Importance of Separating Components of a Mixture

A. Choose the correct answer:

1. What is the main reason for separating components of a mixture?

a) To increase the weight of the mixture

b) To remove unwanted substances and obtain useful components

c) To mix more substances together

d) To change the color of the mixture

2. Which method is commonly used to separate insoluble solids from a liquid?

a) Filtration

b) Evaporation

c) Chromatography

d) Distillation

3. Which separation technique is best for obtaining salt from seawater?

a) Sedimentation

b) Filtration

c) Evaporation

d) Handpicking

B. Fill in the Blanks:

1. The process of separating husk from grains using wind is called _____.
2. The method of separation used to remove iron particles from a mixture using a magnet is called _____ separation.
3. The process of converting a liquid into vapor to separate it from dissolved solids is known as _____.

C. Case Study:

A scientist conducted an experiment in which she collected muddy water from a pond and aimed to purify it. She followed these steps:

- **First,** she allowed the heavier particles to settle down.
- **Next,** she carefully removed the clear water from the top.
- **After that,** she passed the water through a fine mesh to remove smaller particles.
- **Finally,** she boiled the water to kill any harmful germs.

Questions & Answers:

1. What was the scientist trying to achieve through this experiment?
2. Name the separation techniques she used at each step.
3. Why was boiling an important step in the purification process?
4. How do these methods help in obtaining clean water for daily use?

D. Short Answer Questions:

1. Why is it important to separate components of a mixture?
2. What is the difference between filtration and decantation?
3. Name two situations in daily life where we use separation techniques.

E. Long Answer Questions:

1. Explain different methods of separating components of a mixture with suitable examples.
2. How does separating components of a mixture help in industries such as food processing and medicine?
3. Discuss the importance of clean water and how different separation techniques help in water purification.