

## Class 9 Is matter around us pure- Solved Test paper -04

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### Question for Board Exam

Q.1. Name the process by which components colloidal solution separated?

Ans: Centrifugation

Q. 2. Identify solute and solvent

Ans: Tincture of iodine: Iodine (solute) and Alcohol (solvent)

Aerated drink: CO<sub>2</sub> (solute) and Water (solvent)

Q.3. State the principal of each:

Ans: Separation using separating funnel: Immiscible liquids separates out in layer depending on their densities

Centrifugation: the denser particles are forced to the bottom and the lighter particles stay at the top when spun rapidly.

Distillation: Two miscible liquids that boil without decomposition and have sufficient difference in their boiling points.

Chromatography: solutes have difference in solubility that dissolve in the same solvent.

Q.4. Why does crystallisation technique is better than simple evaporation technique?

Ans: Crystallisation technique is better than simple evaporation technique as –

(i) some solids decompose or some, like sugar, may get charred on heating to dryness.

(ii) some impurities may remain dissolved in the solution even after filtration. On evaporation these contaminate the solid.

Q.5. Give reason for: Naphthalene balls disappear with time without leaving any solid residue.

Ans: Naphthalene balls changes directly from solid to gaseous state on heating.

Q.6. Give two reasons for supporting that water is a compound and not a mixture.

Ans: water is a compound as : Water has uniform composition of hydrogen and oxygen in 2:1. Hydrogen and oxygen cannot be separated by physical method.

Q.7. Give two reasons for supporting that air is a mixture.

Ans: air is a mixture as: Air has different composition of gases. its constituent gases can be separated by physical method.

Q.8. What is metalloid. Give two examples

Ans: Elements having properties of both metal and non metals are called metalloide eg. boron, silicon, germanium etc

9. How can you change a saturated solution to an unsaturated solution?

Ans : by changing temperature or by adding more solute

Q.10. Write two points of difference between simple distillation and fractional distillation. Write example where fractional distillation is used.

**Simple distillation**

It is used when the boiling points of component in a mixture having large differences (more than 25°C) in boiling point

No fractionating columns used

Example where fractional distillation is used are: Process used in separating kerosene and petrol and obtaining gases from air

**Fractional distillation**

It is used when the boiling points of component in a mixture less than 25 k boiling point

large Fractionating columns used

11. Study the diagram shown below and answer the following questions: (i) Name and define the process shown in the diagram. (ii) Which type of substance can be separated by this methods ? (iii) What can we interpret about the nature of ink ?

Ans: (i) Boiling.: process of converting liquid into vapour

(ii) Volatile solvent from non volatile solute

(iii) Ink is mixture of dye in water.

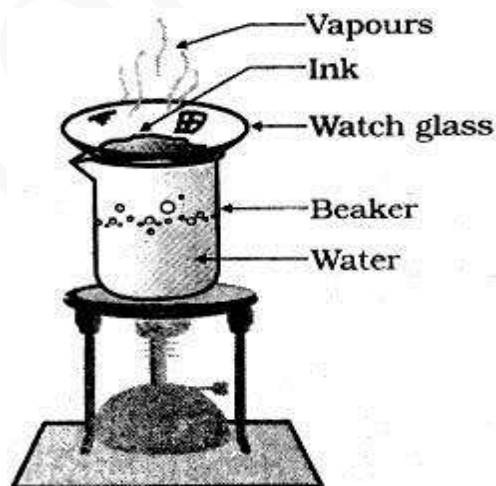
12. Describe the process of obtaining gases from air?

Ans: Steps:

The air is compressed by increasing the pressure and decreasing the temperature to get liquid air.

Liquid air is allowed to warm-up slowly in a fractional distillation column,

Different gases get separated at different heights depending upon their boiling points. Nitrogen , argon and oxygen respectively.



13. A simple fractionating column is provided with beads. Give reasons.

Ans: The beads provide surface for the vapours to cool and condense repeatedly.

14. How will you calculate the concentration in terms of (i) mass by volume percentage and (ii) mass by mass percentage of a solution ?

Ans: Concentration of a solution is the amount of solute present in a given amount of solution.

(i) Mass by mass percentage of a solution =  $[\text{Mass of solute} / \text{Mass of solution}] \times 100$

(ii) Mass by volume percentage of a solution =  $[\text{Mass of solute} / \text{Volume of solution}] \times 100$

15. Describe activity to separate the crystal of alum from its impure sample?

Ans: (a) Take some (approximately 5 g) impure sample of copper sulphate in a china dish. (b) Dissolve it in minimum amount of water. (c) Filter the impurities out. (d) Evaporate water from the alum solution so as to get a saturated solution. (e) Cover the solution with a filter paper and leave it undisturbed at room temperature to cool slowly for a day. (f) We will obtain the crystals of alum in the china dish.