



## Class - VI Science Classwork Notes July

### 6. Separation of Mixtures

#### I. Technical Words:

1. Distillation - the process of making a liquid pure by boiling and condensing the liquid.
2. Insoluble - that does not dissolve in a liquid.
3. Saturated - solution a solution that cannot dissolve any more solute.
4. Solute - the substance that dissolves in a liquid.
5. Solution - a mixture of a soluble substance and a liquid.

#### II. Short answer Questions:

**1. Why do we separate mixtures into their components?**

We separate mixtures into their components to obtain pure substances or to obtain useful products by removing impurities.

**2. Explain the process of threshing and winnowing.**

Threshing is the process of separating grains from their stalks by beating them on a hard surface. Winnowing is the process of separating the grains from the chaff by allowing the wind to carry away the lighter particles, while the heavier grains fall down.

**3. How can a saturated solution be made into a supersaturated solution?**

If a saturated solution is heated, some more solute can be dissolved in it. This is because the solubility of a solute increases with temperature. The solution is called a supersaturated solution.

#### IV. Long Answer

**1. You are in a hurry and want to separate a mixture of water and an insoluble solid. Which method would you use? Explain the different steps that you would need to follow with a diagram.**

We can use the method of filtration to separate the mixture of water and an insoluble solid.

We should follow these steps for this process:

- (i) Set the funnel in the stand. Fold the filter paper and place it inside the funnel.
- (ii) Place an empty beaker under the funnel.
- (iii) Pour the mixture slowly into the filter paper in the funnel.
- (iv) The clear water comes out from the funnel and collects in the beaker below. The solid particles are left on the filter paper. (Diagram: Refer to the textbook)

## 2. Briefly explain the process of fractional distillation.

Fractional distillation is used to separate a mixture of miscible liquids based on the differences in the boiling points. For example, a mixture of alcohol and water can be separated by fractional distillation as the boiling point of alcohol is around  $78^{\circ}\text{C}$ , while the boiling point of water is  $100^{\circ}\text{C}$ . Fractional distillation is also used to separate crude oil into its constituents—petrol, diesel, kerosene and so on. The crude oil is heated and the vapours are allowed to condense. The other constituents are also separated in a similar way.

## V. Images - based question.

Observe the set-up and answer the questions.

### 1. Name the method being used.

Aquatic plants use dissolved carbon dioxide to make food (photosynthesis), while aquatic organisms (including plants) use dissolved oxygen for respiration.

### 2. What is the purpose of this method of separation?

To separate the components of salt, sand and iron fillings, we will employ the following techniques:

- We will use magnetic separation to separate the iron fillings from the mixture.
- Once the iron fillings are separated, the salt and sand mixture can be dissolved in water. Salt dissolves in water, while sand does not.
- By employing filtration, the solution of sand and salt can be separated.
- Once we get the salt solution, using evaporation, we can obtain solid salt.

## VI. Assertion and Reasoning Type Questions :

**Note :- Mark the correct choices as**

Assertion and reasoning type questions.

Note : Mark the correct choice as :

Option A: Both (A) and (R) are true, and (R) explain (A)

Option B: Both (A) and (R) are true, but (R) does not explain (A)

Option C: (A) is true and (R) is false

Option D: (A) is false and (R) is true

1) Assertion (A) - when the heavier component in a mix settles after water is added to it the process is called sedimentation.

Reason (R) - when the water along with the dust is removed the process is called decantation.

Ans - Option - B

2) Assertion (A) - Separation of stones from rice is one of the separation method.

Reason (R) - The above separation method is handpicking method of separation.

Ans - Option -A