

**Class: VII**  
**Subject: Chemistry**  
**Topic: Separation of Substances**  
**No. of Questions: 22**

1. Name the process that is being done in the given picture.



Ans. Winnowing process is shown in the given picture.

2. How do we get common salt from sea water?

Ans. 1. When sea water is allowed to stand in shallow pits, water gets heated by sunlight and slowly turns into water vapour, by evaporation.

2. In a few days, the water evaporates completely leaving behind the solid salt.

3. Common salt is then obtained from this mixture of salts by further purification.

3. Which type of impurities can be separated by using the method of handpicking?

Ans. The method of handpicking can be used for separating slightly large sized impurities like the pieces of dirt, stone etc from wheat, rice or pulses.

4. (a) Is it possible to separate a mixture of salt and sugar using water as the solvent?

(b) How will you separate a mixture of iron filings, chalk powder and common salt?

Ans. (a) No, it is not possible to separate a mixture of salt and sugar by using water as the solvent since both sugar and salt are soluble in water.

(b) The following steps will be done to separate this mixture:

i. Bring a magnet near this mixture several times. All the iron filings will stick to the magnet and get separated. Then, the mixture will be left with two components - chalk powder and common salt.

ii. Some water is added to this mixture and stirred. Common salt dissolves in water to form salt whereas chalk powder remains undissolved.

iii. On filtering, chalk powder is obtained as a residue on the filter paper and salt is obtained as filtrate.

iv. This filtrate (salt Ans.) is evaporated and pure common salt is left behind.

5. What will be the effect of temperature on solubility of gases in water? State its Consequences.

Ans. The solubility of gases in water decreases with a rise in temperature.

During summers, fish in shallow ponds die because the water in the pond gets warm due to summer heat and as a result, the amount of dissolved oxygen in water decreases.

6. Where is winnowing process used?

Ans. This method is commonly used by farmers to separate lighter husk particles from heavier seeds of grain.

7. The flow diagram shows how people extracted pure, dry salt from rock salt.

Crushing → Dissolving → Filtration → \_\_\_\_\_

Give a word that completes the flow diagram.

Ans. Evaporation

8. How will you separate a mixture of chalk powder and common salt?

Ans. Some water is added to mixture of common salt and chalk powder. Chalk powder being insoluble in water is separated using filtration method and salt is obtained by evaporation.

9. Which type of process is being done in the given picture?



Ans. Sieving process is shown in the given picture.

10. Which process is used to separate husk from heavier seeds of grain?

Ans. Winnowing process is used to separate husk from heavier seeds of grain.

11. When milk cooled after boiling is poured onto a piece of cloth, the cream is left behind on it. What is this process called?

Ans. Filtration is used for separating cream from milk.

12. What is sedimentation?

Ans. The process involving the settling down of the heavier solid particles in a mixture of solid and liquid is called sedimentation.

13. Which will be more soluble in water?

Potassium nitrate - 32 grams (solubility in water)

Sodium chloride - 36 grams (solubility in water)

Ans. Sodium chloride will be more soluble in water since a greater amount of it can dissolve in 100 grams of water as compared to potassium nitrate.

14. The following figure shows two processes. Identify and write their names.



Ans: (i) Evaporation

(ii) Condensation

15. Why do we need to separate different components of a mixture?

Ans. We need to separate different components of a mixture:

(i) To separate two different but useful components.

(ii) To remove non useful components.

(iii) To remove impurities or harmful components.

16. Explain how lighter husk particles are separated from heavier seeds of grain using winnowing.

Ans. The husk particles are carried away by the wind. The seeds of grain get separated and form a heap near the platform for winnowing.

17. (a) Define a saturated solution.

(b) The solubility of sodium chloride in water is 36 grams at 20°C. What do you mean by this statement? What will happen if 45 grams of sodium chloride is added to water at 20°C?

(c) What will happen if the saturated solution of a substance in water is (i) heated, and (ii) cooled?

Ans: (a) A solution in which no more substance can be dissolved at that temperature is called a saturated solution.

(b) The solubility of sodium chloride in water is 36 grams at 20°C means that a maximum of 36 grams of sodium chloride can be dissolved in 100 grams of water at a temperature of 20°C.

If 45 grams of sodium chloride is added to 100 grams of water at 20°C, then the excess salt will remain undissolved in water.

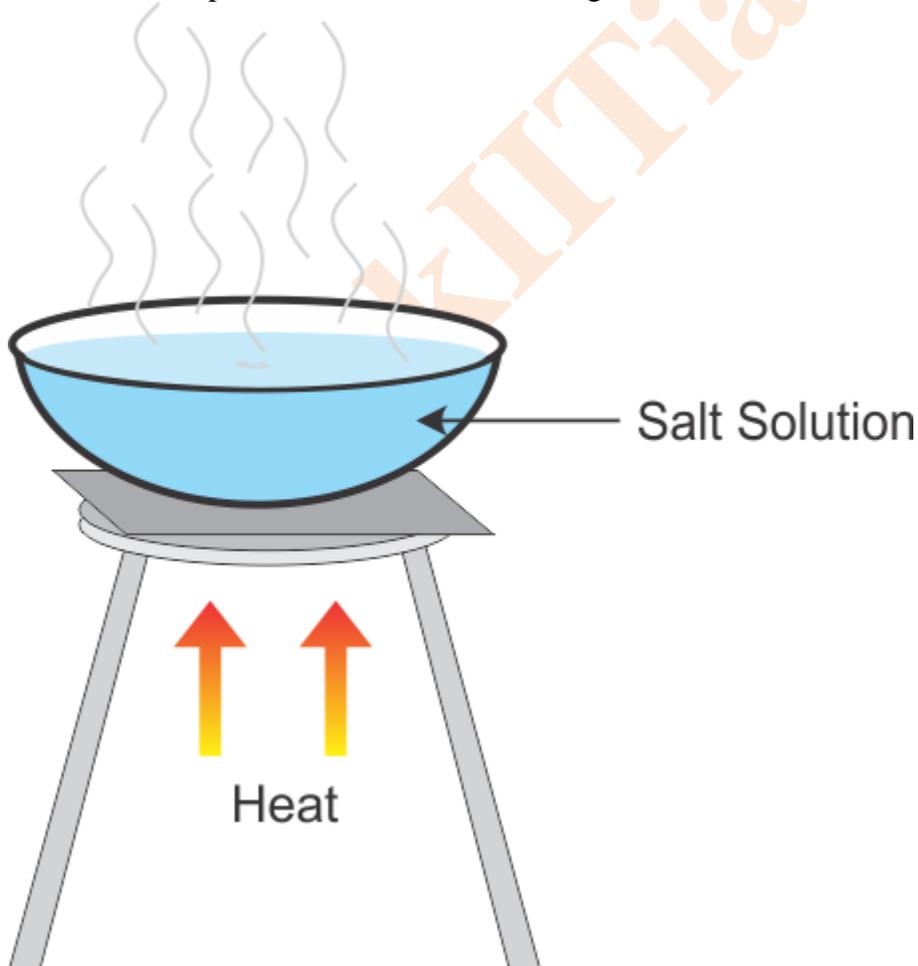
(c) If the saturated solution of a substance at a particular temperature is heated to a higher temperature, then the solubility of the substance increases and more of substance can be dissolved in it.

If the saturated solution of a substance at a particular temperature is cooled to a lower temperature, then the solubility of the substance decreases and some of the dissolved substance will separate out in the form of solid crystals.

18. Lemonade is prepared by mixing lemon juice and sugar in water. You wish to add ice to cool it. Should you add ice to the lemonade before or after dissolving sugar? In which case would it be possible to dissolve more sugar?

Ans. We should add ice after dissolving sugar because the dissolving power of water decreases with decrease in temperature. So, if we add ice before dissolving sugar; less amount of sugar will get dissolved.

19. Name the separation method shown in diagram:



- a. Condensation
- b. Sieving
- c. Sedimentation
- d. Evaporation

Ans. (d)  
During evaporation, the solution is heated to evaporate the liquid and the solid substance is left behind.

20. During threshing, the stalks are converted into:
- a. Seeds
  - b. Fodder
  - c. Husk
  - d. Hay

Ans. (d)  
During threshing, stalks are converted into very small pieces called hay.

21. Which of the following will be used for separating sand and water?
- a. Nylon cloth
  - b. Butter paper
  - c. Filter paper
  - d. None of the above.

Ans. (c)  
Filter paper is used for separating sand and water. The pore size of the filter paper is smaller than sand and hence its particles remain on the paper and water passes through the paper.

22. Solubility in water is always calculated for a solute with respect to:
- a. 50 grams of water
  - b. 1000 grams of water
  - c. 100 grams of water
  - d. 100 grams of solute

Ans. (c)  
The solubility in water for a solute are always given with respect to per 100 grams of water.

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