Is Matter Around us Pure

1. What kind of solution is milk?
(a) Suspension (b) Colloid
(c) True solution (d) Alloy

2. A liquid and a solid are found together in a single phase. What is this known as?
(a) Solution (b) Solute
(c) Solvent (d) Emulsion

3. Which of the following is a homogeneous solution?
(a) Muddy water
(b) Bread
(c) Concrete
(d) A solution of sugar in water

4. What kind of a colloidal solution is an emulsion?
(a) Solid dispersed in solid.
(b) Liquid dispersed in liquid.
(c) Gas dispersed in liquid.
(d) Liquid dispersed in solid.

5. In which of the following does scattering of light takes place?
(a) Electrolytic solutions (b) Colloidal solutions
(c) Electrodialysis (d) Alcoholic solutions

6. Which of the following forms a colloidal solution in water?
(a) Salt (b) Glucose
(c) Starch (d) Barium nitrate

7. Which of the following is NOT a physical change?
(a) Tearing a paper
(b) Bending an iron rod
(c) Freezing water into ice
(d) Curdling of milk

8. In which of the following is Tyndall effect observed?
(a) Solution (b) Precipitate
(c) Sol (d) Vapour

9. How is Brownian motion caused?
(a) Through temperature fluctuations within the liquid phase
(b) Through attraction and repulsion between the charges on the colloidal particles
(c) Through collision of molecules between the colloidal particles
(d) Through pressure variations within the liquid phase

10. To which of the following category does ice-cream belong?
(a) Solution (b) Emulsion
(c) Element (d) Suspension

11. What can be observed when sunlight is passed through a colloidal solution?
(a) Adsorption (b) Coagulation
(c) Tyndall effect (d) Brownian motion

12. What is a sol?
(a) A solid dispersed in a liquid
(b) A liquid dispersed in a gas
(c) A gas dispersed in a liquid
(d) A gas dispersed in a solid

13. In both dialysis and osmosis which particles do not pass through the semipermeable membrane?
(a) Water (b) Small molecules
(c) Colloids (d) All of the above

14. What is the name of the process for the separation of colloidal panicles from those of crystalloids called?
(a) Dialysis (b) Pyrolysis
(c) Peptization (d) Photolysis

15. Shaving cream produces foam. What kind of colloid is shaving cream?
(a) Liquid dispersed in a gas
(b) Gas dispersed in a liquid
(c) Solid dispersed in a liquid
(d) Solid dispersed in a gas

16. What kind of solution is drinking soda?
(a) Gas in liquid (b) Liquid in gas
(c) Gas in gas (d) Solid in liquid

17. What kind of solution is amalgam?
(a) Solid in solid (b) Solid in mercury
(c) Liquid in solid (d) Liquid in liquid

18. Which of the following is a true solution?
(a) *NaCl* in sulphur dioxide.
(b) Copper in silver.
(c) Salt in petrol.
(d) Mud in water.

19. Which of the following is a chemical change?
(a) Boiling of eggs.
(b) Evaporation of water.
(c) Precipitation of snow.
(d) Melting of wax.

20. What are the materials which contain at least two pure substances and show the properties of their constituents called?
(a) A compound (b) An element
(c) A mixture (d) A solution

21. Which of the following is a solid-in-solid colloid?
(a) Shaving cream (b) Milk of magnesia
(c) Milky glass (d) Cheese

22. What is a solution of iodine in carbon tetrachloride called?
(a) Aqueous solution
(b) Alcoholic solution
(c) Non-aqueous solution
(d) Tincture of iodine

23. Which of the following is a characteristic of both mixtures and compounds?
(a) They contain components in fixed proportions.
(b) Their properties are the same as those of their components.
(c) Their weight is equal to the sum of the weights of their components.
(d) Energy is given out when they are being prepared.

24. What happens when salt dissolved in water is heated?
(a) There is an increase in the boiling point.
(b) There is no change in the boiling point.
(c) There is a decrease in the boiling point.
(d) All of the above

25. Which of the following is NOT a compound?
(a) Sugar
(b) Common salt
(c) Diamond
(d) Plaster of Paris

26. Which of the following is an example of a mixture?
(a) Sugar (b) Brass
(c) CO_2 (d) NO_2

27. Which of the following obey the law of constant proportions in their formation?
(a) Mixtures (b) Compounds
(c) Elements (d) Colloids

28. By which process the drugs from the blood are separated?
(a) Distillation
(b) Chromatography
(c) Sublimation
(d) Separating funnel

29. How can sugar from sugar solution be separated?
(a) By distillation (b) By evaporation
(c) By sublimation (d) By filtration

30. Which of the following processes of separating substances involves both evaporation and condensation?
(a) Filtration (b) Crystallisation
(c) Distillation (d) Sedimentation

31. Which of the following processes is useful to collect pure water from a solution of sugar and water or salt and water?
(a) Filtration (b) Evaporation
(c) Distillation (d) Crystallisation

32. Which of the following processes can be useful in separating the salt from a mixture of sand and salt?
(a) Dissolution (b) Filtration
(c) Evaporation (d) All of the above

33. What is the process involved in making candy?
(a) Filtration
(b) Crystallisation
(c) Sedimentation
(d) Centrifugation

34. By which method can ammonium chloride be separated from sand?
(a) By hand picking (b) By filtration
(c) By sublimation (d) By diffusion

35. By which process can we separate camphor from ammonium chloride?
(a) Filtration
(b) Sublimation
(c) Dissolution and evaporation
(d) Distillation

36. Which of the following apparatus is used to separate a mixture of immiscible liquids?
(a) Centrifuge (b) Condenser
(c) Separating funnel (d) Distillation flask

37. What is the technique used to separate dirt particles from clothes in a washing machine?
(a) Magnetic separation (b) Filtration
(c) Evaporation (d) Centrifugation

38. What kind of change is undergone when an electric bulb glows
(a) A physical change
(b) A chemical change
(c) Both a physical and a chemical change
(d) A permanent change

39. Both cooking oil and water are liquids at room temperature. By which of the given characteristics are they different chemically?
(a) Same colour and flammability
(b) Odour and inflammability
(c) Solubility and similar taste
(d) Odour and flammability

40. What type of mixture is steel?
(a) Solid-liquid heterogeneous mixture
(b) Solid-solid heterogeneous mixture
(c) Solid-solid homogeneous mixture
(d) Pure substance

41. Two substances P and Q when brought together, form substance R with the evolution of heat. The properties of R are different from both P and Q. What is substance R?
(a) A compound (b) An element
(c) A metal (d) A mixture

42. Which of the following pairs of colloidal solutions have dispersed phase as liquid and dispersing medium as gas?
(a) Fog, mist
(b) Butter, milk
(c) Fog, smoke
(d) Smoke, foam

43. Which of the following is a true solution?
(a) Copper in gold
(b) Sulphur in water
(c) Milk
(d) KCl in sulphur dioxide

44. Identify a pure substance from the following?
(a) Steel
(b) Magnalium
(c) Ammonia
(d) Gun powder

45. What is the smallest constituent of matter that retains its chemical identity?
(a) Atom
(b) Molecule
(c) Ion
(d) Radical

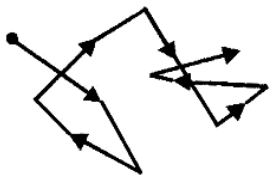
46. Which of the following solutions shows Tyndall effect?
(a) A solution of common salt
(b) A solution of sodium carbonate
(c) Starch solution
(d) Sugar solution

47. The size of a colloidal particle is
(a) 10^{-1} to $10^{-3} cm$
(b) 10^{-5} to $10^{-7} cm$
(c) 10^{-8} to $10^{-5} cm$
(d) 10^{-6} to $10^{-8} cm$

48. Which of these statements is/are true?
(a) The components of a suspension can be separated by filtration.
(b) The particles of a colloid can pass through a filter paper.
(c) The constituents of a compound can be separated easily.
(d) Both (a) and (b)

49. A student added $10\ ml - 12\ ml$ of Conc. H_2SO_4 in a test tube containing $5\ g - 6\ g$ of sugar crystals and warmed it gently. He noticed that white crystals slowly turned brown and became a black mass. What happened in this change?
(a) H_2SO_4 turned black but no change took place.
(b) Sugar got charred by the action of hot. conc. H_2SO_4 and a chemical change took place.
(c) It is only a physical change.
(d) It is an irreversible physical change.

50. A dispersed phase particle in a zig-zag movement is shown below.



What kind of motion is exhibited by the particle?
(a) Transitional motion
(b) Circular motion
(c) Linear motion
(d) Brownian motion

Answers With Solutions

1. (b) Milk is a colloid.

2. (a) A homogeneous mixture of liquid and solid substances is known as a solution.

3. (d) Sugar and water form a homogeneous solution as there is no clear separation between its constituents (i.e., sugar and water).

4. (b) An emulsion is a type of colloidal solution of a liquid dispersed in another liquid which is not miscible with it.
e.g., milk, face cream, etc.

5. (b) Tyndall effect is shown by colloidal solutions as they can scatter light easily.

6. (c) Salt, glucose(a form of sugar) and barium nitrate form true, transparent, homogeneous solutions when mixed with water. Starch forms a colloid when mixed with warm water.

7. (d) Curdling of milk is a chemical change.

8. (c) Colloidal solutions show Tyndall effect. Sol is a type of colloidal solution.
Note: Scattering (passing) of light through a colloidal solution is called Tyndall effect.

9. (c) Brownian motion is caused due to collision of molecules between colloidal particles.

10. (b) Ice-cream is an example of an emulsion.

11. (c) Tyndall effect can be observed when sunlight is passed through a colloidal solution.

12. (a) A sol is a type of colloidal solution in which solid particles are dispersed in a liquid medium.

13. (c) In both dialysis and osmosis, colloidal particles do not pass through the semi-permeable membrane.

14. (a) Dialysis is the separation of dissolved crystalloids from colloidal macromolecules by means of a partially permeable membrane.
In this process, colloids will be stopped and only the soluble crystalloids are allowed to pass through.

15. (b) Shaving cream which produces foam is a colloid in which gas is dispersed in a liquid.

16. (a) Drinking soda is produced by passing CO_2 gas into water. So, it is a gas in liquid solution.

17. (b) Amalgam is a mixture of two metals.one of which is mercury (liquid).
e.g., zinc amalgam, gold amalgam etc.

18. (b) Copper and silver form an alloy, a true solution while the others are suspensions.

19. (a) Boiling of eggs leads to the formation of a new substance and also the change is permanent. Therefore, it is a chemical change.

20. (c) A mixture is formed by the physical mixing of two or more pure substances (elements or compounds), in variable proportions and the constituents retain their properties even after the mixture is formed.

21. (c) Milky glass is a solid-in-solid colloid.

22. (c) Non-aqueous solutions are the solutions prepared by using solvent other than water.

23. (c) The weights of both mixtures and compounds is equal to the sum of the weights of their components. This is a characteristic feature of both mixtures and compounds.

24. (a) When saltwater is heated, its boiling point increases due to impurities present in it.

25. (c) Diamond is an allotrope of carbon. It is made up of repeating units of carbon atoms joined to four other carbon atoms forming the world's hardest natural material.

26. (b) Sugar, CO_2 and NO_2 are compounds (their formation involves chemical reactions).
Brass is an alloy (a homogeneous mixture) formed by cooling the liquid mixture of copper and zinc.

27. (b) A compound is formed by the combination of different elements in constant proportions.

28. (b) Chromatography involves separation of solutes that dissolve in the same solvent.

29. (b) Sugar can be separated from its solution by allowing the water to evaporate.
Note: Evaporation is used to separate dissolved solids from a liquid.

30. (c) In distillation, a liquid is vaporised by boiling and the vapours are condensed and collected separately. Thus, this process involves both evaporation and condensation.

31. (c) The solution of salt and water or sugar and water is heated so that water gets evaporated. When water starts evaporating, it is collected and condensed. The water thus obtained is pure water and is called distilled water. As the processes involved are evaporation and condensation, it is called distillation.

32. (d) The mixture of salt and sand is taken and some water is added to it and stirred until the salt dissolves completely. The solution is filtered and the filtrate obtained is dried, evaporated to get pure salt. The residue on the filter paper will be sand.

33. (b) Crystallisation is the process involved in the preparation of candy. The sugar and ice crystals formed by the slow cooling of sugar solution gets collected around the sticks, and results in the formation of candy.

34. (c) Ammonium chloride sublimes (directly becomes vapour) on heating leaving behind the sand. The vapours can be collected and cooled to get ammonium chloride separately.

35. (c) Camphor and ammonium chloride both sublime on heating, hence they can be separated by pouring the mixture into water (solvent extraction). Ammonium chloride dissolves in water leaving behind camphor. Ammonium chloride is recovered later by evaporating the water slowly.

36. (c) The mixture of immiscible liquids can be separated by using a separating funnel.

37. (d) The clothes are rotated at high speed in the washing machine (centrifugation) so that the dirt gets separated from clothes and gets cleaned.

38. (a) The filament in an electric bulb glows when electric current is passed through it. The bulb stops glowing if the electric supply is removed. As there is no change in the chemical composition of the bulb or the filament, it is a physical change.

39. (b) Water is a compound and has no odour. Oil is a saturated or unsaturated fatty acid with odour. Oil burns in air whereas water extinguishes fire.

40. (b) Solid - solid heterogeneous mixture is steel.

41. (a) Substances P and Q are elements. When they combine, form a new substance called R which is a compound. Substance 'R' is a compound as the properties of 'P' and 'Q' are not retained by 'R' during its formation.

42. (a) Fog and mist are colloidal solutions of aerosol type with dispersed phase as liquid and dispersing medium as gas.

43. (a) Copper in gold is a homogeneous mixture of solids (i.e. an alloy) i.e., a true solution.

44. (c) Ammonia is a compound. So, it is a pure substance.

45. (b) A molecule always retains its chemical identity.

46. (c) Starch solution is a colloid. Hence, it shows Tyndall effect.

47. (b) In colloidal state, particle size ranges from (10 to 1000 $\mathring{A}$).

$1\ \mathring{A} = 10^{-8} cm, 10\ \mathring{A} = 10^{-7} cm$

$\therefore$ Particle size of colloidal state is 10^{-5} to $10^{-7} cm$.

48. (d) Statements (A) and (B) are true.

The constituents of a compound cannot be separated easily.

49. (b) Sulphuric acid dehydrates (removes water) sugar leaving carbon. Hence, it is a chemical change.

50. (d) The zigzag motion exhibited by the particle is called Brownian motion.