

NCERT solution Separation of Substances

Question 1

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

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

1. Remove the unwanted impurities from the substance
2. Remove the substances that are unsafe and harmful for our health.
3. Obtain pure substances by removing the other substances
4. Separate two different useful components.

Examples:

1. Grain is separated from stalks, while harvesting.
2. Milk or curd is churned to separate the butter.

Question 2

What is winnowing? Where is it used?

Answer

Winnowing is one of the method for separation of substance from the mixture

Winnowing is a method to separate heavier and lighter components of a mixture by wind or by blowing air. This method is commonly used by farmers to separate lighter husk particles from heavier seeds of grain.

Question 3

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

Answer

Husk or bigger pieces of dirt particles can be removed from a sample of pulses by handpicking.

Question 4

What is sieving? Where is it used?

Answer

Sieving is one of the method for separation of substance from the mixture

Sieving is the process to filter components of a mixture of different sizes. Sieving allows fine particles to pass through the holes of the sieve, while the bigger impurities remain on the sieve.

Sieving is used in flour mills to separate broken particles of grains from flour. It is also used at construction sites to separate lumps, smaller stones from the mixture of sand and cement.

Question 5

How will you separate sand and water from their mixture?

Answer**This consists of following steps**

1. Allow mixture to stand undisturbed for some time in a container.
2. Sand settles at the bottom of the container as it is insoluble and heavier than water. This process is called sedimentation.
3. Gently pour the water in another container (called decantation).
4. We may also use filter paper to remove fine particles of sand (called filtration).

Question 6

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

Answer

Yes Through sieving we can separate sugar mixed with wheat flour.

Question 7

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

Answer**This consists of following steps**

Step 1: Allow muddy water to stand undisturbed in a container.

Step 2: After sometime, mud settles at the bottom of the container as it is insoluble and heavier than water. This process is called **sedimentation**.

Step 3: Upper layer is clear water.

Step 4: Pour the clear water gently in another container. This process is called **decantation**.

Step 5: To remove finer impurities, we can filter this water again with the help of filter paper. This process is called filtration.

Question 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) churning
c) evaporation
d) sedimentation and decantation

Question 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**
b) **False**
c) **False**
d) **False**

Question 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

We should add sugar before adding ice. Sugar dissolves in warm water more quickly than in cold water. We can dissolve more sugar in warm water.