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Methods of Separation in Everyday Life

ORAL QUESTIONS

A. Answer these questions orally.

1. What are the substances which make up a mixture called?
2. Which is a better method of separating chalk powder from water — sedimentation, decantation or filtration?
3. Does solubility increase or decrease with temperature?
4. Name a method that can be used to separate saw dust from a mixture of saw dust and water.
5. Name a method you would use to separate a mixture of corn and husk.
6. In order to separate the components of a mixture, we use some properties of a component which others do not possess. True or false?

B. Match the definitions with the key words.

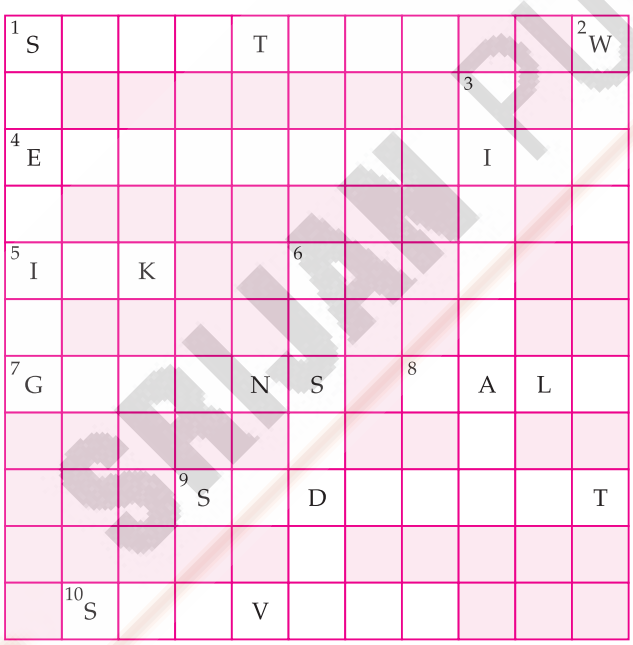
1. A method of separating a mixture of solids into its components by hand	(a) Winnowing
2. A substance that settles down at the bottom of a liquid	(b) Threshing
3. A mixture of a solute and a solvent	(c) Sieving
4. A method of separating fine particles from bigger particles	(d) Filtration
5. A liquid in which a solute dissolves	(e) Residue
6. A process used to separate grains from stalk	(f) Solution
7. A method of separating insoluble solid components from a liquid	(g) Solvent
8. The process of converting a liquid into its vapour	(h) Solute
9. A substance that dissolves in a liquid	(i) Sediment
10. A solution in which no more solute can be dissolved at a given temperature	(j) Evaporation
11. A substance that remains in the filter	(k) Saturated solution
12. A method of separating husk from grains using wind	(l) Handpicking

PUZZLE/QUIZ

C. Solve the crossword puzzle with the help of the clues given.

ACROSS:
1. A mixture of solute and solvent (8)
4. This method is used to separate common salt from sea water (11)
5. A liquid soluble in water (3)
7. These are separated from stalks by threshing (6)
8. A solid which is soluble in water (4)
9. A substance that settles down at the bottom of a liquid (8)
10. A liquid in which a solute dissolves (7)

DOWN:
1. A method of separating fine particles from bigger particles (7)
2. This helps to separate husk from grains by winnowing (4)
3. The clear liquid that flows through the filter paper (8)
6. A substance that remains in the filter (7)



CLASS TEST

D. MCQ–Tick (✓) the correct option.

1. The components of a mixture are separated
   (a) To remove useless components
   (b) To remove harmful components
   (c) To obtain useful components
   (d) All the above

2. Water is called a universal solvent because

   (a) It can dissolve very few solids ☐

   (b) It cannot dissolve any substance in it ☐

   (c) It can dissolve only liquids ☐

   (d) It can dissolve many solids, liquids and gases ☐

3. Which of the following statements is not correct?

   (a) Water dissolves different substances in different amounts ☐

   (b) Decantation is a better method than filtration ☐

   (c) A substance that dissolves in a liquid is called a solute ☐

   (d) The method of handpicking can be used if the components are mixed in small quantities ☐

4. A solution is said to be saturated if

   (a) It can dissolve more of the substance in it ☐

   (b) It cannot dissolve more of the substance in it ☐

   (c) It can be fitered ☐

   (d) It becomes very sweet ☐

5. The most convenient method for separating husk and stone from rice before cooking is

   (a) Decantation ☐

   (b) Filtration ☐

   (c) Handpicking ☐

   (d) Winnowing ☐

6. A mixture of coconut oil and water can be separated by

   (a) Filtration ☐

   (b) Handpicking ☐

   (c) Decantation ☐

   (d) Evaporation and condensation ☐

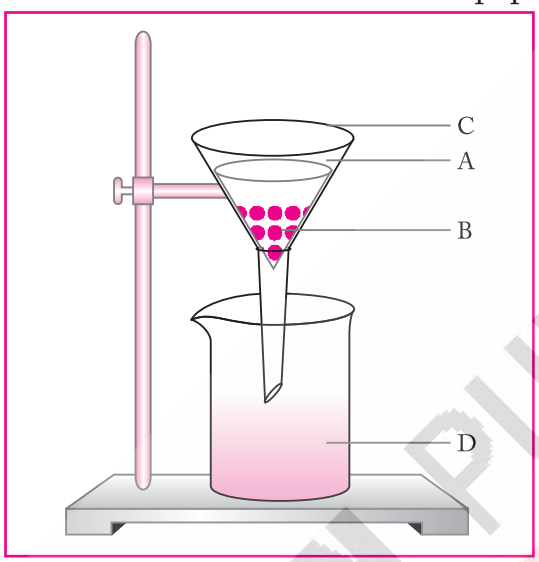
7. The figure given here shows a mixture of chalk powder and water being separated. Which of the following labelling is correct?

(a) A – water B – funnel C – chalk powder D – filter paper ☐

(b) A – funnel B – filter paper C – water D – chalk powder ☐

(c) A – filter paper B – chalk powder C – funnel D – water ☐

(d) A – chalk powder B – water C – filter paper D – funnel ☐



8. Which of the following properties is used in separating a mixture of solids by winnowing?

(a) Difference in colour ☐ (b) Difference in shape ☐

(c) Difference in size ☐ (d) Difference in weight ☐

9. Peanuts are separated from a mixture of pulses and rice by

(a) Winnowing ☐ (b) Sieving ☐

(c) Filtration ☐ (d) Handpicking. ☐

10. Meenu accidentally mixed a spoon of turmeric powder with cumin (jeera). Which of the following methods can she use to separate the mixture?

(a) Sieving ☐ (b) Filtration ☐

(c) Handpicking ☐ (d) None of these ☐

E. Very short answer questions.

1. Name the method of separation you would use to separate stones from soil.

_____

2. What is a mixture?

3. Amit dissolved a teaspoonful of sugar in a beaker containing 100 ml water and stirred well. The sugar dissolved in water. Is the sugar solution formed saturated or unsaturated?

4. How can you make a saturated solution unsaturated?

5. Sonia likes to make lemonade in summer. Can you name the components that make up lemonade?

6. Is milk a mixture?

7. Can filtration be used to separate the components of milk?

8. What is the process of removal of the clear liquid layer without disturbing the settled solid called?

F. Short answer questions.

1. What do you understand by sieving?

2. Pebbles are separated from sand at construction sites using a sieve. Could we use this method if the size of the pebbles and sand was the same. Why?

3. Why is water called a universal solvent?

G. Long answer questions.

1. What is winnowing? Explain the method of separating a mixture of husk from grains by winnowing?

2. How will you separate a mixture of sand and common salt?

HOME ASSIGNMENT

H. Think and answer.

1. Reena added a teaspoonful of both salt and sugar to a glass full of water and stirred well. She then used a filter paper to separate sugar and salt from water, but failed to do so. Why?

2. Ritu mixed mud and water and waited for a while for mud to settle down. In order to speed up sedimentation, she moved a piece of alum in the mixture and left the mixture undistrubed.

   (a) What do you think she observed after sometime?

(b) What is the role played by alum in the above observation?

3. Peter was given a mixture of coconut oil and water to separate. She took a separating funnel and poured the mixture into the separating funnel. The lower part of the separating funnel has a stopcock to control the flow of liquid.

(a) What will Peter observe, if he allows the mixture to stand for some time?

(b) Which of the two liquids will he obtain on the top? Why?

(c) What property is used in the separation of coconut oil from water?

(d) Will Peter be able to separate a mixture of milk and water by this method? Why or why not?

WORKSHEET

I. Give reasons for the following.

1. Water is called a universal solvent.

2. A mixture of common salt and water cannot be separated by filtration.

3. Stones and husk are removed from rice before cooking.