaporation, liquefaction, sublimation and deposition

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_____9. What is the difference between vaporization and evaporation of water?

A. Vaporization is the change of state from liquid water to water vapor at any temperature, while evaporation is the change of state from liquid water to water vapor only at the boiling point.

B. Vaporization is the change of state from liquid water to water vapor only at the boiling point, while evaporation is the change of state from liquid water to water vapor at any temperature.

C. Vaporization is the change of state from liquid water to water vapor that occurs throughout the liquid, while evaporation is the change of state from liquid water to water vapor that occurs only at the surface of the liquid.

D. Vaporization is the change of state from liquid water to water vapor that occurs only at the surface of the liquid, while evaporation is the change of state from liquid water to water vapor that occurs throughout the liquid.

_____10. What is the difference between sublimation and deposition of water?

a. Sublimation is the change of state from solid ice to water vapor without passing through the liquid state, while deposition is the change of state from water vapor to solid ice without passing through the liquid state.

b. Sublimation is the change of state from solid ice to liquid water without passing through the gas state, while deposition is the change of state from liquid water to solid ice without passing through the gas state.

c. Sublimation is the change of state from water vapor to solid ice without passing through the liquid state, while deposition is the change of state from solid ice to water vapor without passing through the liquid state.

d. Sublimation and deposition are not different at all.

_____11. What is the name of the point on the phase diagram of water where all three phases coexist in equilibrium?

a) Triple point
b) Critical point
c) Boiling point
d) Freezing point

_____12. What is the name of the point on the phase diagram of water where the liquid and gas phases become indistinguishable from each other?

A. Triple point
B. Critical point
C. Boiling point
D. Freezing point

_____13. Which of the following is an example of a physical property of matter?

A. Reactivity
B. Density
C. Flammability
D. Rusting

_____14. What is the chemical property of matter that describes how readily it reacts with other substances?

A. Density
B. Conductivity
C. Reactivity
D. Malleability

_____15. What is the process by which a solid changes directly into a gas without passing through the liquid state called?

A. Melting
B. Freezing
C. Sublimation
D. Condensation

_____16. Which of the following substances is an example of a heterogeneous mixture?

A. Saltwater
B. Air
C. Halu-halo
D. Pure water

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_____17. Which of the following is an example of a chemical change?
A. Dissolving sugar in water
B. Burning wood
C. Melting ice
D. Cutting paper

_____18. Which of the following is a characteristic of a pure substance?
A. It is composed of two or more types of particles
B. It can be separated into its components by physical means
C. It has a fixed composition and properties
D. Its properties can vary depending on the amount of substance present

_____19. Which of the following is an example of a homogeneous mixture?
A. Saltwater
B. Soil
C. Granite
D. Salad

_____20. Which of the following is an example of a compound?
A. Nitrogen
B. Water
C. Calcium
D. Aluminum foil

_____21. Which of the following is an example of a physical change?
A. Combining sodium and chlorine to form sodium chloride.
B. Dissolving sugar in water
C. Burning wood
D. Rusting of iron

_____22. Which of the following statements is true about the particle nature of matter?
A. Matter is composed of indivisible atoms
B. Matter is continuous and without boundaries
C. Matter is composed of discrete particles that are constantly in motion
D. Matter has no mass or volume

_____23. Which of the following is not true about the particle nature of matter?
A. Particles are in constant motion
B. Particles are indivisible
C. Particles have mass and volume
D. Particles interact with each other

_____24. Which of the following is a property of particles in the solid state of matter?
A. They have high kinetic energy
B. They are arranged in a random pattern
C. They have a definite shape and volume
D. They are far apart from each other

_____25. Which of the following best describes the kinetic theory of matter?
A. All matter is made of atoms that are in constant motion
B. All matter is made of molecules that are stationary
C. All matter is made of molecules that are in constant motion
D. All matter is made of atoms that are stationary

_____26. According to the kinetic theory of matter, which state of matter has the greatest kinetic energy?
A. Solid
B. Liquid
C. Gas
D. Plasma

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_____27. According to the kinetic theory of matter, which of the following is true about the particles of a gas?
A. The particles are arranged in a regular pattern
B. The particles have a definite shape
C. The particles have a definite volume
D. The particles are in constant random motion

_____28. Which of the following statements best describes Dalton's atomic theory?
A. Atoms are made up of protons, neutrons, and electrons
B. Atoms are indivisible and indestructible
C. Atoms have a positive nucleus and negative electrons
D. Atoms are made up of subatomic particles

_____29. Which atomic model proposed that electrons orbit the nucleus in specific energy levels or shells?
A. Bohr model
B. Thomson model
C. Rutherford model
D. Chadwick model

_____30. Which subatomic particle did J.J. Thomson discover using cathode ray tubes?
A. Proton
B. Neutron
C. Electron
D. Nucleus

_____31. Which scientist is credited with discovering the nucleus of an atom?
A. J.J. Thomson
B. Ernest Rutherford
C. John Dalton
D. Niels Bohr

_____32. Which subatomic particle has a positive charge and is found in the nucleus of an atom?
A. Electron B. Neutron C. Proton D. Photon

_____33. What radiation did Ernest Rutherford used in his gold foil experiment?
A. Alpha particles
B. Beta particles
C. Gamma particles
D. X-ray particles

_____34. Which of the following statements best describes the law of conservation of mass?
A. Mass is neither created nor destroyed in a chemical reaction
B. The mass of reactants equals the mass of products in a chemical reaction
C. The ratio of the masses of two elements in a compound is always the same
D. The mass of a gas is directly proportional to its temperature at a constant pressure

_____35. Which of the following statements best describes the law of definite proportions?
A. The mass of a gas is directly proportional to its temperature at a constant pressure
B. The volume of a gas is inversely proportional to its pressure at a constant temperature
C. The ratio of the masses of two elements in a compound is always the same
D. The pressure of a gas is directly proportional to its temperature at a constant volume

_____36. Which of the following statements best describes the law of multiple proportions?
A. The mass of a gas is directly proportional to its temperature at a constant pressure
B. The ratio of the volumes of two gases in a chemical reaction is always a simple whole number
C. The ratio of the masses of two elements in a compound is always the same
D. When two elements form more than one compound, the masses of one element that combine with a fixed mass of the other element are in small whole number ratios

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_____37. Which of the following is an example of the law of conservation of mass?
A. A candle burning and producing water vapor and carbon dioxide
B. Mixing baking soda and vinegar to produce carbon dioxide gas
C. Rust forming on a piece of iron exposed to oxygen and moisture
D. Mixing salt and sugar together to form a homogeneous mixture

_____38. Which of the following is an example of the law of multiple proportions?
A. Carbon monoxide and carbon dioxide are both compounds made of carbon and oxygen
B. Water can exist in three states of matter (solid, liquid, and gas)
C. Ammonia is a compound made of nitrogen and hydrogen in a 1:3 ratio by mass
D. Nitric oxide and nitrogen dioxide are both compounds made of nitrogen and oxygen

_____39. What is the charge of a proton?
A. Positive B. Negative C. Neutral D. It can vary

_____40. What is the relative mass of a neutron compared to a proton?
A. The same
B. Slightly less
C. Slightly more
D. It varies depending on the element

_____41. Which subatomic particle determines the chemical properties of an atom?
A. Protons B. Neutrons C. Electrons D. None of the these

_____42. Which of the following statements about the Bohr model of the atom is true?
A. Electrons can occupy any orbit around the nucleus
B. Electrons do not emit or absorb energy as they move between orbits
C. The model accurately describes the behavior of atoms with more than one electron
D. The model is based on the idea that electrons behave like waves

_____43. What is the maximum number of electrons that can occupy the first energy level of an atom?
A. 2 B. 4 C. 8 D. 16

_____44. What is the term for the total number of protons and neutrons in the nucleus of an atom?
A. Atomic mass B. Atomic number C. Isotope D. Ion

_____45. What is the term for the distance between the nucleus and the outermost electron in an atom?
A. Energy level
B. Atomic radius
C. Electronegativity
D. Ionization energy

_____46. What is the term for an atom that has gained or lost one or more electrons?
A. Isotope B. Ion C. Element D. Compound

_____47. In a cathode ray tube, what is the name of the electrode that emits electrons?
A. Anode
B. Cathode
C. Both electrodes
D. Neither electrode

_____48. What is the purpose of the anode in a cathode ray tube?
A. To produce a beam of electrons
B. To focus the beam of electrons
C. To deflect the beam of electrons
D. To absorb the beam of electrons

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_____49. What is the atomic mass of an element that has 6 protons, 6 neutrons, and 6 electrons?
A. 6 amu B. 12 amu C. 18 amu D. 24 amu

_____50. Which subatomic particle is used to determine the atomic mass of an element?
A. Proton B. Neutron C. Electron D. All of the above

_____51. What is the relationship between the number of protons and the atomic mass of an element?
A. They are directly proportional
B. They are inversely proportional
C. There is no relationship between them
D. It depends on the number of neutrons in the element

_____52. What is the atomic number of an element that has 16 protons in its nucleus?
A. 8 B. 16 C. 24 D. 32

_____53. What is the relationship between the atomic number and the number of protons in an element?
A. They are the same
B. They are different
C. They are inversely proportional
D. It depends on the number of electrons in the element

_____54. What is the relationship between the atomic mass and the atomic number of an element?
A. They are directly proportional
B. They are inversely proportional
C. There is no relationship between them
D. It depends on the number of neutrons in the element

_____55. What is the symbol and atomic number of the element with the symbol "Fe"?
A. Iron, 26 B. Fluorine, 9 C. Helium, 2 D. Sodium, 11

_____56. Which element has the atomic number 17?
A. Chlorine B. Calcium C. Carbon D. Chromium

_____57. What is the element and symbol for the element with atomic number 8?
A. O B. N C. C D. He

_____58. Which element has the symbol "K" on the periodic table?
A. Potassium B. Calcium C. Carbon D. Chromium

_____59. Which element has the lowest atomic number?
A. H B. He C. Li D. Be

_____60. What is the atomic number of the element with the symbol "Ne" on the periodic table?
A. 10 B. 8 C. 20 D. 2

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Element	Atomic Mass	Atomic Number	Protons	Neutrons	Electrons
${}^{64}_{29}Cu^{+1}$					
${}^{12}_{6}C$					
${}^{16}_{8}O^{-2}$					
${}^{45}_{21}Sc$					
${}^{55}_{25}Mn^{+2}$					
${}^{73}_{32}Ge$					
${}^{85}_{37}Rb$					
${}^{127}_{53}I^{-1}$					
${}^{112}_{48}Cd$					
${}^{131}_{54}Xe$					

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