



## INDIAN SCHOOL AL WADI AL KABIR



<b>Class: VI</b>	<b>DEPARTMENT: SCIENCE-2021-2022</b>	<b>DATE: 27.05.2021</b>
<b>WORKSHEET NO: 4 WITH ANSWERS</b>	<b>TOPIC: SEPARATION OF SUBSTANCES</b>	<b>NOTE: A4 FILE FORMAT</b>
<b>NAME OF THE STUDENT</b>	<b>CLASS &amp; SEC:</b>	<b>ROLL NO.</b>

### **I.VERY SHORT ANSWER (1M):**

1. List the various methods of separation of components from their mixture. [Hint: Handpicking; Threshing; Winnowing; Sedimentation; Decantation; Filtration; Evaporation; Condensation.]
2. What is meant by condensation? [Hint: The process of conversion of water vapour into its liquid form on cooling is called condensation.]
3. What is threshing? [Hint: The process that is used to separate grain from stalks is called threshing.]
4. What do you mean by saturated solution? [Hint: A saturated solution is one in which no more solute can be dissolved.]
5. Which method is used to separate heavier seeds of grain from husk? [Hint: Winnowing method is used to separate heavier seeds of grain from husk.]
6. How is cream separated from milk? [Hint: Cream is separated from milk by churning.]
7. How will you separate water from petrol? [Hint: Water and petrol are immiscible liquids, so they can be separated by sedimentation and decantation method.]
8. Define solute and solvent. [Hint: A substance that dissolves in a solvent to form a solution is called solute. A substance in which other materials dissolve is called solvent.]
9. What is sedimentation? [Hint: Sedimentation is the process in which heavier solid components settle at the bottom of a liquid.]
10. Name the method used to separate the following mixtures.
  - a) Papaya seeds from urad dal – [Hint: handpicking.]
  - b) Iron filings from sand – [Hint: Magnet.]
  - c) Cornflakes from milk – [Hint: filtration]

*For the question numbers 11, 12 and 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).*

*Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below*

*i) Both A and R are true and R is correct explanation of the assertion.*

*ii) Both A and R are true but R is not the correct explanation of the assertion.*

*iii) A is true but R is false.*

*iv) A is false but R is true*

11. Assertion (A): Mixture of sawdust and water can be separated by sedimentation and decantation.

Reason (R): Sawdust is not heavier than water.

**[iv) A is false but R is true.]**

12. Assertion (A): Sieving is used for separating components of a mixture on the basis of their particle sizes.

Reason (R): Sieving is done with help of wind.

**[iii) A is true but R is false.]**

13. Assertion (A): It is possible to separate salt and water from salt solution.

Reason (R): Salt can be obtained by evaporation method and water can be obtained by condensation method.

**[i) Both A and R are true and R is correct explanation of the assertion.]**

## **II.PASSAGE BASED QUESTIONS:**

*Read the following passage and answer the questions.*

The process of conversion of water into its vapour is called evaporation. The process of evaporation takes place continuously wherever water is present. Salt is obtained from sea water by the process of evaporation. Sea water contains many salts mixed in it. One of these salts is the common salt. When sea water is allowed to stand in shallow pits, water gets heated by sunlight and slowly turns into water vapour, through evaporation. In a few days, the water evaporates completely leaving behind the solid salts. Common salt is then obtained from this mixture of salts by further purification.

- Name the process in which water is converted into its vapour on heating.  
a. Condensation.      **b. Evaporation.**      c. Sedimentation.      d. Decantation.
- What does sea water contain?  
a. Vitamins      b. Proteins      **c. Salts**      d. Carbohydrates.
- Name the process by which salt is obtained from sea water.  
a. Condensation.      **b. Evaporation.**      c. Sedimentation.      d. Decantation.
- In the salt extraction process, the sea water is collected in \_\_\_\_\_.  
a. Dark pits      b. narrow pits      c. deep pits      **d. shallow pits**
- Which of the following is obtained from mixture of salts by purification process?  
a. **Common salt**      b. Chemicals      c. Metal      d. sand

### **III.a) SHORT ANSWER TYPE QUESTIONS (2 M):**

1. Give an example from our daily life where the process of sedimentation and decantation is used. [Hint: Rice or pulses washed before cooking. When we add water, the impurities go into water. Rice or pulses settle at the bottom by sedimentation and the water along with dust is poured out by decantation.]

2. Distinguish between Soluble and insoluble substances.

<b>Soluble substances</b>	<b>Insoluble substances</b>
Substances that dissolve in liquid are soluble substance.	Substances that do not dissolve in liquid are called insoluble substances.
Example- salt, sugar.	Example- sand, saw dust

3. Soni accidentally mixed few green gram seeds with rice flour and her brother helped her in separating the things. Which method they would have used to things and why? [Hint: They would have used handpicking method as green gram seeds are small in quantity, large in size and different in colour.]

4. What happens when saturated salt solution is heated after adding small quantity of salt to it? [Hint: The undissolved salt in the bottom of the beaker will dissolve. Larger quantity of salt can be dissolved in water on heating.]

5. Why water is called universal solvent? [Hint: Water can dissolve different kinds of substances. So, water is called as universal solvent.]

6. What is the use of Decantation? [Hint: Decantation is used to separate insoluble solids from liquids. Two immiscible liquids are also separated by this process.]

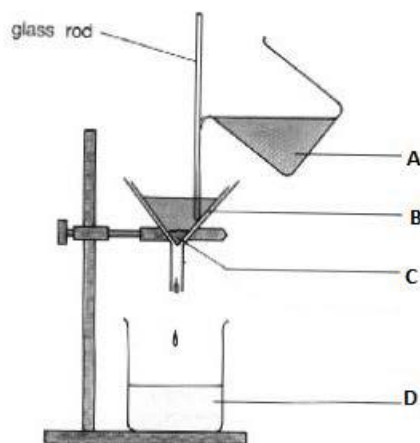
### **III.b) SHORT ANSWER TYPE QUESTIONS (3 M):**

1. How is common salt obtained from seawater? [Hint: Sea water is captured in shallow pits, slowly the water gets heated by sunlight and changes into water vapour by the process of evaporation. After complete evaporation of water, salt remains. This salt is sent for purification.]
2. A transparent bottle, half filled with water is left outside in sun for a few hours. After sometime, some water droplets are observed on the inner upper surface of the bottle. Which process do you think is the cause of these droplets? Why? [Hint: Evaporation and condensation. As the bottle filled with water is left in sun, the water evaporates due to the heat of the sun. As the vapour touches the lid, it condenses to form water droplets.]
3. What is the basis of using handpicking as a method of separation? [Hint: Hand picking method is used, when: (i) The components to be separated are large and easily distinguishable; (ii) Unwanted components are present in small quantities; (iii) The shape, size and colour of the components are different.]

4. If a solid dissolve in the liquid, sedimentation and decantation method cannot be used. Why? [Hint: Sedimentation and decantation method is used for separating insoluble substances that are heavier than water. Insoluble substances in a mixture which are heavier than water, settle at the bottom of the container, when left undisturbed. Whereas soluble solids completely dissolve in liquid and becomes inseparable from liquid.]
5. Name and describe briefly a method which can be helpful in separating a mixture of husk from grains. What is the principle of this method? [Hint: By using the process of winnowing, the husk can be separated from grains; When the mixture is allowed to fall down from a height, the lighter husk is carried away by air and remaining falls on the ground; This method is based on the principle that a mixture with components of different weights, the lighter particles are blown away by the wind.]

#### **IV. LONG ANSWER TYPE QUESTIONS (5M):**

1. Observe the method of separation shown and answer the questions.



- a. Identify the process and label the parts marked.  
[Filtration.] [ A –mixture B-filter paper C-residue D- filtrate]
  - b. Define the process.  
[The method of separating insoluble components from a mixture using a filter.]
  - c. How is this method better than sedimentation and decantation?  
[Filtration can be used to separate even smaller solid particles, which may not completely settle down with sedimentation. During decantation there is a chance of the particles mixing back in the liquid.]
  - d. Name one example from your daily life where you use this method of separation? [Separating tea leaves from tea using a strainer.]
2. (a) How will you prepare a saturated solution of sugar?  
[Hint: Take some water in a glass and add one spoonful of sugar to it. Stir the mix. The sugar dissolves in a few minutes. Add another spoonful of sugar and stir. Keep on adding more sugar, one spoonful at a time, in the water and stir well. With stirring, more sugar can be dissolved. There will be a point when no more sugar dissolves in the water, no matter how much you stir. Record

the number of spoons of sugar that were completely dissolved in water. A solution that cannot dissolve any more solute is called saturated solution.]

(b) What will happen when saturated solution is heated?

[Hint: Heat the beaker with the saturated solution. Now, add one more spoonful of sugar to the solution and stir it. Now, the sugar dissolves. On heating, the solution becomes unsaturated. More sugar can be added until it becomes saturated again.]

3. a) What is decantation? Explain [Hint: Decantation is a process, of separation of insoluble solids from liquid. The suspension of solid particles in liquid is allowed to stand for some time. The solid particles then settle down at the bottom of the container and clean water goes up. Without disturbing the settled particles, the clean water is transferred into another container.]

b) Where is decantation used? Give two examples.

[Hint: (i) Decantation is used to separate insoluble solids or liquid from liquid. Rain water is a mixture of mud and water. It is purified by decantation.

(ii) Oil and water also get separated by this method because oil floats up.]

4. A mixture of iron nails, salt, oil and water is provided to you. Give stepwise methods to separate each component from this mixture.

[Hint: A mixture of iron nails, salt, oil and water can be separated by the following steps:

- Iron nails can be handpicked or removed by a magnet by attracting it.
- Oil can be removed by decantation method.
- By evaporation method, evaporate the salt and water solution. Hence water can be condensed back leaving behind the salt at the bottom.]

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