

26. Name the dispersed phase, dispersion medium and type of colloid in the following.

(i) Fog (ii) Milk

[CBSE 2014]

Ans. (i) Dispersed phase is liquid and dispersion medium is gas in fog. Fog is an aerosol.

(ii) Both the dispersed phase and dispersion medium in milk is liquid. Milk is an emulsion.

29. How many litres of 15% (mass/volume) sugar solution would take it to get 75 g of sugar?

[CBSE 2016]

$$\text{Mass by volume of solution} = \frac{\text{Mass of solute}}{\text{Volume of solution}} \times 100$$

$$15 = \frac{75 \text{ g}}{\text{Volume of solution}} \times 100$$

$$\text{Volume of solution} = 500 \text{ mL}$$

30. Explain the term centrifugation? Give two of its applications.

[CBSE 2016]

Ans. Churning at high speed, denser particles settle at the bottom separating cream from milk. washing machine, blood and urine test are based on centrifugation.

31. (a) What are heterogeneous mixtures?

[CBSE 2015]

(b) Why mixture does not have a fixed melting or fixed boiling point? Give two reasons.

Ans. (a) Those mixture whose composition is not uniform throughout are called heterogeneous.

(b) (i) It is because they do not have fixed composition.

(ii) No new compound is formed in the mixture.

32. A solution is prepared by adding 40 g of sugar in 100 g of water. Calculate the concentration in terms of mass by mass percentage of solution.

[CBSE 2012]

Ans. Mass of solution = Mass of solute + Mass of solvent = 40 g + 100 g = 140 g

$$\text{Mass percentage of solution} = \frac{\text{Mass solute}}{\text{Mass of solution}} \times 100 = \frac{40}{140} \times 100 = \frac{200}{7} = 28.57\%$$

33. State the condition for using the method of centrifugation to separate contents of a mixture. State the principle involved in this process.

[CBSE 2012]

Ans. The density of substance to be separated should be different. The denser particles are forced to settle at the bottom and the lighter particles stay at the top when rotated (spun) at high speed in centrifugal machine.

34. State the principle used in separating different components of a mixture by the method of centrifugation. List any two applications of this method.

[CBSE 2011]

Ans. Colloidal particles get separated from dispersion medium due to difference in densities.

(i) Cream can be separated from milk.

(ii) Precipitate (solid) can be separated from solvent.

35. (a) Define Tyndall Effect.

(b) Why is water considered a compound? Mention two points.

[CBSE 2011]

Ans. (a) When a beam of light is passed through a colloidal solution placed in a dark place, its path becomes clearly visible. This phenomenon is called Tyndall Effect.

(b) Water is compound because:

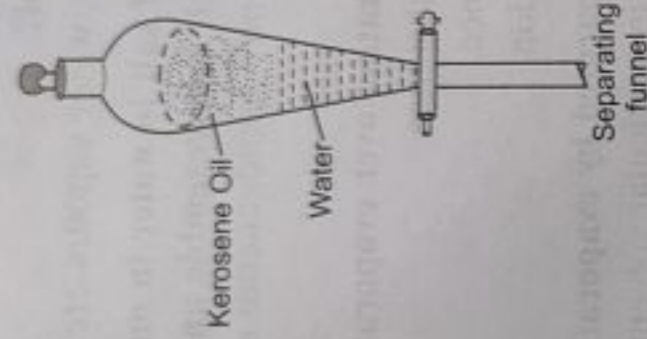
(i) it has hydrogen and oxygen in fixed ratio, i.e. 2: 1.

(ii) it can be separated into  $\text{H}_2$  and  $\text{O}_2$  by electrolysis, i.e. by chemical method.



Name the principle used to separate kerosene and water. Draw a neat and labelled diagram of the apparatus used in this separation. [CBSE 2010]

Kerosene oil and water differ in their densities, therefore, can be separated by separating funnel.



37. Write any two applications of chromatography. Also write a condition necessary for chromatography. [CBSE 2010]

Ans. (i) It is used to separate coloured substances.

(ii) It is used to separate amino acids which form proteins.

It is based on the principle that different components dissolve in same solvent to different extent.

38. Can a substance be in a pure form of matter? Justify this statement with a suitable example.

Ans. When we observe sugar placed on a sheet of paper with magnifying glass, we observe that the colour, shape and size of all particles of sugar are same. This sugar constant of particular of one type, therefore, it is pure substance.

39. How we can prove that a mixture contains more than one substance?

Ans. Take salt solution. Let us evaporate salt solution water will get evaporated, whereas salt will be left behind. It shows salt solution is a mixture and containing more than one substance, i.e. water and salt.

40. In a solution there is homogeneity at the particle level. Explain the statement with an example.

Ans. There is homogeneity even at particle level in solution because all the parts of sugar solution have the same sugar-water composition.

41. If same amount of honey or sodium chloride is taken do they dissolve in water at a given temperature?

Ans. No, Honey will be less soluble than sodium chloride because sodium chloride is an ionic compound whereas honey is a mixture of many substances which are less polar.

42. How Tyndall effect can be observed in the canopy of a dense forest. [CBSE 2014]

Ans. When a beam of light passes through dust particle in air, colloidal solution in the canopy of dense forest, the path of light becomes clearly visible due to scattering of light. It is called Tyndall effect.

43. What term is given to a mixture having uniform composition and no distinct components?

Ans. Homogeneous mixture.

44. On dissolving chalk powder in water, a suspension is obtained. Give any four reasons to support the fact that mixture so obtained is a suspension only. [CBSE 2012]

Ans. (i) It is heterogeneous

(ii) It is opaque

(iii) The particle of chalk can be separated by filtration

(iv) Chalk particles can be seen by naked eye.

45. **Why filtration method is not considered for the separation of true solution?**

Ans. Particles of true solution are very small and pass through the pores of filter paper, therefore filtration is not suitable for separation of true solution.

46. **What do you understand by aerosol?**

Ans. Colloidal particles like smoke, dust, water vapours are suspended in air, it is called aerosol.

47. **You are provided with a solution of salt in water in one jar and mixture of salt and sand in other. Can you state one property in which they resemble and differ from one another.**

Ans. Both of them are mixtures. Salt solution is homogeneous mixture whereas salt and sand is heterogeneous mixture.

48. **Write three advantages of crystallization over evaporation.**

Ans. (a) It leads to formation of pure substance.

(b) It forms crystals of pure substance.

(c) It takes less time than evaporation.

49. **What type of substances can be separated by evaporation technique.**

Ans. Those substance which are soluble in particular solvent but impurities do not dissolve, they can be separated by filtration followed by evaporation. Salt can be obtained from sea water by evaporation.

50. **What are the essential conditions to separate any dyl using paper chromatography?**

Ans. The components of mixture should differ in solubility in the same solvent.

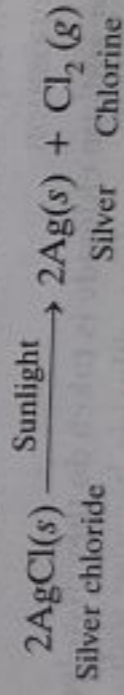
51. **How do sol and gel differ from each other? Give one example for each.**

[CBSE 2014]

Sol	Gel
1. Solid is dispersed in liquid	1. Liquid is dispersed in solid.
2. Starch is dispersed in water sol	2. Water is dispersed in paneer, hair gel.

52. **When we add acid or base in water it evolves so much of heat. Does it involve any chemical change?**  
Ans. When we add acid or base in water, less heat is evolved. Yes, it is chemical change. Dilute  $H_2SO_4$  differs in properties from conc.  $H_2SO_4$ . Dil  $HNO_3$  also differs in properties than conc.  $HNO_3$ .

53. **Silver iodide, AgI is a yellow crystalline solid. But when it is exposed to sunlight, it forms solid grey silver and iodine. Why? Give one practical application of this reaction and write the equation also.**  
Ans. It is used photography and in X-ray film



54. **Which separation technique is best suitable for removing grease stains from clothes. Explain the process also.**

Ans. Grease is soluble in organic solvent like petrol or kerosene.

55. **Is alcohol is a mixture or a pure substance?**

Ans. Alcohol is a pure substance as it contains only one kind of matter.

56. **Do pure substances always have one phase?**

Ans. Pure substance always have one phase.

57. **How can you tell that bronze is a mixture and not a compound?**

Ans. Bronze is made up of copper and tin. Its melting point is different from pure copper as well as pure tin. It does not have fixed melting point. It does not have fixed composition, therefore, it is a mixture and not a compound.

**Ans.** On which factor would you conclude whether a given solution is dilute, concentrated or saturated? It density of solution is less, it can flow easily, it is dilute. If density of solution is more, it can not flow easily, it is concentrated. If no more amount of solute can be dissolved, it means it is saturated.

**Ans.** How is heating of wood different from heating of dry ice?

Heating of wood will not change into vapours completely whereas heating of dry ice will get converted into CO<sub>2</sub> gas and dry ice will disappear.

**Ans.** Write the constituent element of magnesium chloride and vinegar?

(a) Magnesium (Mg) and chlorine are present in MgCl<sub>2</sub>.

(b) Vinegar (CH<sub>3</sub>COOH) contain carbon (C), hydrogen (H) and oxygen (O) as constituting elements.

**61. Is mixture is pure substance?**

**Ans.** No, mixture consist of two or more substances, therefore, it is not a pure substance.

**62. Fish prefer to go in deep waters during day light. Why?**

**Ans.** It is because water becomes hot at upper surface where there is less dissolved oxygen than in cold deep water which has more oxygen dissolved in it.

**63. Can physical and chemical changes happen at the same time? Support your answer with illustrative example.**

**Ans.** Yes, both can take place simultaneously breaking of chocolate in mouth is physical change. Its digestion is a chemical change.

**64. Can we separate sugar solution by using a separate funnel?**

**Ans.** No, sugar solution cannot be separated by separating funnel because it is homogeneous.

**65. What are gels? Give some example.**

**Ans.** When liquid is dispersed in solid it is called gel, e.g. cheese, paneer, hair gel, etc.

**66. Do mixtures have definite chemical formula?**

**Ans.** No, mixture do not have definite chemical formula because their composition is not fixed.

**67. What volume of ethyl alcohol and water must be mixed together to prepare 250 ml of 60% by volume of alcohol in water.** [CBSE 2014]

**Ans.** Let the volume of ethyl alcohol be  $x$

$$\text{Concentration of solution} = \frac{\text{Volume of solvent}}{\text{Volume of solution}} \times 100$$

$$= 60 = \frac{x}{250} \times 100$$

$$x = \frac{250 \times 60}{100}$$

$$= 150 \text{ ml}$$

$\therefore$  150 ml of ethyl alcohol should be mixed to prepare 250 ml of solution.

**68. 2.5 g of sugar is dissolved in 47.5 g of water. Calculate its concentration as per cent by mass.**

**Ans.** Mass of solute = 2.5 g

Mass of solvent = 47.5 g

Mass of solution = 50.0 g = 2.5 + 47.5 = 50.0 g

Mass by mass percentage of solution =  $\frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100 = \frac{2.5}{50} \times 100 = 5\%$

69. Calculate the amount of glucose required to prepare 250 g of 5% solution of glucose by mass.

Ans. Mass by mass percentage of solution =  $\frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100$

$$5 = \frac{\text{Mass of solute}}{250} \times 100$$

$$\text{Mass of solute} = \frac{5 \times 250}{100} = \frac{125}{10} = 12.5 \text{ g}$$

70. A solution contains 50 g of common salt in 350 g of water. Calculate the concentration of solution.

Ans. Mass of solute (salt) = 50 g

Mass of solvent (water) = 350 g

Total mass of solution = 400 g

$$\text{Mass by mass percentage of solution} = \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100 = \frac{50}{400} \times 100 = 12.5\%$$

71. 5 g of sugar is dissolved in 250 ml of solution. Calculate its mass percentage by volume.

Ans. Mass of solute (sugar) = 5 g

Volume of solution = 250 ml

$$\text{Mass by volume percentage of solution} = \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100 = \frac{5}{250} \times 100 = 2\%$$

72. (i) Give the difference between mixture and compound.

(ii) Classify the following mixture as homogeneous and heterogeneous.

(a) Tincture of iodine (b) Smoke (c) Brass (d) Sugar solution

[CBSE 2015]

Ans.

Mixture	Compound
1. It does not have fixed composition.	1. It has fixed composition.
2. Its components can be separated by physical methods.	2. Its components can be separated by chemical methods.

73. Write down the processes involved in sequential order to get the supply of drinking water to your home from the water works