CBSE Test Paper 05

Chapter 02 Is Matter around Us Pure

1. Four students A, B, C and D added carbon disulphide to (i) A mixture of iron filings and sulphur and (ii) Iron sulphide. They made the following observations
   Student A- Iron dissolved in CS_2 in case (i) but iron sulphide did not dissolves in CS_2 in (ii)
   Student B- Iron sulphide dissolved in CS_2 whereas neither iron nor sulphur did in the mixture.
   Student C- Sulphur dissolved in CS_2 from the mixture of iron and sulphur but iron sulphide did not dissolve
   Student D- Sulphur, in the mixture of iron and sulphur, as well as iron sulphide were solution in CS_2
   The correct observation is that of student **(1)**

   a. B
   b. C
   c. D
   d. A
2. To prepare a colloidal solution of starch, we should: **(1)**
   a. add thin paste of starch to hot water with stirring
   b. add starch powder to cold water and boil
   c. add starch powder to boiling water and cool
   d. heat starch, add it to cold water and then bring it to boil

3. Match the following with correct response. **(1)**

Column A	Column B
(1) Brass	(A) Solid in loquid
(2) Ammonia in water	(B) Gas in liquid
(3) Vinegar	(C) Solid in solid
(4) Amalgam	(D) Liquid in liquid

a. 1-B, 2-D, 3-A, 4-C
b. 1-D, 2-A, 3-C, 4-B
c. 1-A, 2-C, 3-B, 4-D
d. 1-C, 2-B, 3-D, 4-A

4. Identify homogeneous mixture from the following **(1)**
   a. Dust storm
   b. Soap bubbles are formed by blowing air into soap solution
   c. A suspension of chalk in water
   d. A dilute solution of alcohol in water.
5. At room temperature, a non-metal which is liquid is **(1)**
   a. Fluorine
   b. Oxygen
   c. Bromine
   d. Sulphur
6. Match the following with correct response. **(1)**

Column A	**Column B**
(1) A cloud of smoke in air	(A) Sol
(2) Oil drops in water	(B) Emulsions
(3) Whipped cream	(C) Aerosols
(4) Paints	(D) Foam

   a. 1-A, 2-C, 3-B, 4-D
   b. 1-B, 2-D, 3-A, 4-C
   c. 1-C, 2-B, 3-D, 4-A
   d. 1-D, 2-A, 3-C, 4-B

7. Name two metals which are both malleable and ductile. **(1)**

8. Name the technique to separate butter from curd **(1)**

9. A hard substance when bent produces a tinkling sound. Predict its nature. **(1)**

10. What is the nature the solution formed by mixing mustard oil and water? **(1)**

11. Two miscible liquids A and B are present in a solution. The boiling point of A is 60^{O}C while that of B is 90^{O}C. Suggest a method to separate them. **(3)**

12. How are a sol, a solution and a suspension different from each other? **(3)**

13. What is the reason for running cold water through condenser from lower side to upper side in distillation process? **(3)**

14. Differentiate between elements and compounds. **(3)**

15. What is distillation and fractional distillation? What is the basic property that separates the two methods? **(5)**

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Answers

1. b. C

   Explanation: Addition of carbon disulphide to a mixture containing iron fillings and sulphur powder, leads to formation of a clear yellow solution when sulphur powder dissolves in carbon disulphide, on gentle shaking. Iron fillings being insoluble settle in the bottom. These can be separated by filtration. When the solution is allowed to evaporate, powder of solid sulphur is obtained.

2. a. add thin paste of starch to hot water with stirring

   Explanation: The colloid of starch is prepared by dispersion method. 2-3 g of powdered/crushed starch is dissolved in 3- 4 ml of water to make a thin paste. This paste is added to100 ml of boiling water while stirring. Allow the solution to cool and filter. The filtrate is colloid of starch.

3. d. 1-C, 2-B, 3-D, 4-A

   Explanation:

   i. C, Brass is an alloy and alloys are homogeneous mixtures of two or more metals, hence it is a solid-solid mixture.
   ii. B, Ammonia is a gas mixed in liquid ie.water so it has gas as solute and water as solvent so it is gas- liquid solution.
   iii. D, Vinegar water is liquid- liquid solution with vinegar as solute and water as solvent.
   iv. A, Amalgam is an alloy of mercury with mercury being liquid solvent and the other metal which is solid as solute.

4. d. A dilute solution of alcohol in water.

   Explanation: The dilute of alcohol and water is homogenous it mix uniformly. Alcohol and water do not form a separate boundary if left undisturbed and both are uniformly distributed.

5. c. Bromine

   Explanation: In general metals are in solid state at room temperature, the only metal which is in the liquid state is mercury (Hg).and the only nonmetal that is

a liquid at room temperature is bromine.

6. c. 1-C, 2-B, 3-D, 4-A

   Explanation:

   i. An aerosol is a type of colloid in which liquid is the dispersed phase and gas is the dispersion medium. Examples include fog, clouds, mist, etc.
   ii. In oil-in-water emulsions, an oil acts as the dispersed phase while water acts as the dispersion medium.
   iii. Foam is a type of colloid in which gas is the dispersed phase and solid is the dispersed medium. Examples include foam, rubber sponge, whipped cream, etc.
   iv. Sol: It is a type of colloid in which solid is the dispersed phase and liquid is the dispersed medium. Examples include milk of magnesia, mud, paint etc.

7. Copper and silver are both malleable and ductile metals.

8. The separation can be done by carrying centrifugation in a centrifugation machine.

9. The hard substance is a metal. Actually metals are sonorous and produce tinkling sound when bent.

10. It is a colloidal solution known as emulsion.

11. The separation can be done by the process of simple distillation. The vapours of the liquid A will rise in the flask when heated to a temperature of 60^{o}C. They will pass through the condenser and will be collected as distillate. The liquid B with higher boiling point will remain in the flask.

12.

	Sol	**Solution**	**Suspension**
(i)	A sol is a type of a colloidal solution.	A solution is a kind of homogeneous mixture where the particles are in a fine state.	A suspension is a kind of heterogeneous mixture where insoluble particles are spread throughout a solvent.
	It has a dispersed phase	A solution has a soluble solute and a solvent	It has insoluble solute suspended in

(ii)	(solid) and a dispersion phase (liquid).	phase. The particles of solute do not settle down	the solvent medium. The particles of a suspension settle down when left undisturbed for some time.
(iii)	It appears homogeneous but is heterogeneous. It is not transparent.	It is homogeneous, clear and transparent.	It is heterogeneous in nature. It is not transparent.
(iv)	Particles are visible with the help of an electron microscope.	Particles are not visible to the naked eye.	Particles are visible to the naked eyes.
(v)	Particle size is between 10^{-7} cm and 10^{-5} cm.	Particle size is of the order of 10^{-9} cm.	Particle size is more than 10^{-5} cm.
(vi)	E.g. Gold sol, Milk of magnesia	E.g. Sugar solution, Salt solution	E.g. Muddy river water, Dust storm

13. In the distillation process, condensation of vapours takes place. To absorb more heat cold water is passed from the lower side so that it will stay for a longer time and absorb more heat from the vapours to form liquid state of the substance.

14.

Elements	Compounds
Elements are pure substances that cannot be broken down into simpler substances by any known physical or chemical means..	Compounds are those pure substances that can be broken down into their constituent elements by chemical or electrochemical reactions.

Elements are made up of only one kind of atoms.	Compounds are made up of more than one kind of atoms.
Examples of elements are copper, oxygen, iron.	Examples of compounds are water, methane, sugar.

15. **Distillation** is used for the separation of the components of a liquid-liquid mixture containing two miscible liquids that evaporate without decomposition The process requires heating the mixture and then condensing the gas so formed in another vessel. Distillation can be used when the liquids differ sufficiently in their boiling points.

    Fractional distillation is the process of separation of components of a liquid-liquid mixture when the mixture contains two or more miscible liquids and the difference in their boiling points is less than 25^{o}C. A fractionating column is used which gives the effect of repeated distillation by offering resistance to the passage of vapours.

    The basic property that separates the two processes is the difference in the boiling points of the components of the mixture. Distillation is used when the difference in boiling points is large. Fractional distillation is used when the difference in boiling points is less. A fractionating column is used in fractional distillation.