Class 6 Science Ch 3 Separation of Substance

Very short answer type questions

Q.1 A machine that reaps, threshes, and cleans the crop

Ans: Answer: Combine harvester

Q.2 The method used to separate chaff from the grain by wind or blowing air.

Ans: Answer: Winnowing

Q.3 The process by which an insoluble solid is separated from a liquid by passing the mixture through a filtering device

Ans: Answer: Filtration

Q.4 The process of pouring out the clear upper liquid without disturbing the sediments

Ans: Decantation

Q.5 The process in which a liquid changes into a gas

Ans: Evaporation

III. Short answer type questions.

Q.1 Differentiate between threshing and winnowing.

Ans: **Threshing** is the process of beating the harvested crop to separate the grain from the stalk.
Winnowing is the process of separating the chaff (husks) from the grain using wind or blowing air.

Q.2 Give an example where hand picking is used for separation.

Ans: Example: Hand picking is used to separate stones from grains or seeds, such as picking out unwanted pebbles from rice or wheat.

Q.3 What is sieving? Give an example where this method is used.

Ans: Sieving is the process of separating particles of different sizes by passing the mixture through a mesh or sieve.
Example: Sieving is used to separate flour from bran or to separate sand from finer particles in construction.

Q.4 Define sediment and supernatant with one example of each.

Ans: Sediment is the solid particles that settle down at the bottom of a liquid.
Example: Mud settling at the bottom of a glass of water.

Supernatant is the clear liquid that remains above the sediment.
Example: The clear water above the mud after it has settled.

Q.5 Define solute, solvent, and solution with one example of each.

Ans: Solute: The substance that is dissolved in a solution.
Example: Salt in saltwater.

Solvent: The substance that dissolves the solute to form a solution.
Example: Water in saltwater.

Solution: A homogeneous mixture formed by dissolving a solute in a solvent.
Example: Saltwater.

6. How is salt prepared from seawater?

Ans: Salt is prepared from seawater by evaporation. The seawater is collected in shallow ponds and exposed to sunlight. As the water evaporates, salt crystals are left behind, which are then harvested and purified.

Class 6 Science Ch 3 Separation of Substance

IV. Long answer type questions.

Q.1 When is separation of substances necessary? Name four methods used to separate solid substances.

Ans: Separation of substances is necessary to:

a) Remove unwanted or harmful substances
b) Obtain useful components
c) Improve quality or purity
d) Make food materials safe for consumption

Four methods used to separate solid substances are:

a) Hand picking – Used to remove larger unwanted particles like stones from grains.
b) Sieving – Used to separate solids of different sizes, like flour and bran.
c) Threshing – Used to separate grains from stalks.
d) Winnowing – Used to separate lighter husk from heavier grains using wind.

Q.2 Describe two different methods which can be used to separate a mixture of sand and water. Also draw well-labelled diagrams for the two.

Ans: i) Sedimentation and Decantation:

a) When a mixture of sand and water is left undisturbed, the heavier sand particles settle down at the bottom (sedimentation).
b) The clear water at the top is then gently poured off without disturbing the sand (decantation).

ii) Filtration:

a) A filter paper is used to separate sand from water.
b) The sand particles are too large to pass through the filter paper and are left behind, while clean water passes through.

Q.3 How can we dissolve extra sugar in the saturated solution of sugar? Discuss the factors that can speed up the solubility of a solute in a solvent.

Ans: To dissolve extra sugar in a saturated solution of sugar, you can heat the solution. Heating increases the capacity of water to dissolve more sugar.

Factors that increase solubility of a solute:

a) Temperature:
Heating the solution allows more solute (like sugar) to dissolve, as particles move faster and mix more easily.
b) Stirring:
Stirring spreads the solute particles throughout the solvent, helping it dissolve faster.
c) Particle Size:
Finely powdered solute dissolves faster than large crystals due to greater surface area.
d) Nature of Solute and Solvent:
Some solutes naturally dissolve better in certain solvents (e.g., salt in water vs. oil).