

CHEMISTRY

BOOKS - BHARATI BHAWAN

CHEMISTRY (HINGLISH)

CLASSES OF MATTER

Numericals

1. 0.5 g of a substance is dissolved in 25 g of a solvent calculate the percentage amount of

the substance in the solution



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2. 20 cm^3 of an alcohol is dissolved in 80 cm^3 of water calculate the percentage of alcohol in the solution



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3. What is the volume percent of a solution prepared by dissolving 15 cm^3 of methanol in

100cm^3 of ethanol?



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4. Calculate the concentration of a solution in volume per cent made when 56 g water is mixed with 0.17 L of ethanol



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5. Calculate the concentration of a solution in volume per cent which contains 10 g of

potassium nitrate dissolved in 150 g of water



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6. A solution contains 40 g of common salt dissolved in 320g of water calculate the mass concentration of the solution



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7. A solution is made by dissolving 50 g of glucose in 250 g of water calculate the

concentration of the solution in mass percentage



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Pick The Correct Option

1. Which of the following represents an element ?

A. brass

B. stainless steel

C. arsenic

D. silica

Answer: C



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2. Which of the following represents a solid liquid mixture ?

A. a mixture of sugar and sand

B. air

C. air trapped in soil particles

D. a solution of common salt in water

Answer: D



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3. Which one of the following mixtures is a solution ?

A. soil

B. sea water

C. air

D. soda water

Answer: B



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4. Which of the following is expected to show tyndall effect ?

A. a solution of common salt

B. milk

C. a solution of sodium carbonate

D. starch solution

Answer: D



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5. Which of the following is a chemical change

?

A. mixing of iron filings and sand

B. freezing of water

C. passage of electricity through wires

D. fermentation of grapes

Answer: D



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6. Which of the following is an element ?

A. marble

B. graphite

C. washing soda

D. baking soda

Answer: B



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7. Which of the following is not an element ?

A. oxygen

B. bromine

C. Silica

D. zinc

Answer: C



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8. Which of the following is a compound ?

A. steel

B. brass

C. iron sulphide

D. iodine

Answer: C



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9. Among the following substance which one is a mixture ?

A. diamond

B. brass

C. sand

D. air

Answer: D



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Fill In The Blanks

1. An element has only one type of



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2. Diamond is an example of an



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3. Gunpowder is a



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4. fill in the following blanks :

(a) Milk is a Solution but vinegar is a Solution .

(b) A colloid is a mixture and its components can be separated by the technique known as



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5. Boron is a



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6. In an unsaturated solution more solute can be dissolved without increasing the amount of the



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7. A mixture of ammonia and water is a
.....



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8. The property which characterized a colloidal particle is its ability to scatter



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9. From a mixture of water and oil the constituents can be separated by using a



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10. From a mixture of sand and water constituents can be separated by



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11. The properties of a compound are different from those of its



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Mark The Statements True T Or False F

1. The constituents of a compound can be separated easily



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2. The composition of a mixture is always fixed



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3. Homogeneous mixture of two or more than two components is called



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4. Silicon is a metalloid



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5. Melting of ice is a chemical change



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6. State the kind of chemical reactions in the following examples :

(i) Digestion of food in stomach

(ii) Combustion of coal in air

(iii) Heating of limestone.



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7. The coloured components present in a dye can be separated by a process known as chromatography



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8. The particles of a colloid can pass through a filter paper



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9. The components of a solution can be separated by filtration



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Very Short Answer Question

1. Are metals elements ?



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2. What is a substance formed by the chemical combination of elements called ?



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3. What are the main constituents of air ?



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4. Why is a physical change a temporary one?



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5. Name the process by which the constituents of a solution of salt and water can be separated



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6. Name the constituents present in gunpowder



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7. Define solution



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8. Name the solute and solvent present in a solution of carbon dioxide in water



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9. Can the particles present in a suspension be seen ?



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10. What separation technique should be applied for the separation of iron filling mixed with sand ?



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11. Name three substances which can sublime



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12. Define immiscible liquids .Give an example



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Short Answer Question

1. Classify the following in to elements
compounds and mixtures



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2. What are physical changes and chemical changes



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3. Mention two differences between an element and a compound



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4. Why is it not possible to distinguish the particles of the solute from those of the solvent in a true solution



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5. Mention two characteristics of a mixture



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6. Distinguish between a solute and a solvent



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7. Sugar solution is given to you in two separate test tubes in one test tube the solution is saturated while in other it is unsaturated what test would you do to identify them ?



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8. What is a colloidal solution ?



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9. Give an example of each of the following
Emulsion Gel Aerosol and Foam



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10. Which of the following will show Tyndall effect?



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11. Classify the following into elements , compounds and mixtures:

Sodium , soil , sugar solution , Silver ,Calcium carbonate ,Tin , Silicon ,Coal ,Air, soap ,Methane ,Carbon dioxide ,blood



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Long Answer Question

1. Define element compound and mixture



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2. Give two differences between pure substances and mixture. Give one example of each.



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3. You are provided with a mixture of naphthalene and ammonium chloride by your teacher. Suggest an activity to separate them with well labelled diagram



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4. What would you observe when :

(a) A saturated solution of potassium nitrate prepared at $60^{\circ}C$ is allowed to cool to room temperature ?

(b) A mixture of iron filings and sulphur is heated strongly ?

(c) A colloidal solution of starch is passed through an ordinary filter paper ?



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5. Explain solute solvent and solution ?



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6. (a) Define solubility of a substance .How does it vary with temperature ?

(b) what do you understand by the statement " the solubility of copper sulphate in water at $20^{\circ} C$ is 20.7 g"?

(c) what is the effect of temperature on the solubilty of solids in liquids ?





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7. Give four differences between a solution a colloid and a suspension



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8. which are the properties of colloidal solution ?



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A Objective Questions I Match

1. Match the item in column A with their counterparts in column B.



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2. Match the mixture in column A with their separation techniques in column B.





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ii Fill In The Blanks

1. A salt dissolved in water can be recovered by a process known as



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2. Acetone present in water can be separated by



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3. Smoke and fog both are



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4. Fog is a dispersed in gas, whereas smoke is a dispersed in



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5. The components of a colloidal can be separated by



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6. Ice , water and vapour are the same .



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7. In a mixture of chloroform and water , chloroform forms the layers.



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8. A mixture of two miscible liquids whose boiling points differ by $10^{\circ}C$, can be separated by a technique known as



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9. The pigments of a flower can be separated by



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iii Write Yes Or No

1. Is wood a homogeneous material ?



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2. Is rusting of iron a physical change ?



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3. Do pure substances contain only one kind of particle ?



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4. Can cream be obtained from milk by centrifugation ?



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5. Scattering of light by milk is called electrophoretic effect . Is the statement correct ?



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6. (a) Under which category of mixtures will you classify alloys and why?

(b) A solution is always a liquid. Comment.

(c) Can a solution be heterogeneous?



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7. Does not a suspension show Tyndall effect ?



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iv Mark The Statements True T Or False F

1. Some metals can be hammered to form very thin sheets .



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2. Nonmetals are sonorous in nature .



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3. The element bromine is a solid at room temperature .



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4. Formation of a compound is always associated with energy changes .



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5. in a heterogeneous mixture , the constituents have no clear boundaries of separation.



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6. Alloys are regarded as solutions.



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7. Colloidal particles can pass through ordinary filter papers.



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8. A chemical change is reversible.



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9. Fresh air is a pure substance.



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10. Butter can be separated from curd by the process of centrifugation.



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V Multiple Choice Questions Pick The Correct Optios S

1. Which of the following is a (are) pure substances (s) ?

A. Sugar

B. Brass

C. Iodized salt

D. Sodium chloride

Answer: A::D



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2. Which of the following is a (are)
metalloid(s) ?

A. Copper

B. Arsenic

C. Iron

D. Boron

Answer: B::D



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3. Which of the following statements is (are) true ?

A. Ice is homogeneous in nature .

B. Soil is a homogeneous mixture .

C. Air is considered to be a homogeneous mixture .

D. Sea water is a homogeneous mixture of water and several other salts .

Answer: A::C



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4. Which of the following is not a compound ?

A. Dry ice

B. Potash

C. Iodine

D. Alumina

Answer: C



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5. Which of the following is a (are) chemical change(s) ?

A. Drawing a wire of copper

B. Burning of coal

C. Decaying of wood

D. Alloying gold

Answer: B::C



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6. Which of the following statements about the formation of a compound is (are) correct ?

A. A compound contains only one kind of element .

B. During the formation of a compound heat energy change may or may not occur .

C. A compound has a sharp melting point .

D. A compound is a homogeneous substance.

Answer: C::D



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7. Two substances A and B combine together to produce a new substance C. The properties of C do not tally with those of A and B. A and B cannot be separated into simpler substance by any chemical means . Which of the following

statements is (are) correct about the formation of C?

A. A and B are elements.

B. A and B are compounds.

C. C is a mixture of A and B.

D. A and B are present in C in a fixed ratio by mass.

Answer: A::D



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8. Light will get scattered when a beam light is allowed to pass through

- A. an aqueous solution of urea
- B. an aqueous solution of $CuSO_4$
- C. distilled water
- D. blood

Answer: D



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9. A student prepared a 2.5% (by mass) solution of glucose in water . Which of the following represents the correct composition of the solution ?

A. 2.5 g glucose + 100 g water

B. 2.5 g glucose + 98 g water

C. 2.5 g glucose + 97.5 g water

D. 2.5 g glucose + 90 g water

Answer: C



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B Very Short Answer Questions

1. Which one of the following substance is a solution ?

Gunpowder Milk Sand Brass



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2. Does an element contain atoms of the same kind ?



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3. Is a mixture of two immiscible liquids always heterogeneous ?



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4. What is a mixture of iodine and alcohol called ?



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5. Is a mixture of sulphur and carbon disulphide heterogeneous? Does it show Tyndall effect ?



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6. Give one example of water undergoing a physical change and one where it undergoes a chemical change .



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7. Some metal oxides dissolve in water to produce alkalis. Is the process a chemical change ?



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8. What is the process called when milk is churned to obtain cream from it ?



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9. A sample (A) of water boils at $100^{\circ}C$ whereas another same (B) of water boils at $101.2^{\circ}C$. Identify the sample which will not freeze at $0^{\circ}C$.



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10. A mixture of chloroform and water taken in a separating funnel gets separated into two layers. Which one of these two substances

is expected to occupy the upper layer and why ?



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11. What would be the nature of the mixture when sugar obtained from beetroot and that obtained from sugarcane are mixed together ?



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12. A sample of water mixed with a few drops of milk scatters light . What is the nature of the mixture ?



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13. How can you separate the particles of a solid present in a heap of rice ?



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14. Can sulphur present in ferrous sulphide dissolve in carbon disulphide ?



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C Short Answer Questions

1. Identify the physical changes and chemical changes in the following .

(i) Curdling of milk (ii) Sawing of wood

(iii) Melting of vegetable ghee (iv) Bending of an iron rod (v) Drying of a leaf



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2. Classify the following substances into elements , compounds and mixtures .

Zinc Diamond 22-carat gold

Steam Gunpowder Wood

Soil Petrol Water

Chalk Sand Chlorine

Helium



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3. Define (i) solute and (ii) solvent . Identify the solute and the solvent in an aqueous solution of sodium chloride .



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4. What do you expect to observe when milk is churned under a centrifuge ?



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5. Give the characteristics of a true solution .



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6. Name the proces that you would use to separate the components of the following mixtures .

(i) Oil and water

(ii) Sand and common salt

(iii) Sulphur and charcoal

(iv) Mercury and water





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7. Is a solution always a liquid ? Give reasons for your answer .



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8. A student was asked by his teacher to suggest a process for the separation of acetone and water from a mixture of the two. What should the student suggest ?



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9. Calculate the concentration in mass percentage of a solution which contains 25 g of urea in 200 g of water .



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10. Explain the following : (i) saturated solution , (ii) colloidal and (iii) pure substance .



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11. A colourless liquid is supplied to you . How will you identify that the liquid is pure water ?



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12. Classify the following into mixture and solution .

(i) Soda water (ii) Brass

(iii) Air (vi) Petrol

(v) Coal (vi) Paper



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13. How does a true solution differ from a colloidal one ?



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14. Which of the following are colloidal solutions ? (i) Aqueous solution of NaCl (ii) Milk (iii) Blood (iv) Starch solution (v) Sea water



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15. Describe the process for the separation of the components of a mixture of naphthalene and ammonium chloride .



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16. A solution contains two miscible liquids A and B. The boiling points of A and B are $40^{\circ}C$ and $80^{\circ}C$ respectively. Suggest a method to separate A and B.



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D Long Answer Questions

1. With the help of a flow diagram , describe an activity to separate the components of a mixture of charcoal powder, sulphur and potassium nitrate .



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2. Describe a separation technique used to separate the pigmentss of ink .



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3. Explain why particles of a colloidal solution do not settle down when left undisturbed, while in the case of a suspension they do?



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4. Explain why, water is a compound and not a mixture.



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5. Account for

Alcohol dissolved in water cannot be separated by using a separating funnel.



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6. Account for

All homogeneous mixtures are solutions .



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7. Account for

In a solution , the particles of the solute are not visible even under a powerful microscope .



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8. what is meant by the concentration of a solution ?



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9. A student was asked to prepare a 20% (volume by volume) solution of ethanol in water . How should the student do it ?



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10. Compare the characteristics of a true solution , suspension and colloid with regard to the following : stability , visibility , appearance , sedimentation , Brownian motion and Tyndall effect .





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11. Describe the main properties of mixtures by taking the example of a mixture of common salt and sand .



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12. What technique would you apply to separate the components of the following mixtures ?

(i) Oil+ water (ii) Aceton + water (iii)

Chloroform + water



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13. How would you separate nitrogen and oxygen from air ?



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14. Cross Puzzle

Solve the crossword puzzle as per the

guidelines given in the table below.



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