

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

- ____ 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. Halo-halo
 - D. Pure water

- _____ 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

- ____ 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 use 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

- ____ 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 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

- ____ 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

Element	Atomic Mass	Atomic Number	Protons	Neutrons	Electrons
${}^{64}_{29}\text{Cu}^{+1}$					
${}^{12}_6\text{C}$					
${}^{16}_8\text{O}^{-2}$					
${}^{45}_{21}\text{Sc}$					
${}^{55}_{25}\text{Mn}^{+2}$					
${}^{73}_{32}\text{Ge}$					
${}^{85}_{37}\text{Rb}$					
${}^{127}_{53}\text{I}^{-1}$					
${}^{112}_{48}\text{Cd}$					
${}^{131}_{54}\text{Xe}$					