BIJENDRA PUBLIC SCHOOL

Class : 6

Subject : Science

Chapter - 5 Separation of Substances

A. Very short answer questions (Answer in one word)

1. By what name are the substances present in a mixture called?

Ans. Components

2. Give one example of heterogeneous mixture.

Ans. Sugar and Sand

3. What happens when vapour of a liquid is cooled?

Ans. Condensation

4. Do oil and water form a homogeneous mixture?

Ans. No

5. Name the term that describes the maximum mass of a solute that can be dissolved in 100 g of the solvent.

Ans. Solubility

B. Short - Answer Questions.

1. Describe the process called loading.

Ans. The finer particles of clay can be made to settle faster by dissolving a small quantity of alum in muddy water. This method is called loading. Loading helps the suspended clay particles to settle down faster.

2. How much solid solute can be dissolved in certain fixed quantity of a solvent?

Ans. The extent of dissolution of any substance is described in terms of solubility. Solubility of a solid solute generally increases with the rise in temperature. For example, a maximum of 36 grams of salt can be dissolved in 100 grams of water at a temperature of 20ºC.

3. Name the methods employed during the purification of an impure sample of common salt.

Ans. Common salt is purified by the methods of evaporation and crystallisation.

4. Why do fish in shallow pond die during summers?

Ans. The solubility of gases in water decreases with a rise in temperature. As a result, the amount of oxygen dissolved in water decreases. The water in the pond gets warm due to summer heat. This results to the death of fish.

5. What is meant by aqueous solution? How does the solubility of a solid change with a rise in temperature?

Ans. The solution of any substance in water is known as its aqueous solution. The solubility of solid solutes increases with a rise in temperature.

C. Long answer type questions.

1. Define heterogeneous and homogeneous mixtures. Give one example of each.

Ans. Heterogeneous Mixture - Mixtures in which particles of the substances present can be seen are called heterogeneous mixtures. Example - mixture of sand and sugar.

2. Describe sedimentation and decantation. What kind of mixtures can be separated by decantation?

Ans. Sedimentation - The process of settling down of heavier insoluble particles in a mixture of water and insoluble substances is called sedimentation.

Decantation - The process of transferring the clear liquid after sedimentation without disturbing the insoluble heavy particles is called decantation. This method of separation is used for a mixture consisting of an insoluble solid and a liquid.

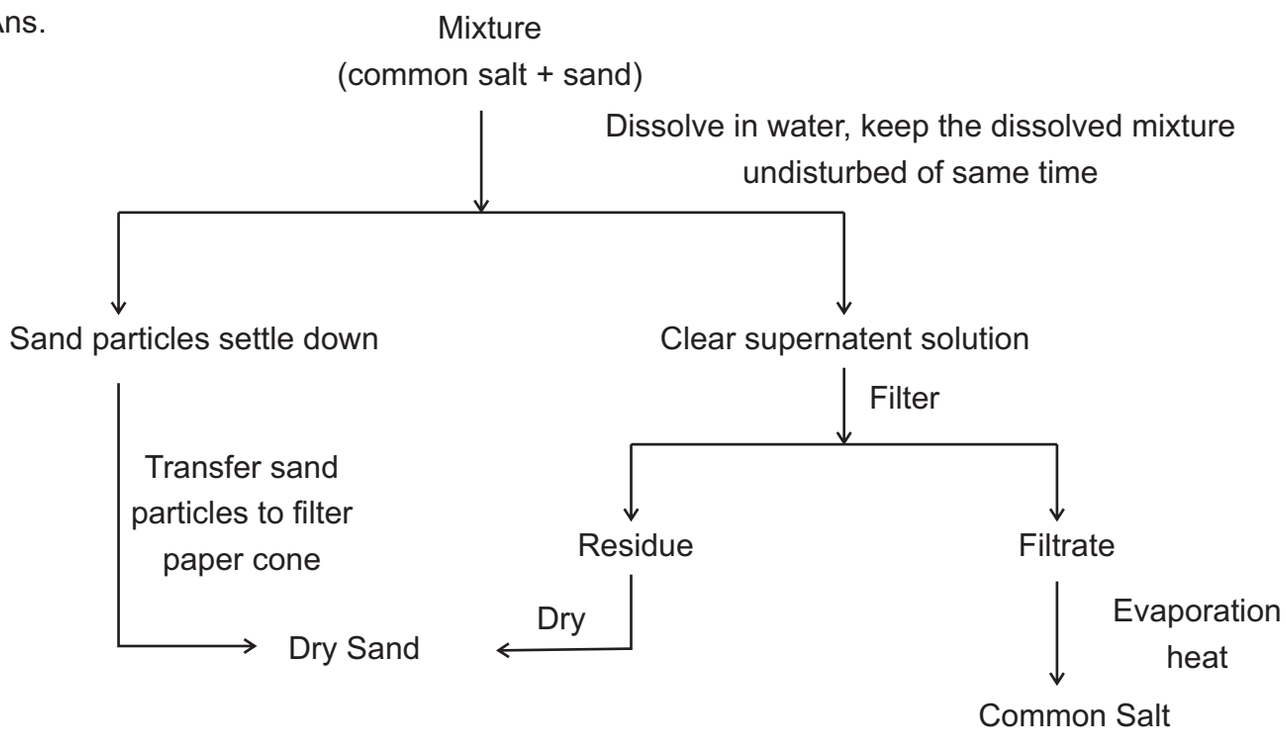
3. What is meant by a pair of miscible liquids?

Ans. A liquid substance that dissolves in water or mixes with water completely in all proportions is said to be miscible with water.

For example, alcohol is miscible with water, therefore alcohol and water form a pair of miscible liquids.

4. Draw a flowsheet diagram describing separation of the constituents of a mixture containing sand and common salt.

Ans.



5. Define solubility of a solid substance in water. How does the solubility of common salt in water change with a rise in temperature?

Ans. Solubility - The maximum mass of a solute that can be dissolved in 100 g of the solvent at any specified temperature is called its solubility.

Solubility of common salt in water increases with the rise in temperature.

D. Tick (✓) the Odd-One out giving reason.

1. Dust in air, solution of salt in water, cold drinks, Air (Pure)

Ans. Dust in air

Others are homogeneous mixtures.

2. Sedimentation, Evaporation, Condensation, Dissolution

Ans. Condensation - Others are methods used for separating the mixture of sugar and sand or salt and sand.

3. Filtrate, Filter paper, Residue, Sugar solution, Suspension

Ans. Sugar solution - Oothers are related with filtration.

4. Soluble, Aqueous solution, Homogeneous, Heterogeneous

Ans. Heterogeneous - Others are homogeneous mixtures.

5. Homogeneous mixture, Pure substance, Heterogeneous mixture.

Ans. Heterogeneous mixture: Others are homogeneous mixtures.

E. Define the following terms.

1. Components of a mixture - The various substance present in a mixture are called its components. For example, in a mixture of sugar, and sand, sugar and sand are its components.
2. Threshing - The process of separating grains from sun dried stalks is called threshing.
3. Loading - Loading is the process in which alum particles are deposited on suspended clay particles of muddy water to make them heavy and settle down rapidly.
4. Saturated solution - A solution in which no more solute can be dissolved at a given temperature is called a saturated solution.
5. Solubility - The maximum mass of a solute that can be dissolved in 100 g of the solvent at any specified temperature is called its solubility. For example - the solubility of sugar at room temperature is 204 g /100 g water.

Higher Order Thinking Skills.

1. A sample of water boils at 102ºC and has a salty taste. What do you conclude from this?

Ans. From the given details it can easily be concluded that the water contains some impurity as its boiling point is 102ºC instead of 100ºC which is the boiling point of pure water. Also it is given that it tastes salty. It implies that it is impure and may contain salt.

2. You are given sample of a white powdery substance. It may be the common salt or chalk powder. How will you identify it without tasting it?

Ans. Common salt is crystalline in terms of physical properties and chalk powder is amorphous therefore by touching one can differentiate between the two samples given and identify common salt. Moreover, common salt is white or clear in appearance and chalk powder is creamish - white. Common salt is soluble in water while chalk powder doesn't dissolve in water.

3. During the purification of water for city supply, the raw water from the river / lake is allowed to stand undisturbed in large tanks. What happens here?

Ans. During the purification of water for city supply the water collected from various water bodies is allowed to stand undisturbed in large thanks. This process is called sedimentation. It is a physical water treatment force used to settle down suspended impurities in water under the influence of gravity. All the impure particles settle down at the bottom of the tank during this process.