Chapter - 5
Separation of Substances

1. Why do we need to separate different components of a mixture? Give examples.

Ans :- Necessicity of Separation of mixtures

i. To remove undiserable Substances :- Example :- Small stone pieces & unwanted seeds are removed from rice or dal before cooking.

ii. To remove impurities. Example :- Destled water needed for medicine is obtained by removing impurities from water.

iii. To obtain useful components. Example :- For proper use, various components are seperated from mixture. Example :- Petrol, Diesel, Kerosene are separated from petroleum.

2. What is winnowing? Where it is used?

Ans:- Winnowing is a method of separating husk from grains.

This method is used by the farmers to separate lighter husk particles from heavier seeds of grains, sand and saw dust.

3. How to separate husk or dust particles from the given sample of pulses before cooking?

Ans:- To separate husk or dust particles from a given sample of pulses before cooking handpicking method is used.

4. What is Sieving? Where it is used?

Ans:- Sieving is a method of

Separating different sizes of dust particles from a mixture with the help of a sieve.

It is used in flourmills, cashew nuts of different sizes are separated.

5. How will you separate sand and water from their mixture?

Ans:- Sand and water mixture is separated by sedimentation and decantation process. We have to take a beaker with the grains sample. Keep it aside as undisturbed for sometime. The sand particles are heavier, so it will settle down at the bottom of the beaker. Now, pour the water into another beaker. In this way sand and water can be separated.

8a. Threshing	9a. False
b. Filtration	b. False
c. Evaporation	c. False
d. Decantation	d. False

7. How would you obtain clear water from a sample of muddy water?

Ans:- At first we take a beaker half filled with muddy water. Now take a piece of alum and thread. Tie firmly the one end of the thread with alum and hold the other end with hand.

Now dip the alum in the water and move it slow for one minute. Remove the alum and keep the beaker undisturbed for sometimes. After sometimes, we will find the heavier particles settles at the bottom of the beaker and the clear water will remain at the top. The clear water is then decanted into another beaker.

10. 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:- Sugar can be easily dissolved in lemonade before adding ice because increase in temperature increases solubility.

Extra Question / Answer

1. How can salt be obtained from the sea water?

Ans:- The process of evaporation is used to obtain salt from sea water. Sea water is collected in shallow pits or ponds and is allowed to stand there.

The water evaporates completely due to heat of the sun leaving the salt behind. This salt is then purified to obtain common salt.

2. Write any three ways to separate grains from stalks.

Ans :- The ways to separate the grains from stalks are :-

i. By biting the stalks with seeds sticks.
ii. By allowing bullocks trample the stalks.
iii. By using machines called combine harvester.

3. What happens if a saturated solution of a substance and water is —
i. Heated , ii. Cooled

Ans :- i. Heating saturated solution of any substance increases solubility of the substance.
ii. When the saturated solution of any substance is cooled to a lower temperature the solubility of the substance decreases and some of the dissolved substance separated in the form of crystals.

4. What is centrifugation? And its uses?

Ans :- Centrifugation is a technique which involves the application of centrifugal force to separate particles from a solution according

to their size, shape, density and viscosity of the medium. The process is used to separate two miscible substances.

Usage :-

For DNA Separation, to separate the elements of the blood etc.

5. Write the names of the techniques can be used to separate solid substances from other solid substances in a mixture.

Ans :- i. Hand Picking
ii. Threshing and winnowing
iii. Sieving.

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6. Name the methods that will be used to seperate the following mixtures.

a. Butter and Milk → Churning
b. Pebbles and stones → Hand Picking
c. Salt and water → Evaporation
d. Sand and water → Sedimentation & Decantation
e. Wheat and Husk → winnowing
f. Iron Fillings and Saw dust → magnetic Separation
g. Water and Mud → Sedimentation, Decantation, Filtration.