



***Choose the right Answer from the given options.(A)**

(5)

1. Which of the following takes place only in chemical change?

(A) Change in shape. (B) Absorption of heat. (C) Increase in volume.(D) Formation of a new substance.

Ans (D)

2. Two chemical species X and Y combine together to form a product P which contains both X and Y, $X+Y \rightarrow P$, X and Y cannot be broken down into simpler substances by simple chemical reactions. Which of the following concerning the species X, Y and P are correct?

(i) P is a compound (ii) X and Y are compounds (iii) X and Y are elements (iv) P has a fixed composition

(A) (i), (ii) and (iii) (B) (i), (ii) and (iv) (C) (ii), (iii) and (iv) (D) (i), (iii) and (iv)

Ans. (D)

3. What is the name of the metal which exists in liquid state at room temperature?

(a) Sodium (b) Potassium (c) Mercury (d) Bromine

Ans. (C)

4. When the liquid is spun rapidly, the denser particles are forced to the bottom and the lighter particles stay at the top. This principle is used in:

(a) Centrifugation (b) Fractional distillation (c) Evaporation (d) Tunneling

Ans. (A)

5. What is the name of the metal which exists in liquid state at room temperature?

(a) Mercury (b) Bromine (c) Sodium (d) Potassium

Ans. (A)

(MCQ) (B) Assertion-Reason Questions

(3)

Direction: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

(A) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(B) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A)

(C) Assertion (A) is true but reason (R) is false. (D) Assertion (A) is false but reason (R) is true.

1. Assertion (A): Elements and compounds are pure substances.

Reason (R): Properties of compounds are different from those of its constituent elements.

Ans. (B)

2. Assertion (A): Alloys are a homogeneous mixture of metals.

Reason (R): Alloys cannot be separated into their components by physical methods.

Ans. (A)

3. Assertion: A solution can scatter a beam of light passing through it.

Reason: The particles of solution are smaller than 1 nm in diameter.

Ans. (D)

Short Question..

(12)

Q1. List any two characteristics of colloid.

Ans. It is a heterogeneous mixture.

(ii) Particle of colloids scatter a beam of light (Tyndall effect)

Q2. Classify the following as a chemical or physical change. (i) Water boils to form steam (ii) Burning of paper

ANS (i) Boiling of water to form steam is the change of water from liquid to gaseous state. This is a physical change.

(ii) Burning of paper is the chemical change because when paper burns it forms new substances like ash, carbon dioxide and

water vapours.

Q3. Write any two differences between physical and chemical changes.

ANS. Difference between physical and chemical changes:

Physical changes: (i) These are reversible changes and their chemical composition does not change.

(ii) No new substance is formed, e.g., tearing of paper.

chemical changes: (i) These are irreversible changes and the chemical composition also changes.

(ii) New substance is formed, e.g., burning a matchstick.

Q4. Name the only liquid metal and the only liquid non metal. Mention two gaseous non metals.

ANS. Mercury is the only liquid metal and bromine is the only liquid non-metal. Two gaseous non-metals are hydrogen and nitrogen.

Q5. What is meant by a pure substance ?

Ans. a type of matter with a uniform and definite composition, consisting of only one type of particle (atoms or molecules)

Q6. How would you confirm that a colourless liquid given to you is pure water?

ANS. By finding the boiling point of a given colourless liquid. If the liquid boils at 100°C at atmospheric pressure, then it is pure water. This is because pure substances have fixed melting and boiling points.

Long Question.

Q1.(a) State two ways by which you can change a saturated solution to an unsaturated solution.

(b) Distinguish between homogeneous and heterogeneous mixtures by giving one example of each. (3)

Ans.(a) Changing a saturated solution to an unsaturated solution:

1. Increasing the temperature:

When a saturated solution is heated, the solubility of the solute generally increases, allowing more solute to dissolve and making the solution unsaturated.

2. Adding more solvent (dilution):

Adding more solvent to a saturated solution reduces the concentration of the solute, effectively making it unsaturated.

(b) Distinguishing between homogeneous and heterogeneous mixtures:

1. Homogeneous mixture:

In a homogeneous mixture, the components are evenly distributed throughout the mixture, and the composition is uniform. You cannot distinguish the different components by the naked eye or under a microscope.

Example: Saltwater is a homogeneous mixture. When salt dissolves in water, it disperses evenly, and you cannot see the individual salt particles.

2. Heterogeneous mixture:

In a heterogeneous mixture, the components are not evenly distributed, and the composition is not uniform. You can often distinguish the different components with the naked eye or under a microscope.

Example: Sand and water is a heterogeneous mixture. The sand particles settle at the bottom and are easily distinguishable from the water.

Q2. You are provided with a mixture containing sand, iron filings, ammonium chloride and sodium chloride. Describe the procedures you would use to separate these constituents from the mixture (3)

Ans. To separate the mixture of sand, iron filings, ammonium chloride, and sodium chloride, you can use a combination of magnetic separation, sublimation, dissolution, and filtration. First, use a magnet to remove the iron filings. Then, use sublimation to separate the ammonium chloride. Finally, dissolve the remaining mixture in water and use filtration to separate the sand, followed by evaporation to recover the sodium chloride.

1. Magnetic Separation: Use a magnet to attract and remove the iron filings from the mixture. The filings will stick to the magnet, separating them from the other components.

2. Sublimation: Transfer the remaining mixture (sand, ammonium chloride, and sodium chloride) to a suitable container. Heat the mixture gently. Ammonium chloride will sublime (transform directly from solid to gas) and can be collected on a cool surface as it condenses back into a solid.

3. Dissolution and Filtration: Add water to the mixture remaining after sublimation (sand and sodium chloride). Sodium

chloride will dissolve in the water, while the sand will not. Filter the mixture through filter paper to separate the sand, which will remain on the filter paper as residue.

4. Evaporation: Evaporate the filtrate (the liquid that passed through the filter paper, containing sodium chloride) to obtain the sodium chloride crystals.

Q3. Classify each of the following as a physical or a chemical change. Give reasons.

(4)

(a) Drying a shirt in the sun. (b) Rising of hot air over a radiator. (c) Burning of kerosene in a lantern.

(d) Change the colour of black tea by adding lemon juice to it. (e) Churning of milk cream to get butter.

Ans. (a) Drying a shirt in the sun: Physical change. Because only the water evaporates, the composition of the shirt fabric remains the same.

(b) Rising of hot air over a radiator: Physical change. The air expands and rises due to temperature increase, but its chemical composition stays the same.

(c) Burning of kerosene in a lantern: Chemical change. Kerosene reacts with oxygen to produce new substances like carbon dioxide and water vapor.

(d) Change the color of black tea by adding lemon juice to it: Chemical change. The lemon juice reacts with the tea pigments, causing a color change, indicating a new chemical reaction.

(e) Churning of milk cream to get butter: Physical change. The process separates the fat from the liquid, but no new chemical substances are formed.

