Pure Substances and Mixtures, Separation of Mixtures

POINTS TO REMEMBER

1. Element is made up of atoms of the same kind i.e. atoms of gold are similar in every respect i.e. have same melting point and same boiling pts. same colour, mass and odour.
2. Molecules of a compound are similar in every respect i.e. same composition taste, colour and odour i.e. compound water is made up of similar molecules.
3. Pure substances are either elements or compounds have definite set of properties.
4. Pure substances are required to maintain good health of human beings. Chemists, technologists and scientists need pure substances for manufacture of medicines, chemicals in industry and for scientific purposes.
5. Milk, air, bronze, sugar and water solution, salt and water solution, salt, iron filings and sand, petrol are all mixtures.
6. Mixtures, two or more components mixed in any ratio, undergo ho chemical change and retain their individual properties, can be separated by simple physical methods.
7. **Mixture** has no formula, no change in volume, no change in mass, energy is neither needed nor produced.
8. Mixture is impure substance.
9. **Homogeneous mixture** : in which constituents are uniformaly distributed throughout its volume, e.g. salt and water solution.
10. **Heterogeneous mixture:** The components are not uniformly distributed through its volume and components can be easily seen separately, e.g. water, oil solution.
11. Milk is emulsion but this mixture cannot be separated. Oh shaking a mixture of mustard oil and water vigorously mixture becomes milky and is called an emulsion after some time water and oil get separated.
12. Alloys are homogeneous mixtures of metal with metals or metal with non-metals.
13. Salt and sand can be seperated by solvent extraction method where one of the solid component (salt) is soluble in liquid.
14. **Coagulation or loading :** When alum (a chemical) is added to mixture dissolves in water and form clusters with clay and fine dust particles making them heavier, increases the rate of sedimentation.
15. Centrifugation method is used to separate solids from liquids where mixture is homogeneous. Cream is separated being lighter on churning floats on a liquid (milk).
16. **Loading :** The process of adding a chemical substance to help the suspended solid particles in liquid to form a sediment is called loading.

EXERCISE – I

Question 1.
Select homogeneous and heterogeneous mixtures from the following:
Salt solution, petrol and water, sand and charcoal, alcohol and water, air dissolved in water, air, sea water, fruit juices, mist, brass.
Answer:

Homogeneous mixture : Salt solution, alcohol and water, air dissolved in water, sea water, brass.
Heterogeneous mixture: Sand and charcoal, air, fruit juice, mist, petrol and water.

Question 2.
Define the following :

(a) Pure substance
(b) Impure substance
(c) Alloy
(d) Solution
(e) Heterogeneous mixture
(f) Homogeneous mixture

Answer:

(a) Pure substance : "Pure Substance is either element or compound. It contains the same kind of atom or molecules and has a definite set of physical and chemical properties."
(b) Impure substance : "A substance in which some other substances are also present in smaller or larger amounts is called an impure substance. Mixtures are impure substance.
Example of impure substance is air.
(c) Alloy : "A homogeneous solid mixture of two or more metals or a metal and a non-metal is called an alloy."
(d) Solution : "The homogeneous mixture of water (or any other solvent) and a substance soluble in it is called a solution."
(e) Heterogeneous mixture : "A mixture in which the components are not uniformally distributed through its volume and can be easily seen separately is called heterogeneous mixture."
(f) Homogeneous mixture : "A mixture in which its constituents are uniformly distributed throughout its volume and cannot be seen separately is called a homogenous mixture."

Question 3.
List four characteristics of a mixture.
Answer:
Four characteristics of a mixture :

1. Mixture has no fixed composition.
2. To form a mixture energy is neither produced nor evolved.
3. Mixture has no fixed melting'point and boiling points.
4. Mixture retain the properties of its components.
5. Components of mixtures can be seperated by simple physical methods.

Question 4.
Give reasons :

(a) Why do sugar and water retain their individual properties in a sugar solution ?
(b) Why do petrol and water form a heterogeneous mixture ?
(c) Why sulphur does dissolve when carbon disulphide is added to a mixture of iron and sulphur but not when it is added to iron sulphide ?

Answer:

(a) As sugar solution is a mixture and mixtures has not any specific set of properties. They show the properties of the individual components from which they are formed.
(b) Petrol and water forms a heterogeneous mixture as its constituents can be seen separately and are not uniformly distributed throughout its volume.
(c) Sulphur has the property to dissolve in carbon disulphide whereas iron does not dissolve and retains its individual property. However, On heating Iron and Sulphur, they chemically combined forming Iron Sulphide. In this, Iron and Sulphur particles do not exists separately as such they loose their individual property.

Question 5.
Give two examples for each of the following types of mixture.

(a) solid-solid
(b) solid-liquid
(c) liquid-gas
(d) gas-gas

Answer:
Two examples of :
(a) solid – solid –

1. sand and sugar
2. sand and iron filling.

(b) solid – liquid –

1. salt and water
2. charcoal and water.

(c) liquid – gas –

1. coca cola
2. mist.

(d) gas – gas –

1. air
2. helium and hydrogen in air balloon,
3. perfumes and air.

Question 6.
Name the components present in the following mixtures:

(a) Brass
(b) Duralumin
(c) Tap water
(d) Bronze
(e) Crude petroleum oil .

Answer:

(a) Brass → Copper and Zinc.
(b) Duralumin → Aluminium + Copper with little manganese and magnesium.
(c) Tap water → air, dissolved salts.
(d) Bronze → Copper, Tin and zinc.
(e) Crude petroleum oil → petrol, kerosene, diesel, LPG, mixed with salt, water and earth particles.

Question 7.
State:

(a) Three differences between water and air.
(b) Four differences between compounds and mixtures.

Answer:
(a)
Water :

1. The components of water are hydrogen and oxygen which are chemically combined in a fixed ratio of 1 : 8 by mass.
2. The chemical composition of water remains same from whatever source it is obtained.
3. The properties of water are completely different from the properties of elements from which it is formed i.e. hydrogen and oxygen.
4. Energy change occurs in the formation of water.
5. A molecule of water is represented by a definite formula H_2O.

Air :

1. The main components of air are nitrogen, oxygen, carbon -dioxide, water vapour which are not chemically combined.
2. The composition of air varies from place to place. During rainy season the air becomes humid due to presence of more water vapour. Some impurities like sulphur dioxide, hydrogen sulphide etc. also changes its composition at some places.
3. The components of air retain their individual properties but not air.
4. No energy change occurs when components of air are mixed together.
5. Air cannot be represented by any chemical formula.

(b)
Compound :

1. A compound is a pure substance.
2. Compounds are always homogeneous.
3. A compound has a fixed composition, i.e., it is formed when two or more pure substances chemically combine in a definite ratio by mass.
4. Formation of a compound involves change in energy.
5. Compounds have specific set of properties.
6. Components of compounds can be separated only by complex chemical processes.

Mixture :

1. A mixture is an impure substance.
2. Mixtures may be homogeneous or heterogeneous.
3. A mixture has no fixed composition, i.e., it is formed by mixing two or more substances in any ratio without any chemical reaction.
4. Formation of a mixture does not involve any change in energy.
5. Mixtures do not have any specific set of properties.
6. Components of mixtures can be separated by simple physical methods.

EXERCISE – II

Question 1.
Define:

(a) Filtration
(b) Sublimation
(c) Evaporation
(d) Crystallisation

(e) Miscible liquids
(f) Immiscible liquids

Answer:

(a) Filtration : The process of separating solid particles from liquid by allowing it to pass through a filter paper is called filtration.
(b) Sublimation : The process in which a solid changes directly into its vapours on heating is called sublimation.
(c) Evaporation : Is the process of converting a liquid into its vapours state either by exposing it to air or by heating.
(d) Crystallisation : Evaporation of liquid from a homogeneous liquit-solid mixture and collecting solid in the form of crystals is called crystallisation.
(e) Miscible liquids: Homogeneous liquid-liquid mixtures are called miscible liquids.
(f) Immiscible liquids : Heterogeneous liquid-liquid mixtures are called immiscible liquids.

Question 2.
Why do we need pure substances?
Answer:
We need pure substances because of the following reasons:

1. A pure substance has a fixed melting and fixed boiling point.
2. A pure substance has its characteristic taste, colour and odour.
3. Pure substances can not be broken further into more simple substances by any physical means.

Question 3.
Give one example for each of the following types of mixtures.

(a) Solid-solid heterogeneous mixture
(b) Solid-liquid heterogenous mixture
(c) Solid-liquid homogeneous mixture

Answer:

(a) Iron and sulphur.
(b) Sand and water, rice and water.
(c) Sugar from its solution in water.

Question 4.
Name the process by which the components of following mixtures can be separated.

(a) Powdered glass and sugar
(b) Chalk powder and iron filings
(c) Chaff and grain
(d) Salt and water
(e) Wheat and sugar
(f) Sand and camphor
(g) Sugar and water

Answer:

(a) FILTRATION : Glass and sugar on dissolving in water and filtering, glass separates out as residue on the filter paper. Filtrate of sugar solution is heated to remove water by evaporation, sugar is collected as crystals.
(b) MAGNETIC SEPERATION : With the help of a magnet, iron filings can be separated leaving behind chalk powder.
(c) WINNOWING : It separates chaff (lighter) from heavier grains in two different heaps.
(d) EVAPORATION : This method is used to separate the components of a homogeneous solid-liquid mixture, like salt from sea water. Sea water is collected in shallow beds and allowed to evaporate in the sun. When all the water is evaporated, salt is left behind.
(e) EVAPORATION : Wheat and sugar are put in water in a beaker. Sugar dissolves and mixture is passed through strainer and separated and dried. Sugar is obtained by evaporating sugar solution.
(f) SUBLIMATION : Camphor sublimes on heating leaving behind sand.
(g) CRYSTALLISATION : Pure sugar is obtained from its solution in water by the process of crystallisation. At first the sugar solution is heated to evaporate Water at a faster speed. When very less of water is left the solution is cooled. On cooling sugar dissolved in it starts separating out in the form of crystals.

Question 5.
Name:

(a) two substances which can sublime
(b) two substances soluble in water
(c) two substances insoluble in water
(d) four substances that can be used as filters.

Answer:

(a) Camphor and Naphthalene
(b) Sugar and salt (NaCl)
(c) Sand and chalk powder.
(d) (i) Filter paper, **(ii)** A bead of sand, **(iii)** Charcoal, **(iv)** A piece of muslin cloth.

Question 6.
Give reasons:

(a) Sand and saw dust cannot be separated by hand picking.
(b) Magnet is used to separate a mixture of iron and sulphur.
(c) Alum is used in purification of river water.

Answer:

(a) Because in hand picking method substances should be large enough in size to be recognized and picked out by hand but sand and saw dust particles are very small in size so they can't be picked by hand. It can be separated by filtration.
(b) Mixtures of iron and sulphur can be separated by moving a magnet over them. Iron gets attached to the magnet is separated.
(c) Water from a river, pond or lake contains very fine clay particles. To make them settle at a faster rate, a chemical substance called alum in powdered form is added to such mixtures. It dissolves in water and forms clusters with clay and dust particles making them heavier and increasing the rate of sedimentation.

OBJECTIVE TYPE QUESTIONS

1. Fill in the blanks

(a) The substances that make a mixture are called its **constituents** or **components.**
(b) Evaporation or **crystallisation** is a process to separate solids dissolved in liquids.
(c) Mist is a **heterogeneous (liquid in gas)** mixture of droplets of water and air.
(d) Clay is separated from water by the method of **loading and decantation.**
(e) When cereals are washed before cooking, water is separated from the cereals by **decantation.**
(f) Crystallisation is a process to obtain a very pure form of a solid dissolved in a liquid.
(g) Ammonium chloride can be separated from common salt by the method of **sublimation.**
(h) The solid particles which remain on the filter paper are called **residue** and the liquid which passes through it is called **filtrate.**
(i) The process of transferring the clear liquid layer above the solid particles which settle at the bottom of the container is known as **decantation.**
(j) Filtration is a method used for the separation of an insoluble solid from a solid-liquid mixture.

2. Write "true" or "false" for the following statements

(a) A pure substance consists of only one kind of atom or molecule.
Answer. True

(b) Common salt is separated from its solution in water by decantation.
Answer. False
Correct : Common salt is separated from its solution in water by evaporation.

(c) Winnowing is a process to remove small stones from grains.
Answer. False
Correct : Winnowing is a process to remove husk from grains.

(d) Jewellery gold is a homogeneous mixture of metals.
Answer. False
Correct : Jewellery gold is a heterogeneous mixture of metals.

(e) Air can be separated from water by filtration.
Answer. False
Correct : Air can be separated from water by heating.

(f) Salt and air dissolved in water add taste to water.
Answer. True

(g) Steel is an alloy of iron and aluminium.
Answer. False
Correct: Steel is an alloy of iron and carbon.

MULTIPLE CHOICE QUESTIONS

Tick (√) the correct alternative from the choice given for the following statements:

1. The process of adding a chemical substance to help the suspended solid particles to deposit as sediment fastly is called

1. **loading**
2. sedimentation
3. decantation
4. filtration

2. Salt is separated from sea water by

1. **evaporation**
2. sublimation
3. crystallisation
4. filtration

3. A mixture of mustard oil and water forms

1. a compound
2. a homogeneous mixture
3. an alloy
4. **a heterogeneous mixture**

4. A heterogeneous mixture is

1. made up of only one kind of atom
2. made up of only one kind of molecule
3. made up of different kinds of atoms and molecules.
4. **that looks uniform**

5. Example of a homogeneous mixture is

1. distilled water
2. **tap water**
3. sand and water
4. sawdust and water

6. A set of mixture is

1. gold, common salt, water, alloy
2. **alloy, ink, honey, ice cream**
3. alloy, mercury, air, sea water
4. milk, duralumin, brass, silver

7. A gas dissolved in a liquid can be separated by :

1. filtration
2. **boiling**
3. using magnet
4. by crystallisation

8. Copper is not a part of the alloy :

1. brass
2. bronze
3. **steel**
4. duralumin

9. Which is not a mixture?

1. sugar solution
2. tap water
3. milk
4. **distilled water**

10. Give one word name for the following

(a) The solid which is left on the filter paper after filtration **residue.**
(b) The solid particles which separate out from the solution on slow evaporation **crystals.**
(c) The solid particles that settles at the bottom of the beaker in a heterogeneous mixture of a solid and a liquid **decantation.**
(d) The clean liquid which is poured out after sedimentation **supernatant liquid.**
(e) The technique used to separate the light particles from heavy particles using the flow of wind **winnowing.**

ADDITIONAL QUESTIONS FOR PRACTICE

Exercise

Question 1.
Explain the term mixtures. Give an example of mixtures of –

(a) two elements
(b) two compounds
(c) elements and compounds.

Answer:
Mixture : A mixture is an impure substance made up of two or more elements or compounds mechanically mixed together in any proportion.

Examples

(a) **Of two elements**

Element	+	Element	⟶	Mixture
Iron		Sulphur		Iron + Sulphur

(b) ***Example***

Of two compounds

Compound	+	Compound	⟶	Mixture
Potassium chloride		Water		Potassium chloride solution

(c) **Of elements and compounds**

Element	+	Element	+	Compound	⟶	Mixture
Sulphur		Carbon		Potassium nitrate		Gun powder

Question 2.

Differentiate between homogeneous and heterogeneous mixtures with suitable examples.

Answer:

The main characteristics of mixture (Iron + Sulphur) are :

Question 3.

With reference to the mixture of iron and sulphur, state the main characteristics of mixture.

Answer:

The main characteristics of mixture (Iron + Sulphur) are :

1. The mixture of iron and sulphur may contain iron and sulphur in varying proportions.
2. The original properties of each element are retained in the mixture of iron and sulphur.
3. Mixture of the two elements iron and sulphur can be separated by i.e. a physical method, i.e. by using a magnet since iron is attracted to the magnet.

Question 4.
Tabulate a comparative chart – to differentiate between elements, compounds and mixtures. Differentiate them with reference to

(a) the term
(b) existence
(c) properties
(d) separation of components.

Answer:

(a) Term —
Elements – Pure substance made up of one kind of atoms only. e.g. Iron [Fe], Sulphur [S]
Compounds – Pure substance made up of two or more different elements, e.g. Iron sulphide [FeS]
Mixtures – Impure substance made up of two or more elements or compounds, e.g. Iron and sulphur mixture.
(b) Existence —
Elements – Elements i.e. atoms are present on their own. e.g. Iron and sulphur exist on their own as elements iron and sulphur.
Compounds – Components in a compound present in a definite proportion. e.g. Iron and sulphur are chemically combined in a fixed ratio in iron sulphide.
Mixtures – Components in a mixture present in any proportion. e.g. Iron and sulphur are mixed in any ratio in the mixture of iron and sulphur.
(c) Properties —
Elements – Elements have a definite set of properties. Elements classified into metal and non-metals each with its own properties.
Compounds – Compounds have a definite set of properties. Elements of a compound do not retain their original properties.
Mixtures – Mixture not have a definite set of properties. Components of a mixture do retain their original properties.
(iv) Separation of compound —
Elements – Elements occur on their own or as compounds and can be separated by chemical and physical methods. Example : Iron, copper.
Compounds – Elements in a compound are chemically combined and can be separated by chemical methods only. Example : Iron Sulphide, copper oxide.
Mixtures – Components in a mixture can be separated by physical methods only. Example : Iron + sulphur

Question 5.
State the principle involved in separation of solid-solid mixtures by –

(a) sieving
(b) magnetic separation
(c) sublimation.

Answer:

(a) Sieving
Principle — Based on the difference in size of the solid particles.
Examples — Mixture of Rice powder and soil, mixture of different sized particles of diamond and of sand.
(b) Magnetic separation
Principle — One component of the mixture is a magnetic substance.
Example — Mixture of iron ore and sand, Mixture of cobalt and lead.
(c) Sublimation
Principle — One of the components sublimes on heating.
Example — Mixture of iodine and salt, Mixture of ammounium chloride and sand.

Question 6.
State the principle involved in separation of solid-liquid mixtures by –

(a) sedimentation and decantation
(b) filtration
(c) evaporation

Answer:

(a) Sedimentation and decantation —
Principle — The solid component is insoluble and heavier than the liquid component.
Example — Mixture of sand and water
(b) Filtration —
Principle — Seperation of insoluble solid component by passing through a porous material like filter paper.
Example — Mixture of chalk and water, Mixture of Agcl and Water.
(c) Evaporation —
Principle — Seperation of the mixture by evaporating the liquid component. The solid should be soluble in the liquid and should not sublime.

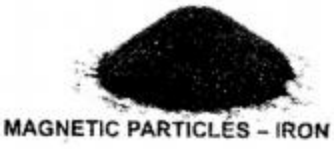
Question 7.
Explain the term 'sieving'. State the structure of a sieve and explain the separation of different sized particles by sieving.
Answer:
Sieving — is a method of separation, which is used for separating substances of different sizes that cannot be separated in hand picking.
Principle — Based on the difference in size of the solid particles.

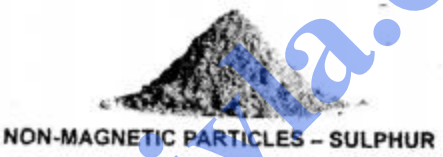

LARGE SIZED PARTICLES


SMALL SIZED PARTICLES

Technique of Separation — The large sized particles are separated from the small or finer particles by passing the mixture through a sieve.
The sieve has a wooden frame, with a metal mesh at its base.
The mixture is added from the top of the sieve, when the larger particles stay above and the finer particles collect below it on shaking the sieve.
Examples — Separation of rice powder from soil, seperation of different sized particles of diamond and of sand.

Question 8.
State what is meant by 'magnetic separation of two mixtures'. Explain how iron particles can be separated from sulphur particles.
Answer:
Magnetism is ideal for separating mixtures of two solids with one part having magnetic properties. Some metals like iron, nickel and cobalt have magnetic properties whiles gold, silver and aluminum do not. Magnetic elements are attracted to a magnet.
Principle — Based on the difference in magnetic and non-magnetic nature of particles.


MAGNETIC PARTICLES – IRON


NON-MAGNETIC PARTICLES – SULPHUR

Technique of Separation — The magnetic particles such as iron are separated from the non-magnetic particles such as sulphur – by utilizing the magnetic properties of iron. The iron gets attracted to the magnet and seperates from the non-magnetic substance.

Question 9.
Give a reason why sublimable and non-sublimable substances can be separated easily, but two sublimable substance cannot.
Answer:
While seperating the mixture sublimable and non- sublimable substances, sublimable substance turns directly into vapour on heating whereas non-sublimable solid remains behind. Since, if we try to seperate the mixture of two sublimable substances, then both the sublimable substances turns into vapour on heating and vapour on cooling give back the pure same solid.

Question 10.
Explain the technique for separating – insoluble solid particles in a solid-liquid mixture.
Answer:
The insoluble solid particles in a solid-liquid mixture can be seperated by filtration.
Technique of Seperation — A filter paper is made into a cone & placed in a funnel. The solid particles remain behind on the filter paper while the liquid collects below.

Question 11.
Differentiate between the terms sedimentation and decantation with a suitable experimental technique.
Answer:
Sedimentation and decantation are two very different terms. Sedimentation is defined as the process of settling down of the heavier components present in a mixture.
For example : When the mixture of sand in water is allowed to stand undisturbed for some time, it is observed that sand settles at the bottom.
Decantation is defined as the process of separating the Liquid portion of a mixture when the heavier component settles at the bottom as sediments.
In other words, it is the process of transferring a liquid from one container to another without disturbing the sediments that are present at its bottom.
For example : When a mixture of sand and water is allowed to stand, sand settles at the bottom of a container since it is heavier. Water is present in the upper portion of the container. This can be separated from sand settled at the bottom simply by pouring in a different container without using any other separating device. This is known as decantation.

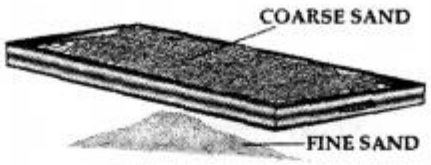
Question 12.
Explain how a solid component is separated in a soluble solid-liquid mixture.
Answer:
A Solid component is separated in a soluble solid-liquid mixture by evaporation.
Principle — Seperation of the mixture by evaporating the liquid component. The solid should be soluble in the liquid and should not sublime.
Technique of Separation : The soluble solid can be seperated from its liquid component by allowing the liquid component to evaporate either on its own or by heating. During evaporation, the liquid component is lost to the atmosphere & the solid remains behind.
Example : Evaporation of a common salt solution or sea water leaves behind common salt.
Common salt remains behind whereas water lost to the atmoshphere.

Question 13.
Draw a neat labelled diagram for separation of the following mixtures.

(a) Coarse sand from fine sand
(b) A magnetic particle from a non-magnetic particle
(c) Naphthalene from sodium chloride
(d) Chalk and water using a filter paper
(e) Sand and water w ithout using a filter paper
(f) Common salt from a solution of common salt and water

Answer:

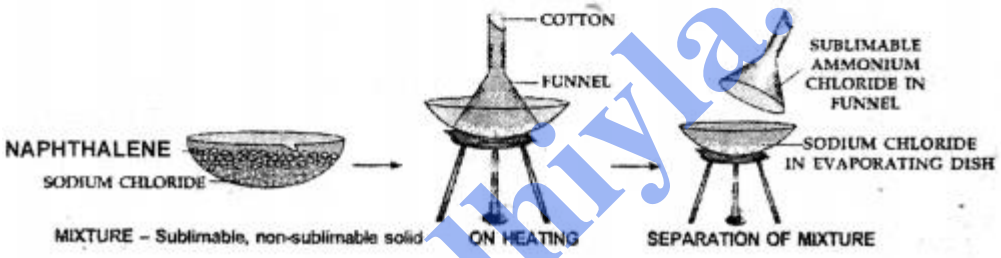
(a) **Coarse sand from fine sand**



Separation of particles of sand, Coarse sand stays above and fine sand below.

(b) **A magnetic particle from a non-magnetic particle**

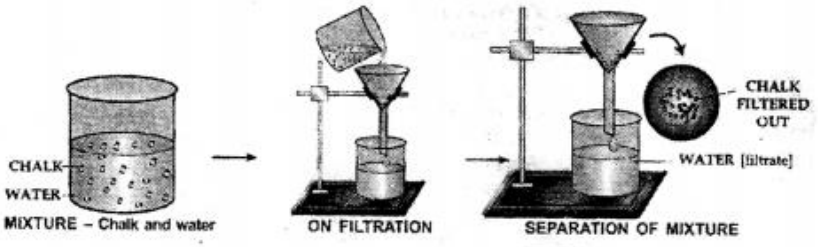
(c) **Naphthalene from sodium chloride**



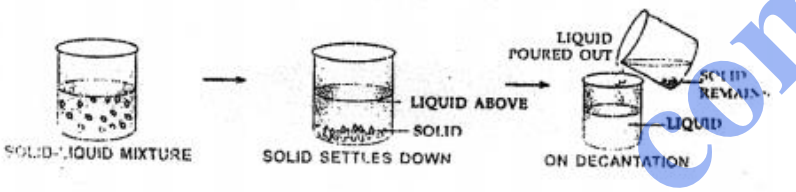
(d) **Chalk and water using a filter paper**

Filtration of chalk particles in water.

Filtered out solid chalk particles.



(e) **Sand and water without using a filter paper**



(f) **Common salt from a solution of common salt and water**

Common salt remains behind.

Question 14.

State the technique involved in separating the following:

(a) Iodine crystals and potassium chloride
(b) Iron and chalk powder
(c) Potassium chloride from an aqueous solution of potassium chloride.
(d) Rice powder from soil particles
(e) Iron filings from pieces of copper wire
(f) Large diamonds from very small diamonds

Answer:

(a) Sublimation
(b) Magnetic separation
(c) Evaporation
(d) Seiving
(e) Magnetic separation
(f) Seiving

Objective Type Questions

Q.1 Match the statements in List I with the correct answer in List II.

1. Purification of water by adding alum A: Sublimation
2. Sea water leaving behind common salt B : Sieving
3. Separation of camphor and potassium C : Filtration chloride
4. Separation of charcoal from a D: Sedimentation charcoal-water mixture
5. Separation of bran and wheat flour E : Evaporation

Answer:

1. Purification of water by adding alum D : Sedimentation
2. Sea water leaving behind common salt E: Evaporation
3. Separation of camphor and potassium A: Sublimation chloride
4. Separation of charcoal from a charcoal-water mixture C : Filtration
5. Separation of bran and wheat flour B : Sieving

Q.2 State whether the following statements are true or false. If false write – the correct statement.

1. Components in a mixture are present in a definite proportion.
Answer. False.
Correct — Components in a mixture are present in a varying proportion.

2. Mixture have no definite set of properties.
Answer. True.

3. Components in a mixture can be separated by physical and chemical methods.
Answer. False.
Correct — Components in a mixture can be separated by physical methods.

4. Sodium chloride and water is an example of a mixture of elements and compounds.
Answer. False.
Correct — Sodium chloride and water is an example of a mixture of compounds.

5. Heterogeneous mixtures have different composition and properties throughout the mixture.
Answer. True.

Q.3. Name the following

Question 1.
A black non-metallic component of the mixture gunpowder.
Answer:
Carbon.

Question 2.
A physical method of separating iron from an iron- sulphur mixture.
Answer:
Magnetic separation.

Question 3.
The component of the soluble solid-liquid mixture, which is lost to the atmosphere on heating.
Answer:
Liquid component i.e. water.

Question 4.
The component of a naphthalene-sodium chloride mixture, which remains in the evaporating dish when heated together, covered with a funnel.
Answer:
Sodium chloride.

Question 5.
A mixture of two immiscible liquids.
Answer:
Kerosene oil and water.

Q.4. Give reasons for the following :

Question 1.
Naphthalene and camphor cannot be separated by sublimation.
Answer:
Because both of these are sublimable solids and they sublimes on heating.

Question 2.
Sodium chloride cannot be separated out from its aqueous solution by filtration.
Answer:
Filtration is a method that is used to separate insoluble solids from liquids, since both salt dissolve in water.

Question 3.
Two varieties of wheat flour cannot be separated by sieving.
Answer:
Since in sieving we can separate larger particle but in this case both particles are finer in nature.

Question 4.
Sulphur and charcoal powder cannot be separated by magnetic separation.
Answer:
Because both are non-magnetic particles.

Question 5.
Both components of a soluble solid-liquid mixture cannot be recovered by evaporation.
Answer:
Because liquid is lost/evaporated in atmosphere.