



IN-TEXT QUESTIONS SOLVED

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Question 1. What is meant by a substance?

Answer: A pure substance consists of a single type of particles.

Question 2. List the points of differences between homogeneous and heterogeneous mixtures.

Answer:

Homogeneous mixtures	Heterogeneous mixtures
<ul style="list-style-type: none"> It has uniform composition. No visible boundaries of separation. They consist of only one phase. <p>Example: sugar + water → sugar solution.</p>	<p>It does not have a uniform composition.</p> <p>Shows visible boundaries of separation.</p> <p>They consist of more than one phase.</p> <p>Example: sugar + sand</p>

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Question 1. Differentiate between homogeneous and heterogeneous mixtures with examples.

Answer:

Homogeneous mixtures	Heterogeneous mixtures
<ul style="list-style-type: none"> It has uniform composition. No visible boundaries of separation. They consist of only one phase. <p>Example: sugar + water → sugar solution.</p>	<p>It does not have a uniform composition.</p> <p>Shows visible boundaries of separation.</p> <p>They consist of more than one phase.</p> <p>Example: sugar + sand</p>

Question 2. How are sol, solution and suspension different from each other?

Answer:

Sol. (colloid)	Solution	Suspension
<ol style="list-style-type: none"> Size of solute particles between 1 nm to 100 nm. It is stable. It scatters a beam of light. Solute particles pass through filter paper. 	<p>Size of solute particles less than 1 nm (10^{-9} m)</p> <p>Stable.</p> <p>It does not scatter light.</p> <p>Solute particles pass through filter paper.</p>	<p>Size of solute particles is more than 100 nm.</p> <p>Unstable.</p> <p>It scatters a beam of light.</p> <p>Solute particles do not pass through filter paper.</p>

Question 3. To make a saturated solution, 36 g of sodium chloride is dissolved in 100 g of water at 293 K. Find its concentration at this temperature.

Answer:

Mass of solute (sodium chloride) = 36 g

Mass of solvent (water) = 100 g

Mass of solution = Mass of solute + Mass of solvent

= 36 g + 100 g = 136 g

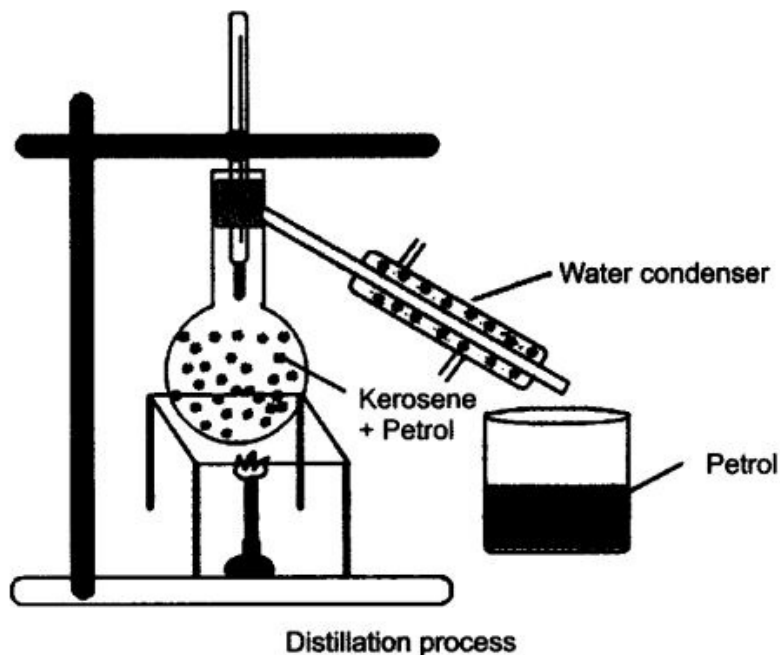
$$\begin{aligned}
 \text{Concentration} &= \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100 \\
 &= \frac{36}{136} \times 100 = 26.47\%
 \end{aligned}$$

Question 1. How will you separate a mixture containing kerosene and petrol (difference in their boiling points is more than 25°C), which are miscible with each other?

Answer: A mixture of kerosene and petrol which are miscible with each other can be separated by distillation.

Method

- Take a mixture in a distillation flask.
- Fit it with a thermometer.
- Arrange the apparatus as shown in the figure.
- Heat the mixture slowly.
- Petrol vaporises first as it has lower boiling point. It condenses in the condenser and is collected from the condenser outlet.
- Kerosene is left behind in the distillation flask.



Question 2. Name the technique to separate

- (i) butter from curd,
- (ii) salt from sea-water,
- (iii) camphor from salt.

Answer:

- (i) Centrifugation,
- (ii) Evaporation,
- (iii) Sublimation.

Question 3. What type of mixtures are separated by the technique of crystallisation?

Answer: Crystallisation technique is used to purify solid with some impurities in it. Example: Salt from sea-water.

Question 1. Classify the following as chemical or physical changes:

- cutting of trees,
- melting of butter in a pan,
- rusting of almirah,
- boiling of water to form steam,
- passing of electric current, through water and the water breaking down into hydrogen and oxygen gas,
- dissolving common salt in water,
- making a fruit salad with raw fruits and
- burning of paper and wood.

Answer:

Physical Change

- cutting of trees
- melting of butter in a pan
- boiling of water to form steam
- dissolving common salt in water
- making a fruit salad with raw fruits

Chemical Change

- rusting of almirah
- passing of electric current through water and then breaking down into hydrogen and oxygen gas
- burning of paper and wood

Question 2. Try segregating the things around you as pure substances or mixtures

Answer: Pure substances—Water, bread, sugar and gold.

Mixtures—Steel, plastic, paper, talc, milk and air.

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