9th CHEMISTRY Federal Board
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Chemistry 9th Chapter 2---Matter

Exercise Solution

Section I: MULTIPLE CHOICE QUESTIONS

1. Encircle the correct answer.

(i) Anything that has mass and occupies space is called:
a. Liquid
b. Gas
c. solid
d. Matter

(ii) Following are states of matter:
a. Gas
b. Liquid
c. Solid
d. All of these

(iii) Macroscopic properties are properties that can be visualized by
a. the naked eye
b. microscope
c. electron microscope
d. telescope

(iv) Matter can be described by both its:
a. physical properties and chemical properties.
b. physical properties
c. chemical properties.

(v) A substance formed when two or more different elements combine chemically:
a. atom
b. compound
c. element
d. solution

Solution:

(i) **d**	(ii) **d**	(iii) **a**	(iv) **a**	(v) **b**

SLOs-Based Additional MCQs

1. How many times liquids are denser than gases?
a. 100 times
b. 1000 times
c. 10,000 times
d. 100,000 times

2. Gases are the lightest form of matter and their densities are expressed in terms of:
a. mg/cm
b. gcm^{-3}
c. gdm^{-3}
d. $kgdm^{-3}$

3. At freezing point which one of the following coexists in dynamic equilibrium:
a. Gas and solid
b. Liquid and gas
c. Liquid and solid
d. All of these

4. Solid particles possess which one of the following motions?
a. Rotational motions
b. Vibrational motions
c. Translational motions
d. Both translational and vibrational motions

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5. Which one of the following is not amorphous?
a. Rubber
b. Plastic
c. Glass
d. Glucose

6. One atmospheric pressure is equal to how many Pascals:
a. 101325
b. 10325
c. 106075
d. 10523

7. In the evaporation process, liquid molecules which leave the surface of the liquid have:
a. Very low energy
b. Moderate energy
c. Very high energy
d. None of the above

8. Which one of the following gas diffuses fastest?
a. Hydrogen
b. Helium
c. Fluorine
d. Chlorine

9. Which one of the following does not affect the boiling point?
a. Intermolecular forces
b. External pressure
c. Nature of liquid
d. Initial temperature of liquid

10. Density of a gas increases, when its:
a. Temperature is increased
b. Pressure is increased
c. Volume is kept constant
d. None of the above

11. The vapour pressure of a liquid increases with the:
a. Increase of pressure
b. Increase of temperature
c. Increase of intermolecular forces
d. Increase of polarity of molecules

12. Which one of the following motions are possessed solid particles?
a. Rotational motions
b. vibrational motions
c. translational motions
d. both translational and vibrational motions

13. In the evaporation process, liquid molecules which leave the surface of the liquid have:
a. very low energy
b. moderate energy
c. very high energy
d. none of these

14. Which one of the following does not affect the boiling point?
a. intermolecular forces
b. external pressure
c. nature of liquid
d. initial temperature of liquid

15. Tyre puncture is an example of:
a. Effusion process
b. Diffusion process
c. Evaporation process
d. Condensation process

16. The value of atmospheric pressure at sea level is:
a. 760 mm Hg
b. 700 mm Hg
c. 780 mm Hg
d. 750 mm Hg

17. Normal body temperature of human being is
a. 37°C
b. 38°C
c. 39°C
d. 40°C

18. In Charles Law "K" is equal to:
a. V
b. T
c. T
d. P

19. Normal body temperature of human is::
a. 98°C
b. 96°C
c. 37°C
d. 32°C

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20. Freezing point of acetic acid is:
a. 14.6°C
b. 15.6°C
c. 16.6°C
d. 17.6°C

21. By increasing temperature the rate of evaporation is:
a. increased
b. decreased
c. becomes equal
d. not effected

22. Boiling point of alcohol is:
a. 67°C
b. 78°C
c. 88°C
d. 98°C

23. The density of ice at 0°C is:
a. 1.00 gcm^{-3}
b. 1.5 gdm^{-3}
c. 0.917 gcm^{-3}
d. 1.4gdm^{-3}

24. Density of aluminium is:
a. 2.4 g cm^{-3}
b. 2.5 g cm^{-3}
c. 2.6 g cm^{-3}
d. 2.7 g cm^{-3}

25. How much concentrations of salt is required to kill unwanted bacteria?
a. 5%
b. 10%
c. 15%
d. 20%

26. The value of absolute zero is:
a. −273.15°C
b. 273.15°C
c. 0°C
d. 100°C

27. Vapour pressure of water at 100°C is:
a. 140 mmHg
b. 360 mmHg
c. 580 mmHg
d. 760 mmHg

28. _____ is an example of Amorphous solid:
a. Sodium Chloride
b. Diamond
c. Plastic
d. Glucose

29. Density of water is:
a. 2 gcm^{-3}
b. 2 gcm^{-3}
c. 1 gcm^{-3}
d. 1 gcm^{-3}

30. Identify the compound which is not soluble in water?
a. NaCl
b. $CaCl_2$
c. $MgCl_2$
d. KBr

31. Which one of the following is crystalline solid?
a. diamond
b. plastic
c. rubber
d. glass

32. The density of gold is:
a. 2.70g/cm^3
b. 7.86g/cm^3
c. 19.3g/cm^3
d. 4.88g/cm^3

33. The equation of Boyle's law is:
a. P = VT
b. T = k
c. P = k
d. PV = k

34. Vapour pressure of water in mmHg at 20°C is:
a. 4.58
b. 17.5
c. 55.3
d. 149.4

35. Absolute temperature scale was introduced by:
a. Kelvin
b. Henry
c. Boyle
d. William

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36. J. Charles presented his Charles's Law in:
a. 1787
b. 1662
c. 1913
d. 1932

37. The process of changing a gas phase into liquid is called:
a. Evaporation
b. Melting
c. Transpiration
d. Condensation

38. Which of the following is NOT a state of matter?
a. Solid
b. Liquid
c. Plasma
d. Energy

39. What is the primary factor that determines the state of matter?
a. The color of the substance
b. The mass of the substance
c. The intermolecular forces and molecular arrangement
d. The temperature of the surrounding environment

40. In which state of matter do particles have the least kinetic energy?
a. Solid
b. Liquid
c. Gas
d. Plasma

41. What is the process called when a solid changes directly into a gas?
a. Melting
b. Sublimation
c. Deposition
d. Vaporization

42. Which of the following is a characteristic of plasma?
a. It is composed of neutral atoms
b. It is a poor conductor of electricity
c. It is highly ionized gas
d. It is only found in laboratory settings

43. Bose-Einstein condensate is an exotic state of matter that exists at:
a. Extremely high temperatures
b. Extremely low temperatures
c. High pressures
d. Low pressures

44. Which of the following is NOT a phase change?
a. Melting
b. Condensation
c. Diffusion
d. Sublimation

45. What happens to the particles in a substance when it changes from a liquid to a gas?
a. They move slower and closer together
b. They move faster and spread further apart
c. They remain at the same speed and distance
d. They stop moving entirely

46. Which of the following is an example of a substance exhibiting properties of both a liquid and a gas?
a. Ice
b. Water vapor
c. Molten lava
d. Plasma

47. What is the key difference between a liquid and a gas?
a. Liquids have a fixed shape, gases do not
b. Liquids have a fixed volume, gases do not
c. Liquids have strong intermolecular forces, gases do not
d. Liquids are compressible, gases are not

48. In which state of matter do particles vibrate in fixed positions?
a. Solid
b. Liquid
c. Gas
d. Plasma

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49. What is the process of a gas turning directly into a solid called?
a. Melting
b. Vaporization
c. Deposition
d. Condensation

50. Which of the following is NOT a characteristic of a solid?
a. Definite shape
b. Definite volume
c. Particles are closely packed
d. Particles move freely

51. Which state of matter is considered the most abundant in the universe?
a. Solid
b. Liquid
c. Gas
d. Plasma

52. Which of the following is an example of a compound?
a. Air
b. Sugar (sucrose)
c. Salt (sodium chloride)
d. Both b. and c.

53. Which statement accurately describes the difference between an element and a compound?
a. An element is made of one type of atom, while a compound is made of different types of atoms chemically combined.
b. An element can be broken down into simpler substances, while a compound cannot.
c. An element is always a solid, while a compound can be a gas, liquid, or solid.
d. There is no difference; they are essentially the same thing.

54. Which of the following is a characteristic of a mixture?
a. Components are chemically combined.
b. Components have fixed ratios.
c. Components retain their individual properties.
d. A new substance is formed with new properties.

55. Which of the following is NOT a mixture?
a. Seawater
b. Carbon dioxide
c. Blood
d. Air

56. In a chemical reaction where elements combine to form a compound, what happens to their properties?
a. They remain the same.
b. They change to reflect the new compound.
c. They become more reactive.
d. They become less reactive.

57. Which of the following is an example of a homogeneous mixture?
a. Sand and water
b. Oil and water
c. Sugar dissolved in water
d. Muddy water

58. Which of the following is an example of a heterogeneous mixture?
a. Air
b. Saltwater
c. Salad
d. Lemonade

59. What is the process called when a liquid changes to a gas at a temperature below its boiling point?
a. Boiling
b. Condensation
c. Evaporation
d. Freezing

60. Which of the following is a method used to separate a mixture of iron filings and sand?
a. Filtration
b. Distillation
c. Evaporation
d. Magnetism

61. What is the purpose of chromatography?
a. To separate solids from liquids

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b. To separate dissolved substances based on their different properties
c. To separate liquids based on their boiling points
d. To separate magnetic substances from non-magnetic substances

62. Which of the following is an example of a pure substance?
a. Air
b. Seawater
c. Diamond
d. Milk

63. Which of the following is a characteristic of a compound?
a. Its components can be easily separated by physical methods.
b. Its components are not chemically bonded.
c. It has a fixed composition by mass.
d. Its properties are the same as its constituent elements.

64. What is the chemical formula for water?
a. H_2
b. O_2
c. H_2O
d. CO_2

65. Which of the following is an example of a physical change?
a. Burning wood
b. Rusting of iron
c. Melting ice
d. Cooking an egg

66. How can you separate a mixture of salt and water?
a. By filtration
b. By distillation
c. By evaporation and condensation
d. By using a magnet

67. Which of the following is NOT a property of a solution?
a. Homogeneous mixture
b. Variable composition
c. Particles are visible to the naked eye
d. Transparent appearance

68. What type of bonding is primarily responsible for holding together the carbon atoms in diamond?
a. Ionic bonds
b. Metallic bonds
c. Covalent bonds
d. Hydrogen bonds

69. Which allotrope of carbon has a layered structure with weak forces between the layers?
a. Diamond
b. Graphite
c. Fullerene
d. None of the above

70. What is the term used to describe the phenomenon where an element exists in different physical forms with different arrangements of atoms?
a. Isomerism
b. Allotropy
c. Polymerization
d. Crystallization

71. What is the main difference between a solution and a suspension?
a. Particle size
b. Chemical composition
c. Color
d. Density

72. Which allotrope of carbon is known for its electrical conductivity?
a. Diamond
b. Graphite
c. Fullerene
d. None of the above

73. In a saturated solution, what is the state of equilibrium between the solute and solvent?
a. Dissolving rate is greater than crystallization rate
b. Dissolving rate is less than crystallization rate
c. Dissolving rate is equal to crystallization rate
d. There is no solute left in the solution

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74. Which of the following is a common use of graphite?
a. Making jewelry
b. Cutting glass
c. Lubricant in machinery
d. Heat conductor in electronics

75. What type of intermolecular forces exist between the layers of graphite?
a. Covalent bonds
b. Hydrogen bonds
c. Van der Waals forces
d. Ionic bonds

76. Which allotrope of carbon is known for its cage-like structure?
a. Diamond
b. Graphite
c. Fullerene
d. None of the above

77. What is meant by the term "solute" in a solution?
a. The substance that dissolves
b. The substance that does the dissolving
c. The mixture of solute and solvent
d. The solid residue left behind

78. Which allotrope of carbon is the hardest known substance?
a. Graphite
b. Fullerene
c. Diamond
d. None of the above

79. What is the shape of a C_{60} fullerene molecule?
a. Linear
b. Spherical (soccer ball shape)
c. Tetrahedral
d. Octahedral

80. What is the primary reason for the difference in properties between diamond and graphite?
a. Different number of carbon atoms
b. Different types of atoms present
c. Different arrangements of carbon atoms
d. Different chemical bonds present

81. A solution that contains the maximum amount of solute that can dissolve at a given temperature is called:
a. Unsaturated solution
b. Saturated solution
c. Supersaturated solution
d. Concentrated solution

82. Which of the following statements is true about a supersaturated solution?
a. It contains less solute than a saturated solution
b. It contains the maximum amount of solute that can dissolve at a given temperature
c. It contains more solute than a saturated solution at the same temperature
d. It is a stable solution

83. What happens when a saturated solution is cooled?
a. More solute dissolves
b. The solute precipitates out as crystals
c. The solution becomes unsaturated
d. The solution becomes concentrated

84. The solubility of a gas in a liquid generally increases with:
a. Decreasing temperature
b. Increasing temperature
c. Increasing pressure
d. Decreasing pressure

85. Which of the following factors does NOT affect the solubility of a solid in a liquid?
a. Temperature
b. Pressure
c. Nature of the solute
d. Nature of the solvent

86. What is the main difference between a solution and a suspension?
a. A solution is homogeneous, while a suspension is heterogeneous
b. A solution is heterogeneous, while a suspension is homogeneous
c. A solution is made up of only one substance, while a suspension has two or more

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d. A solution is always a liquid, while a suspension can be any state of matter

87. Which of the following is an example of a saturated solution?
a. Sugar water with undissolved sugar at the bottom
b. Salt water where all the salt has dissolved and no more can dissolve at room temperature
c. Sugar water that has less sugar than it can hold at room temperature
d. Air dissolved in water

88. The solubility of liquids in each other is influenced by:
a. Only pressure
b. Only temperature
c. Both temperature and pressure
d. Neither temperature nor pressure

89. A solution in which more solute can be dissolved at a given temperature is called:
a. Saturated solution
b. Unsaturated solution
c. Supersaturated solution
d. Concentrated solution

90. What is the solubility product?
a. The product of the concentrations of ions in a saturated solution
b. The amount of solute needed to saturate a solution
c. The maximum amount of solute that can dissolve at a given temperature
d. The amount of solvent needed to dissolve a solute

91. How does the solubility of gases in liquids generally change with increasing temperature?
a. Increases
b. Decreases
c. Remains constant
d. First increases then decreases

92. Which of the following is NOT a factor affecting solubility?
a. Nature of solvent
b. Nature of solute
c. Temperature
d. Volume of solution

93. In a sample of air at 25°C, the molecules of oxygen, nitrogen and carbon dioxide all move with different average speeds. Which of the following lists the molecules in order of decreasing average speed (fastest → slowest)?
a. carbon dioxide → oxygen → nitrogen
b. nitrogen → carbon dioxide → oxygen
c. nitrogen → oxygen → carbon dioxide
d. oxygen → carbon dioxide → nitrogen

94. The solubility of sulphur
a. decreases by increase in temperature
b. decreases by increase in pressure
c. increases by increase in temperature
d. increases by decrease in temperature

95. Sodium sulphate dehydrate ($Na_2SO_4 \cdot 10H_2O$) is converted into anhydrous sodium sulphate Na_2SO_4;
a. by decreasing temperature, its solubility increases
b. by increases temperature, its solubility decreases
c. by increases temperature, its solubility increases
d. all of these

Solution:

1. **b**	2. **c**	3. **c**	4. **b**	5. **d**	6. **a**	7. **c**	8. **a**	9. **d**	10. **b**
11. **b**	12. **b**	13. **c**	14. **d**	15. **a**	16. **a**	17. **a**	18. **c**	19. **c**	20. **c**
21. **a**	22. **b**	23. **c**	24. **d**	25. **d**	26. **a**	27. **d**	28. **c**	29. **c**	30. **b**
31. **a**	32. **c**	33. **d**	34. **b**	35. **a**	36. **a**	37. **d**	38. **d**	39. **c**	40. **a**
41. **b**	42. **c**	43. **b**	44. **c**	45. **b**	46. **b**	47. **c**	48. **a**	49. **c**	50. **d**

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51. **d**	52. **d**	53. **a**	54. **c**	55. **b**	56. **b**	57. **c**	58. **c**	59. **c**	60. **d**
61. **b**	62. **c**	63. **c**	64. **c**	65. **c**	66. **c**	67. **c**	68. **c**	69. **b**	70. **b**
71. **a**	72. **b**	73. **c**	74. **c**	75. **c**	76. **c**	77. **a**	78. **c**	79. **b**	80. **c**
81. **b**	82. **c**	83. **b**	84. **c**	85. **b**	86. **a**	87. **b**	88. **c**	89. **b**	90. **a**
91. **b**	92. **d**	93. **c**	94. **c**	95. **c**					

Stimulus-Based / Scenario Type Situational Questions & Answers

Topics:

Defining matter, macroscopic properties of solids, liquids and gases, allotropic forms of diamond, graphite and fullerenes, elements, compounds, mixtures

Topic 1. Defining Matter:

Stimulus Statement:

Matter is anything that has mass and takes up space (volume). All matter is made of tiny particles. These particles are in constant motion. The amount of energy they have, changes how the particles act.

1. Which of the following is the basic building block of all matter?
A. An electron
B. An atom
C. A cell
D. A molecule

2. What happens to the particles of a substance as they gain more heat energy?
A. They move closer together
B. Their motion slows down
C. They move faster
D. Their mass increases

3. Which of the following does not describe matter?
A. It has mass
B. It takes up space
C. It is made of particles
D. It is a type of energy

Topic 2. Macroscopic Properties of Solids, Liquids, and Gases

Stimulus Statement:

The three main states of matter are solids, liquids, and gases. Solids have a fixed shape and a fixed volume. Liquids have a fixed volume but take the shape of their container. Gases have no fixed shape and no fixed volume.

4. Which state of matter is easily compressed (squeezed) into a smaller space?
A. Solid
B. Liquid
C. Gas
D. Both A and B

5. Why do liquids take the shape of their container?
A. Particles are packed tightly in rows
B. Particles have space to slide past one another
C. Particles are held in rigid fixed position.
D. Particles are spread far apart

6. A student puts a block of ice into a bowl. The ice melts into water. Which properties change during this process?
A. Volume and mass
B. Mass and shape
C. Shape and volume
D. Mass and state

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Topic 3. Allotropic Forms of Diamond, Graphite, and Fullerenes

Stimulus Statement:

Allotropes are different forms of the same element in the same physical state. Diamond, graphite, and fullerenes are all allotropes of carbon. Each has a different arrangement of carbon atoms, which gives them unique physical properties.

7. Why does graphite conduct electricity while diamond does not?

A. Graphite contains metal atoms
B. Graphite has free electrons that can move
C. Diamond has free electrons
D. Diamond has weak bonds between layers

8. What property makes diamond useful for cutting glass?

A. It is slippery
B. It conducts heat
C. It has a giant covalent structure making it very hard
D. It is made of layers that can slide

9. What are fullerenes?

A. Layers of carbon atoms shaped like hexagons
B. Carbon atoms joined together in a ball or tube shape
C. A hard 3D network of carbon atoms
D. A mixture of carbon and oxygen

Topic 4. Elements

Stimulus Statement:

An element is a pure substance that cannot be broken down into simpler substances by chemical methods. Every element is made of only one type of atom. Elements can be metals or non-metals.

10. Which of the following is an example of an element?

A. Water
B. Air
C. Carbon
D. Salt

11. How many types of atoms are present in a pure sample of the element iron?

A. One
B. Two
C. Three
D. Many, depending on its state

12. Which of the following is a physical property of most metallic elements?

A. They are poor conductors of electricity
B. They break easily when hammered
C. They can be hammered into thin sheets
D. They have low melting points

Topic 5. Compounds and Mixtures

Stimulus Statement:

Compounds and mixtures are made of more than one substance. A compound contains different elements chemically joined together. A mixture contains different substances that are not chemically joined and can be separated by physical methods.

13. Which of the following is a key difference between a compound and a mixture?

A. Compounds can be separated by physical methods
B. Mixtures always have a fixed chemical formula
C. Elements in a compound lose their original properties
D. Mixtures are pure substances

14. A student mixes iron filings and sulfur powder together in a dish. This is an example of a:

A. Compound
B. Mixture
C. Molecule
D. Element

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15. Which of the following substances is a compound?

A. Sea water
B. Brass (an alloy)
C. Carbon dioxide
D. Nitrogen gas.

Topic:

Solutions, colloids, suspensions, mixtures, effect of temperature on solubility and formation of unsaturated and saturated solutions:

Stimulus 1:

Solutions and Solvents: A solution is a uniform, single-phase mixture formed when a solute (the substance that dissolves) is completely dissolved in a solvent (the substance doing the dissolving).

16. Which of the following best describes the components of a true salt-water solution?

A. The salt settles out after standing for a day.
B. The water is the solute and the salt is the solvent.
C. The salt is the solute and the water is the solvent.
D. The mixture scatters a strong beam of light.

17. Which of the following combinations can form a true liquid solution?

A. Oil and water
B. Ethanol and water
C. Sand and water
D. Chalk dust and water

18. A student prepares a solution by dissolving 10g of sugar in 100g of water. What is the physical state of the solvent?

A. Solid
B. Gas
C. Liquid
D. Plasma

Stimulus 2:

Colloids and the Tyndall Effect: A colloid is a mixture where tiny particles of one substance are scattered through another substance. Unlike a true solution, these particles are large enough to block and scatter light beams, but they are too small to settle at the bottom. This scattering of light is known as the Tyndall effect.

19. A beam of light is passed through a liquid mixture. The path of the light is clearly visible through the liquid. What type of mixture is this likely to be?

A. A true solution
B. A colloid
C. An element
D. A pure compound

20. Why does a colloid mixture scatter light?

A. The solute particles are extremely small (less than 1 nm)
B. The particles are large enough to block and reflect light rays.
C. The mixture contains visible pieces of undissolved solid.
D. The solvent molecules are actively glowing.

21. Which of the following common household items is a classic example of a colloid?

A. Tap water
B. Pure ethanol
C. Milk
D. Filtered tea

Stimulus 3:

Suspensions: A suspension is a heterogeneous mixture containing large solid particles that are mixed into a liquid. Over time, these large particles will settle to the bottom because of gravity. Suspensions can be separated into pure parts using standard filter paper.

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22. A student mixes muddy soil with water in a beaker. After leaving it on the desk for an hour, a layer of mud forms at the bottom. What term describes this type of mixture?

A. Solution
B. Colloid
C. Suspension
D. Homogeneous mixture

23. Which physical method can easily separate chalk particles from a chalk-and-water suspension?

A. Crystallization
B. Filtration
C. Fractional distillation
D. Evaporation to dryness

24. Which property is true for suspensions but NOT for true solutions?

A. The mixture is clear and transparent.
B. The mixture can be separated by filtration.
C. The particles pass right through filter paper.
D. The particles are uniformly spread out forever.

Stimulus 4:

Types of Mixtures: Mixtures can be classified based on how the particles are dispersed and their overall uniformity. Homogeneous mixtures look exactly the same throughout, while heterogeneous mixtures have visually distinct parts and non-uniform distributions.

25. How does a homogeneous mixture differ from a heterogeneous mixture?

A. Homogeneous mixtures have visible separate layers.
B. Homogeneous mixtures have a uniform composition throughout.
C. Heterogeneous mixtures can never be separated.
D. Heterogeneous mixtures are always made of liquids.

26. Air is a mixture of various gases, mostly nitrogen and oxygen. Air appears entirely uniform. What type of mixture is clean air?

A. A heterogeneous mixture
B. A suspension
C. A homogeneous mixture (Gaseous solution)
D. A colloid

27. A chef mixes water, oil, and large chunks of chopped vegetables together in a bowl. This creates a mixture with unevenly distributed parts. What kind of mixture is this?

A. True solution
B. Homogeneous
C. Heterogeneous
D. Colloid

Stimulus 5:

Effect of Temperature on Solubility: Solubility is the maximum amount of a solute that can dissolve in a specific amount of solvent at a specific temperature. Generally, the solubility of solid solutes increases as the temperature goes up. In contrast, the solubility of gases in liquids decreases when the temperature rises.

28. How does an increase in temperature usually affect the solubility of a solid substance (like sugar) in water?

A. The solubility decreases.
B. The solubility increases.
C. The solubility stays exactly the same.
D. The solute turns into a gas.

29. A sealed bottle of fizzy soda is taken out of a warm oven. Why does a large amount of gas suddenly bubble out of the liquid?

A. The solubility of gases increases at higher temperatures.
B. The solubility of gases decreases at higher temperatures.

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C. Heat destroys the gas molecules entirely.
D. The liquid becomes a solid.

30. A student dissolves salt in cold water until no more salt can be dissolved, leaving some solid salt at the bottom. What happens when this mixture is heated up?

A. More salt dissolves.
B. The dissolved salt turns into gas.
C. The solution suddenly turns into a suspension.
D. The water evaporates completely.

Stimulus 6:

Unsaturated and Saturated Solutions: An unsaturated solution is one that can dissolve more solute at that specific temperature. A saturated solution has dissolved the maximum possible amount of solute, meaning no more will dissolve if you add extra.

31. A student adds a spoonful of sugar to a cup of tea, stirs, and it completely disappears. The tea could still dissolve more sugar if added. What is this state of the tea?

A. Saturated
B. Unsaturated
C. Concentrated
D. Supersaturated

32. If you add extra solid solute to an already saturated solution, what will happen to the extra solute?

A. It dissolves immediately.
B. It settles and collects at the bottom.
C. It causes the entire liquid to freeze.
D. It turns into a gas and escapes.

33. What defines a saturated solution at a given temperature?

A. It contains zero solute.
B. It contains less solute than it can hold.
C. It holds the absolute maximum amount of solute possible.
D. It only exists as a solid.

Solution:

1. **B**	2. **C**	3. **D**	4. **C**	5. **B**	6. **C***	7. **B**	8. **C**	9. **B**	10. **C**
11. **A**	12. **C**	13. **C**	14. **B**	15. **C**	16. **C**	17. **B**	18. **C**	19. **B**	20. **B**
21. **C**	22. **C**	23. **B**	24. **B**	25. **B**	26. **C**	27. **C**	28. **B**	29. **B**	30. **A**
31. **B**	32. **B**	33. **C**							

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