

## CHAPTER – 3

### SEPARATION OF SUBSTANCES

#### Q. 1

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

Answer:

We need to separate different components of a mixture for the following reasons:

- (1) To obtain useful components.
- (2) To remove non-useful components.
- (3) To separate more than one useful components from a mixture.

For example-

- (i) Tea leaves are separated from the tea with a strainer while preparing tea.
- (ii) Small stones present in rice are harmful. So, they are separated by the hand.

#### Q. 2

What is winnowing? Where is it used?

Answer:

- (i) Winnowing is a process of separating components of a mixture. It is used to separate heavier and lighter components of a mixture by wind or by blowing air.
- (ii) This method is commonly used by farmers to separate lighter husk particles from heavier seeds of grain.

### Q. 3

How will you separate husk or dirt particles from a given sample of pulses before cooking?

Answer:

We can separate husk or dirt particles from a given sample of pulses by handpicking. This process normally used for separating slightly larger size impurities like pieces of dirt, stone, husk from pulses.

### Q. 4

What is sieving? Where is it used?

Answer:

**Sieving** is a method by which fine particles are separated from bigger particles by using a sieve. Sieving is used when components of a mixture have different sizes.

It is used in flour mill, construction sites and our homes.

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

Answer:

We will separate sand and water from their mixture by the process of sedimentation and decantation.

- 1) we leave the mixture for some time in a glass. After some time, sand which is heavier is settled down at the bottom (sedimentation)
- 2) After that, we will pour clear water into another glass. This process is called as decantation.

**Q. 6**

Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

Answer:

Yes. It can be done. Sugar can be separated from wheat flour by sieving. Sieving allows the fine flour particles to pass through the holes of the sieve while the bigger sugar particles remain on the sieve.

**Q. 7**

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

Answer:

We will obtain clear water from a sample of muddy water by the process of filtration. A filter paper is one such filter that has very fine pores in it. A filter paper folded in the form of a cone is fixed onto a funnel. The mixture is then poured on the filter paper. Solid particles in the mixture do not pass through it and remain on the filter and finally the clear water is obtained.

### Q. 8

Fill up the blanks:

- (a) The method of separating seeds of paddy from its stalks is called \_\_\_\_\_.
- (b) When milk, cooled after boiling, is poured onto a piece of cloth the cream (malai) is left behind on it. This process of separating cream from milk is an example of \_\_\_\_\_.
- (c) Salt is obtained from seawater by the process of \_\_\_\_\_.
- (d) Impurities settled at the bottom when muddy water was kept overnight in a bucket. The clear water was then poured off from the top. The process of separation used in this example is called \_\_\_\_\_.

Answer:

- (a) threshing, (b) filtration, (c) evaporation, (d) decantation.

## Q. 9

True or False?

- (a) A mixture of milk and water can be separated by filtration.
- (b) A mixture of powdered salt and sugar can be separated by the process of winnowing.
- (c) Separation of sugar from tea can be done with filtration.
- (d) Grain and husk can be separated with the process of decantation.

Answer:

- (a) False. Milk

Milk is completely dissolved in water so we cannot separate a mixture of milk and water by filtration.

- (b) False.

The winnowing process is used to separate heavier and lighter components by the wind or by blowing air. Thus, we cannot separate a mixture of powdered salt and sugar by this method.

- (c) False

Sugar cannot be separated from tea by filtration because sugar is completely dissolved in tea.

- (d) False.

Grain and husk can be separated by the process of winnowing.

### Q. 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?

Answer:

- (i) We should add ice to the lemonade after dissolving sugar. Without ice, sugar dissolves easily in lemon juice, because solubility depends on the temperature.
- (ii) It will be possible to dissolve more sugar before adding ice. If we add ice before dissolving sugar, less amount of sugar will get dissolved.