International Indian School Buraidah

Worksheet of the Year 2026-27

Class-9th Subject – Chemistry

Chapter # 5 Exploring Mixtures and their separation

Q-A Multiple Choice Questions (MCQs)

1. Which of the following is a homogeneous mixture?

a) Soil

b) Smoke

c) Air

d) Sand and iron filings

Answer: c) Air

2. A saturated solution is one that:

a) Contains minimum solute

b) Has been heated above its boiling point

c) Contains maximum possible solute at a given temperature

d) Has been filtered completely

Answer: c) Contains maximum possible solute at a given temperature

3. Which method is used to separate cream from milk?

a) Filtration

b) Evaporation

c) Centrifugation

d) Sublimation

Answer: c) Centrifugation

4. The scattering of light by colloidal particles is called:

a) Sublimation

b) Tyndall Effect

c) Crystallization

d) Centrifugation

Answer: b) Tyndall Effect

5. Which of the following is not a property of a true solution?

a) Stable, particles do not settle

b) Homogeneous

c) Shows Tyndall Effect

d) Particle size

Answer: c) Shows Tyndall Effect

6. Which technique is best for separating a mixture of two miscible liquids whose boiling points differ by less than?

a) Simple distillation

b) Fractional distillation

c) Centrifugation

d) Sublimation

Answer: b) Fractional distillation

7. Which of the following is a compound?

a) Air

b) Brass

c) Water

d) Salt solution

Answer: c) Water

8. Making paneer from milk is an example of:

a) Distillation

b) Coagulation

c) Crystallization

d) Sublimation

Answer: b) Coagulation

9. Which substance sublimes on heating?

a) Salt

b) Sugar

c) Ammonium chloride

d) Sand

Answer: c) Ammonium chloride

10. The process where solids directs change into vapour with facing liquid.

a. Evaporation

b. Condensation

c. Precipitation

d. Sublimation

Ans-d Sublimation

Q-B Directions:

- **(a) Both A and R are true, and R is the correct explanation of A.**
- **(b) Both A and R are true, but R is not the correct explanation of A.**
- **(c) A is true, but R is false.**
- **(d) A is false, but R is true.**

1. Alloys and Mixtures

Assertion (A): Brass is considered a mixture, even though its components cannot be separated by physical methods like filtration.

Reason (R): Brass shows the properties of its constituents (Copper and Zinc) and can have a variable composition.

Answer: (a) > *Explanation:* Alloys are classified as solid solutions (homogeneous mixtures) because they retain the properties of their metals and their proportions can vary slightly, even if they require melting to be separated.

2. Colloids and Visibility

Assertion (A): The particles of a colloid can be seen easily with the naked eye.

Reason (R): Colloidal particles are large enough to scatter a beam of light passing through them.

Answer: (d) > *Explanation:* The Assertion is false because colloidal particles are too small to be seen individually by the naked eye (1 to 100 nm). However, they *are* large enough to scatter light (Tyndall Effect).

3. Separation Techniques

Assertion (A): A mixture of acetone and water can be separated by simple distillation.

Reason (R): Acetone and water are miscible liquids that have a significant difference in their boiling points (more than 25 K).

Answer: (a) > *Explanation:* Simple distillation works effectively when the boiling point gap is large enough to allow one liquid to vaporize and condense while the other remains behind.

4. Suspensions

Assertion (A): A suspension is a stable mixture.

Reason (R): The particles of a suspension settle down when left undisturbed for some time.

Answer: (d) > *Explanation:* The Assertion is false. Suspensions are unstable because gravity causes the large particles to settle over time.

5. Solubility and Temperature

Assertion (A): A saturated solution becomes unsaturated upon heating.

Reason (R): The solubility of most solid solutes in water increases with an increase in temperature.

Answer: (a) > *Explanation:* Heating provides more kinetic energy, allowing the solvent to hold more solute, thereby making a previously "full" (saturated) solution capable of dissolving more.

6.Centrifugation

Assertion (A): Centrifugation is used in diagnostic laboratories for blood and urine tests.

Reason (R): In a centrifuge, the denser particles are forced to the bottom and the lighter particles stay at the top when spun rapidly.

Answer: (a) > *Explanation:* This technique relies on density. In blood tests, it separates the heavier blood cells from the lighter plasma.

7. Fractional Distillation

Assertion (A): Air can be separated into its various components (Oxygen, Nitrogen, Argon) by fractional distillation.

Reason (R): The different gases in air have different boiling points.
Ans a

8.Chromatography

Assertion (A): Chromatography is used to separate a mixture of dyes in black ink.

Reason (R): The components of the ink have different solubilities in the same solvent and rise at different rates.

Answer: (a) > *Explanation:* As the solvent (water) moves up the paper, the dye that is more soluble rises faster, creating distinct colored spots.

9. Sublimation

Assertion (A): A mixture of Common Salt and Ammonium Chloride can be separated by filtration.

Reason (R): Ammonium Chloride is a sublimable substance, while Common Salt is not.

Answer: (d) > *Explanation:* The Assertion is false because filtration cannot separate two solids mixed together. However, the Reason is true; you must use sublimation to separate them.

10. Separation of Immiscible Liquids

Assertion (A): A separating funnel is used to separate a mixture of water and kerosene oil.

Reason (R): Immiscible liquids separate out in layers depending on their densities.
Ans-a

11.Crystallization

Assertion (A): Crystallization is considered a better technique than simple evaporation for purifying solids.

Reason (R): Some solids decompose or get charred on heating to dryness during evaporation.

Answer: (a) > *Explanation:* Crystallization ensures that impurities remain dissolved in the solvent, whereas evaporation leaves all impurities behind with the solid