St. Andrews Scots Sr. Sec. School

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Session: 2024-2025 – Answer Key

Class: VI **Subject: Science** **Chapter: Separation of Substances**

CHECK POINT 1

1. (c)
2. (d)
3. (a)
4. (b)

CHECK POINT 2

1. residue
2. Evaporation
3. solution
4. filtration, evaporation

Define the following terms :-

Mixture:- Materials which contain two or more substances in any proportion are known as mixture.

Solvent:- The substance in which a solute dissolves is called a solvent.

Evaporation:- The method used to separate the solute from the mixture by boiling is evaporation.

Saturated solution:- A Solution in which no more solute can be dissolved at a given temperature is called a saturated solution.

Residue:- The substance that remains on the filter paper.

PRACTICE TIME

A. Tick the correct answer

1. (d)
2. (c)
3. (d)
4. (a)
5. (c)
6. (a)

B. Say True or False

1. (F)
2. (T)
3. (F)
4. (T)
5. (F)

C. Very Short Answer type questions

1. Winnowing is the method of separating husk from grains with the help of wind.
2. Sugar
3. A solution in which no more solute can be dissolved at a given temperature is called a saturated solution.
4. In a filtration process, the substance that flows through the filter paper is called filtrate.

D. Short Answer type questions

1. (a) The process used to separate grains from stalks with the help of machines, animals or manually is called threshing.

(b) The method of separating a mixture into its components by hand is called handpicking.

2. Sea water is trapped in shallow pits and is left in the sun for long to evaporate, leaving the salts behind. This mixture of salts is then purified to obtain common salt.

3. Impurities and bran are separated from flour by using the method of sieving.

This is done because these impurities contaminate our food and may harm our health.

4. The components of a mixture are separated for the following reasons:

- To obtain two different but useful components of mixture.
- To remove harmful components or impurities of a mixture.
- To remove useless components of a mixture.

5. (a) The process of setting down of sediment (insoluble heavier substance) in a mixture is called sedimentation.

(b) The process of pouring out of liquid without disturbing the sediment is called decantation.

(c) The process of changing water vapour back into liquid water is known a condensation.

6. Filtration is a suitable method to separate sand from water because when a mixture of sand and water is allowed to pass through a filter paper, only water passes through it and sand does not, so components are separated.

7.

Sediment	Residue
1. The substance that settles at the bottom of a liquid is called sediment.	1. The substance that remains in the filter paper is called residue.
2. It is heavier than the liquid.	2. It may be heavier or lighter than the liquid.
3. It is separated using decantation method.	3. It is collected by filtration method.

8. The method of handpicking is used to separate only those mixtures in which the components:

- are mixed in small quantities.
- can be easily picked by hand.
- have different sizes, shapes or colours.

E. Long Answer type questions

1. We will separate the components of a mixture of sand and common salt by using the method of filtration and evaporation as follows:

   Take a beaker and pour a little amount of given sample into it. Now, add a plenty of water and stir well using a glass rod. Thereafter, filter this mixture using a filter paper. Here, salt dissolved in water passes through filter paper and sand is separated as residue. Now, heat the filtrate collected in another beaker till all the water evaporates. Common salt is left in the beaker.

2. Winnowing is the method of separating husk from grains with the help of wind. In this process, the mixture of grains and husk obtained after threshing is taken in a winnowing basket. The farmer stands on a raised platform and holds the basket at his shoulder height. He then tilts the basket allowing the mixture to fall down slowly, shaking it continuously. The lighter husk particles get carried away by wind, whereas the heavier grains fall down vertically on the ground forming a heap. Thus, husk and grains are separated.

3. Sieving is a method of separating a mixture of various sized particles by passing them through a suitable sieve.

Pebbles are separated from chalk powder by using a larger sieve at a construction site to prepare a uniform mixture of sand, cement and water which is used to construct a wall with the setting of bricks.

4. To separate a mixture of chalk powder and water

Materials Required: A filter paper, a funnel, two beakers, an iron stand, a glass rod, chalk powder and water

Procedure: Take a filter paper and place it in a funnel after making its cone. Pour the mixture containing chalk powder and water over the filter paper using a glass rod.

Observation: Clear water gets collected in the beaker kept below the funnel and chalk powder remains in the filter paper.

5.To separate a mixture of cooking oil (mustard oil) and water by using a separating funnel

Materials Required: A mixture of mustard oil and water, a separating funnel, an iron stand and two beakers

Procedure: Pour the mixture containing mustard oil and water into a separating funnel. Allow it to stand for some time. Note your observations. Now, place a beaker below the separating funnel and open the stopcock. Allow the water to flow through it. When all the water flows through it, close the stopcock.

Observation: Mustard oil and water form two separate layers. Water forms the lower layer and mustard oil forms the upper layer. On opening the stopcock, water flows through it and gets collected in the beaker and mustard oil remains in the separating funnel, which can be collected in a separate beaker.

6. (a) Tea granules are separated as they are useless component of the mixture.

(b)Small stones and husk are harmful components so they are separated from *dal* or rice before cooking.

(c)Pebbles are separated from sand to prepare a uniform mixture of sand, cement and water which is used to construct a wall with the setting of bricks.

(d) Handpicking is applicable when the components are mixed in small quantities and can be easily picked up. Thus, farmer is not able to apply this method for a large amount of crop.

(e) Water can dissolve many substances in different states, i.e., solid, liquid and

gas, therefore, it is called a universal solvent.

7. (a) Evaporation is the process of changing of water into water vapour, whereas condensation is the process of changing water vapour into water.

   (b) In the process of threshing, grains are separated from stalks while in winnowing, husk is separated from grains with the help of wind. Threshing is done manually by using human power or by using animal power like bullocks or with the help of machines. Winnowing is carried out manually or with the help of machines.

   (c)The process of settling down of sediment in a mixture is called sedimentation. The process of pouring out of liquid without disturbing the sediment is called decantation. Decantation is done after sedimentation.

F. HOTS Questions.

1. She cannot dissolve more sugar at a given temperature but she could be able to mix more amount of sugar by increasing the temperature.
2. No, as salt and sugar both are soluble in water so no residue is left on filter paper when the solution of their mixture is filtered.