



CHEMISTRY

BOOKS - KUMAR PRAKASHAN KENDRA

CHEMISTRY (GUJRATI ENGLISH)

IS MATTER AROUND US PURE

Example

1. A solution contains 60 g of sugar in 340 g of water. Calculate the concentration in terms of

mass by mass percentage of the solution.



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2. 120 g of salt is present in 600 mL of solution. Calculate the concentration in terms of mass by volume percentage of the solution.



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Activity

1. Let us divide the class into groups A, B, C and D.

Group A takes a beaker containing 50 mL of water and one spatula full of copper sulphate powder.

Group B takes 50 mL of water and two spatula full of copper sulphate powder.

Groups C and D can take different amounts of copper sulphate and potassium permanganate or common salt (sodium chloride) and mix the given components to form a mixture.

Report the observations on the uniformity in colour and texture.



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2. Let us divide the class into groups A, B, C and D.

Group A takes a beaker containing 50 mL of water and one spatula full of copper sulphate powder.

Group B takes 50 mL of water and two spatula full of copper sulphate powder.

Groups C and D can take different amounts of copper sulphate and potassium permanganate or common salt (sodium chloride) and mix the given components to form a mixture.

Compare the colour of the solutions of the groups A and B.



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3. Distribute the following samples to groups A, B, C and D:

Few crystals of copper sulphate to group A.

One spatula full of copper sulphate to group

B.

Chalk powder or wheat flour to group C.

Few drops of milk or ink to group D.

Each group should add the given sample in water and stir properly using a glass rod. Are the particles in the mixture visible ?



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4. Distribute the following samples to groups

A, B, C and D:

Few crystals of copper sulphate to group A.

One spatula full of copper sulphate to group

B.

Chalk powder or wheat flour to group C.

Few drops of milk or ink to group D.

Direct a beam of light from a torch through

the beakers of each mixture and observe. Was

the path of the beam of light visible ?



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5. Distribute the following samples to groups

A, B, C and D:

Few crystals of copper sulphate to group A.

One spatula full of copper sulphate to group

B.

Chalk powder or wheat flour to group C.

Few drops of milk or ink to group D.

Leave the mixtures undisturbed for a few

minutes. Is the mixture stable or do the

particles begin to settle after some time ?



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6. Distribute the following samples to groups

A, B, C and D:

Few crystals of copper sulphate to group A.

One spatula full of copper sulphate to group

B.

Chalk powder or wheat flour to group C.

Few drops of milk or ink to group D.

Filter the mixture. Is there any residue on the

filter paper ?



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7. Take approximately 50 mL of water each in two separate beakers.

Add salt in one beaker and sugar or barium chloride in the second beaker with continuous stirring.

When no more solute can be dissolved, heat the contents of the beaker to raise the temperature by about $5^{\circ}C$.

Start adding the solute again.

Is the amount of salt and sugar or barium chloride, that can be dissolved in water at a given temperature, the same ?



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8. Fill half a beaker with water.

Put a watch glass on the mouth of the beaker

Put few drops of ink on the watch glass.

Now start heating the beaker. You will see that evaporation is taking place from the watch glass.

Continue heating as the evaporation goes on and stop heating when you do not see any further change on the watch glass.



What do you think has got evaporated from the watch glass?



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9. Fill half a beaker with water.

Put a watch glass on the mouth of the beaker

Put few drops of ink on the watch glass.

Now start heating the beaker. You will see that evaporation is taking place from the watch glass.

Continue heating as the evaporation goes on

and stop heating when you do not see any further change on the watch glass.



Is there a residue on the watch glass ?



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10. Fill half a beaker with water.

Put a watch glass on the mouth of the beaker

Put few drops of ink on the watch glass.

Now start heating the beaker. You will see that evaporation is taking place from the watch

glass.

Continue heating as the evaporation goes on and stop heating when you do not see any further change on the watch glass.



What is your interpretation? Is ink a single substance (pure) or is it a mixture ?



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11. Take some full-cream milk in a test tube.

Centrifuge it by using a centrifuging machine

for two minutes. If a centrifuging machine is not available in the school, you can do this activity at home by using a milk churner, used in the kitchen.

What do you observe on churning the milk ?



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12. Take some full-cream milk in a test tube.

Centrifuge it by using a centrifuging machine for two minutes. If a centrifuging machine is not available in the school, you can do this

activity at home by using a milk churner, used in the kitchen.

Explain how the separation of cream from milk takes place.



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13. Take a thin strip of filter paper.

Draw a line on it using a pencil, approximately 3 cm above the lower edge.

Put a small drop of ink at the centre of the line. Let it dry.

Lower the filter paper into a jar / glass / beaker / test tube containing water so that the drop of ink on the paper is just above the water level, and leave it undisturbed.

Watch carefully, as the water rises up on the filter paper. Record your observations.



What do you observe on the filter paper as the water rises on it ?



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14. Take a thin strip of filter paper.

Draw a line on it using a pencil, approximately 3 cm above the lower edge.

Put a small drop of ink at the centre of the line. Let it dry.

Lower the filter paper into a jar / glass / beaker / test tube containing water so that the drop of ink on the paper is just above the water level, and leave it undisturbed.

Watch carefully, as the water rises up on the filter paper. Record your observations.



Do you obtain different colours on the filter paper strip?



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15. Take a thin strip of filter paper.

Draw a line on it using a pencil, approximately 3 cm above the lower edge.

Put a small drop of ink at the centre of the line. Let it dry.

Lower the filter paper into a jar / glass / beaker / test tube containing water so that

the drop of ink on the paper is just above the water level, and leave it undisturbed.

Watch carefully, as the water rises up on the filter paper. Record your observations.



What according to you, can be the reason for the rise of the coloured spot on the paper strip?



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16. Let us try to separate acetone and water from their mixture.

Take the mixture in a distillation flask. Fit it with a thermometer.

Arrange the apparatus as shown in the figure

Heat the mixture slowly keeping a close watch at the thermometer.

The acetone vaporises, condenses in the condenser and can be collected from the condenser outlet.

Water is left behind in the distillation flask.



What do you observe as you start heating the mixture ?



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Arrange the apparatus as shown in the figure

Heat the mixture slowly keeping a close watch at the thermometer.

The acetone vaporises, condenses in the condenser and can be collected from the condenser outlet.

Water is left behind in the distillation flask.



At what temperature does the thermometer reading become constant for some time?



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Arrange the apparatus as shown in the figure

Heat the mixture slowly keeping a close watch at the thermometer.

The acetone vaporises, condenses in the condenser and can be collected from the condenser outlet.

Water is left behind in the distillation flask.



What is the boiling point of acetone ?



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19. Let us try to separate acetone and water from their mixture.

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Arrange the apparatus as shown in the figure

Heat the mixture slowly keeping a close watch at the thermometer.

The acetone vaporises, condenses in the condenser and can be collected from the condenser outlet.

Water is left behind in the distillation flask.



Why do the two components separate ?



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20. Let us try to separate acetone and water from their mixture.

Take the mixture in a distillation flask. Fit it with a thermometer.

Arrange the apparatus as shown in the figure

Heat the mixture slowly keeping a close watch at the thermometer.

The acetone vaporises, condenses in the condenser and can be collected from the condenser outlet.

Water is left behind in the distillation flask.



Arrange the gases present in air in increasing order of their boiling points.



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21. Let us try to separate acetone and water from their mixture.

Take the mixture in a distillation flask. Fit it with a thermometer.

Arrange the apparatus as shown in the figure

Heat the mixture slowly keeping a close watch at the thermometer.

The acetone vaporises, condenses in the condenser and can be collected from the condenser outlet.

Water is left behind in the distillation flask.



Which gas forms the liquid first as the air is cooled ?



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22. Take some (approximately 5 g) impure sample of copper sulphate in a china dish.

Dissolve it in minimum amount of water.

Filter the impurities out.

Evaporate water from the copper sulphate solution so as to get a saturated solution.

Cover the solution with a filter paper and leave it undisturbed at room temperature to cool slowly for a day.

What do you observe in the china dish ?



23. Take some (approximately 5 g) impure sample of copper sulphate in a china dish.

Dissolve it in minimum amount of water.

Filter the impurities out.

Evaporate water from the copper sulphate solution so as to get a saturated solution.

Cover the solution with a filter paper and leave it undisturbed at room temperature to cool slowly for a day.

Do the crystals look alike?



24. Take some (approximately 5 g) impure sample of copper sulphate in a china dish.

Dissolve it in minimum amount of water.

Filter the impurities out.

Evaporate water from the copper sulphate solution so as to get a saturated solution.

Cover the solution with a filter paper and leave it undisturbed at room temperature to cool slowly for a day.

How will you separate the crystals from the liquid in the china dish ?



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25. Divide the class into two groups. Give 5 g of iron filings and 3 g of sulphur powder in a china dish to both the groups.

Group I

Mix and crush iron filings and sulphur powder.

Group II

Mix and crush iron filings and sulphur powder.

Heat this mixture strongly till red hot. Remove from flame and let the mixture cool.

Groups I and II

Check for magnetism in the material obtained.

Bring a magnet near the material and check if the material is attracted towards the magnet.

Compare the texture and colour of the material obtained by the groups.

Add carbon disulphide to one part of the material obtained. Stir well and filter.

Add dilute sulphuric acid or dilute hydrochloric acid to the other part of the material obtained.

Perform all the above steps with both the elements (iron and sulphur) separately.

Did the material obtained by the two groups look the same ?



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26. Divide the class into two groups. Give 5 g of iron filings and 3 g of sulphur powder in a china dish to both the groups.

Group I

Mix and crush iron filings and sulphur powder.

Group II

Mix and crush iron filings and sulphur powder.

Heat this mixture strongly till red hot. Remove from flame and let the mixture cool.

Groups I and II

Check for magnetism in the material obtained.

Bring a magnet near the material and check if the material is attracted towards the magnet.

Compare the texture and colour of the material obtained by the groups.

Add carbon disulphide to one part of the material obtained. Stir well and filter.

Add dilute sulphuric acid or dilute

hydrochloric acid to the other part of the material obtained.

Perform all the above steps with both the elements (iron and sulphur) separately.

Which group has obtained a material with magnetic properties ?



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27. Divide the class into two groups. Give 5 g of iron filings and 3 g of sulphur powder in a china dish to both the groups.

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Group II

Mix and crush iron filings and sulphur powder.

Heat this mixture strongly till red hot. Remove from flame and let the mixture cool.

Groups I and II

Check for magnetism in the material obtained.

Bring a magnet near the material and check if the material is attracted towards the magnet.

Compare the texture and colour of the material obtained by the groups.

Add carbon disulphide to one part of the

material obtained. Stir well and filter.

Add dilute sulphuric acid or dilute hydrochloric acid to the other part of the material obtained.

Perform all the above steps with both the elements (iron and sulphur) separately.

Can we separate the components of the material obtained ?



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28. Divide the class into two groups. Give 5 g of iron filings and 3 g of sulphur powder in a china dish to both the groups.

Group I

Mix and crush iron filings and sulphur powder.

Group II

Mix and crush iron filings and sulphur powder.

Heat this mixture strongly till red hot. Remove from flame and let the mixture cool.

Groups I and II

Check for magnetism in the material obtained.

Bring a magnet near the material and check if

the material is attracted towards the magnet.

Compare the texture and colour of the material obtained by the groups.

Add carbon disulphide to one part of the material obtained. Stir well and filter.

Add dilute sulphuric acid or dilute hydrochloric acid to the other part of the material obtained.

Perform all the above steps with both the elements (iron and sulphur) separately.

On adding dilute sulphuric acid or dilute hydrochloric acid, did both the groups obtain

a gas? Did the gas in both the cases smell the same or different ?



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Intext Questions And Answers

1. What is meant by a substance ?



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



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3. Differentiate between homogeneous and heterogeneous mixtures with examples.



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4. How are sol (colloidal), solution and suspension different from each other?



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5. 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.



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6. How will you separate a mixture containing kerosene and petrol (difference in their boiling points is more than $25^{\circ}C$), which are miscible with each other ?



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7. Name the technique to separate (i) butter from curd (ii) salt from sea water (iii) camphor from salt.



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8. What type of mixtures are separated The concentration of the solution at the given by the technique of crystallisation ?



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9. (1) Classify the following as chemical physical changes :

(1) cutting of trees (2) melting of butter in a pan (3) rusting of almirah (4) boiling of water to form steam (5) passing of electric current

through water and the water breaking down into hydrogen and oxygen gases (6) dissolving common salt in water (7) making a fruit salad with raw fruits (8) burning of paper and wood.



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10. Try segregating the things around you Mixture as pure substances or mixtures.



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Questions And Answers Answer The Following Questions In Very Short

1. What is a mixture ?



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2. Which of the following materials fall in the category of a pure substance ?

(a) Ice, (b) Milk, (c) Iron, (d) Hydrochloric acid, (e) Calcium oxide, (f) Mercury, (g) Brick, (h) Wood and (i) Air.



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3. Classify each of the following as a homogeneous or heterogeneous mixtures :

Soda water, wood, air, soil, vinegar, filtered tea.



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4. What is a solution ?



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5. What is a solvent ?



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6. What is a solute ?



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7. What are solute and solvent in tincture of iodine ?



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8. Give an example of (i) gas in liquid solution
(ii) gas in gas solution.



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9. Identify the solutions among the following mixtures :

(a) Soil, (b) Sea water, (c) Air, (d) Coal and (e)

Soda water.



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10. What are the components of a solution ?

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11. Define solubility.

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12. How can we increase the solubility of a solute in a saturated solution ?

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13. Why is water called a universal solvent ?



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14. What is a Tyndall effect ?



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15. Which of the following will show Tyndall effect ?

(a) Salt solution, (b) Milk, (c) Copper sulphate solution and (d) Starch solution.



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16. Which separation techniques will you apply for the separation of the following ?

(a) Sodium chloride from its solution in water.

(b) Ammonium chloride from a mixture containing sodium chloride and ammonium chloride.

(c) Small pieces of metal in the engine oil of a

car.

(d) Different pigments from an extract of flower petals.

(e) Butter from curd.

(f) Oil from water.

(g) Tea leaves from tea.

(h) Iron pins from sand.

(i) Wheat grains from husk.

(j) Fine mud particles suspended in water.



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17. Fog and smoke are aerosols. What is the difference in their dispersed phases ?



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18. Shaving cream and pumice are foams. What is the difference in their dispersing mediums?



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19. Which of the tubes in fig. (a) and (b) will be more effective as a condenser in the distillation apparatus ?



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20. Salt can be recovered from its solution by evaporation. Suggest some other technique for the same.



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21. By which technique can the components of a colloid be separated ?



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22. Which process will you use to separate a mixture of salt and ammonium chloride ?



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23. Is dye in black ink a single colour ?



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24. What is a dispersed phase in a colloidal solution?



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25. What is the dispersion medium in a colloidal solution ?



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26. Give one example of Tyndall effect in day-to-day life.



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27. Which of the following is odd one out ?
Bromine, Carbon, Nitrogen, Steam, Sulphur.



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28. Give a common example of suspension.



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29. Which of the following is a heterogeneous mixture ?

Air, Soda water, Soap solution, Brass.



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30. The list of some colloids is given below. Select them on the basis of type, dispersed phase and dispersing medium.

Shaving cream, Milk, Milk of magnesia, Sponge, Jelly, Coloured gemstone, Cloud, Butter, Milky glass, Face cream, Foam rubber, Automobile exhaust, Pumice, Paint, Mud.



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

(a) Sodium (b) Soil (c) Sugar solution (d) Silver

(e) Calcium carbonate (f) Tin (g) Silicon (h)

Coal (i) Air (j) Soap (k) Methane (l) Carbon

dioxide (m) Blood



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Questions And Answers

1. Give definition of the following :

Pure substance



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2. Give definition of the following :

Compound



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3. Give definition of the following :

Homogeneous mixture



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4. Give definition of the following :

Alloy



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5. Give definition of the following :

Saturated solution



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6. Give definition of the following :

Unsaturated solution



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7. Give definition of the following :

Concentration of the solution



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8. Give definition of the following :

Suspension



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9. Give definition of the following :

Colloid



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10. Give definition of the following :

Emulsion



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11. Give definition of the following :

Solid sol



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12. Give definition of the following :

Aerosol



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13. Give definition of the following :

Crystallisation



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Questions And Answers Choose The Correct Option From Those Given Below Each Question

1. Which of the following is a universal solvent

?

A. Water

B. Petrol

C. Kerosene

D. Alcohol

Answer: A



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2. Which of the following is an example of aerosol ?

A. Pain

B. Milk

C. Sponge

D. Clouds

Answer: C::D



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3. Which of the following is jelly ?

A. Ghee

B. Sponge

C. Milk

D. Butter

Answer: B



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4. If dispersing medium is liquid and dispersed phase is gas, then what is this type of colloid called ?

A. Jelly

B. Foam

C. Aerosol

D. Emulsion

Answer: A



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5. In which of the following is Tyndall effect seen ?

A. Solution of common salt

B. Milk

C. Lemon juice

D. Solution of copper sulphate (Blue vitriol)

Answer:



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6. Which of the following is an example of colloid in which dispersed phase is liquid and dispersing medium is solid ?

A. Chesse

B. Butter

C. Jelly

D. All the given

Answer: A::B::C::D



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7. Of what is fog and cloud an example ?

A. Aerosol

B. Mixture

C. Suspension

D. Emulsion

Answer: A



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8. By which method can potash alum be purified ?

A. Evaporation

B. Crystallisation

C. Centrifugation

D. Filtration

Answer: A::B::C::D



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9. The solution made by adding chalk in water is ____ .

A. true solution

B. colloid

C. suspension

D. saturated solution

Answer:



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10. Sugar is dissolved in a cup of water at $30^{\circ}C$. If it is heated, then _____ .

A. crystals are formed

B. evaporation takes place

C. it becomes unsaturated solution

D. the particles of sugar get separated

Answer: A::B::C::D



View Text Solution

11. Which of the following substance differs (isolates)?

A. Brass

B. Air

C. Sand

D. Graphite

Answer: A



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12. Which of the following is liquid - liquid solution ?

A. Face cream

B. Emulsion

C. Vinegar

D. All the given

Answer: A::B::C::D



View Text Solution

13. Which of the following substance acts as a pure substance ?

A. Sodium chloride

B. Cold drinks

C. Aerosol

D. Soil

Answer: C::D



View Text Solution

14. Which of the following is a compound ?

A. Air

B. Sodium chloride

C. Emulsion

D. Alloy

Answer: C::D



View Text Solution

15. Which of the following changes is a chemical change ?

A. Evaporation of spirit

B. Conversion of water into ice

C. Heating the mixture of copper and sulphur

D. Mixing of H_2 and O_2

Answer: A::C::D



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16. Colloid is a _____ .

A. homogeneous mixture

B. heterogeneous and transparent mixture

C. heterogeneous mixture in which component particles can be seen by naked eyes

D. heterogeneous mixture in which component particles cannot be seen by naked eyes

Answer: A::B::C::D



View Text Solution

17. By which process is the mixture of ammonium chloride and sand separated ?

A. Winnowing

B. Centrifugation

C. Sublimation

D. Evaporation

Answer: A::B



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18. Take 5 g of iron filling and 5 g sulphur in a china dish. By which of the following processes will a compound be formed ?

A. On mixing both of them vigorously.

B. By shaking solution after adding carbon disulphide.

C. Heating the mixture till red hot.

D. Separating the iron filling using the magnet.

Answer: A::D



[View Text Solution](#)

19. Of what is a shaving cream a colloid ?

A. Gas in liquid

B. Liquid in liquid

C. Gas in solid

D. Liquid in solid

Answer: A::D



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20. The solubility of a salt in 100 g of water, at 25°C temperature, is 209 g. Its solubility increases by 10% per 5°C till 50°C temperature, then becomes steady. At 35°C temperature, 26 g of a salt is dissolved in 100 g of water, then this solution will be of ____ type.

A. saturated

B. unsaturated

C. suspension

D. colloid

Answer: A::D



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Questions And Answers Fill In The Blanks

1. Components retain their fundamental properties in the _____ .



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2. A solution is a _____ mixture composed of two or more substances.



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3. At a fixed temperature, a solution in which no more solute can be added is called _____ solution.



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4. The particles of _____ solution show Tyndall effect.



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5. The solvent used to prepare colloidal solution is called ____ medium.



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6. In emulsion, dispersing medium is liquid while dispersed phase is _____ .



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7. The cream from the milk can be separated by _____ method.



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8. _____ is the technique used for separation of those solutes that dissolve in the same solvent.



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9. The components of air can be separated by _____ process.



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10. The elements are classified as metal, non metal and _____ .



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11. Making a fruit salad with raw fruits is an example of _____ change.



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12. The ripening of fruit is a _____ change.



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13. Castrol oil and water can be separated from its mixture by _____ .



[View Text Solution](#)

14. When dilute sulphuric acid is added to a mixture of iron fillings and sulphur powder, _____ gas evolves.



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15. _____ gas forms the liquid first as the air is cooled.



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Questions And Answers Fill In The Blanks By Selecting The Correct Alternative

1. Air is _____ .



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2. _____ elements are available in the nature.



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3. _____ is a compound.



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4. The colloid formed in liquid medium of the substance is called _____ .



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5. The metallic element, available liquid form at the temperature higher than room temperature, is _____ .



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6. Butter is _____ type of colloid.



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7. The mixture of common salt and sulphur is an example of ____ mixture.



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8. The approximate proportion of zinc in brass is ____ %.



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9. In true solution, the diameter of particles should not be more than _____ .



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10. In _____ the path of light is not visible.



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11. In air, _____ is a solvent.



[View Text Solution](#)

12. The mass-mass percentage of solution =

$$\frac{\text{Mass of solute}}{\text{Mass of solution}} \times \text{-----} .$$



[View Text Solution](#)

13. Glass is a _____ type of colloid.



[View Text Solution](#)

14. _____ method is used to separate coloured components from the dye.



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15. For fractional distillation, the difference in their boiling points should be _____ .



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Questions And Answers State Whether The Following Statements Are True Or False

1. Rusting of iron is a chemical change.



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2. All the atoms of any element show the same characteristics.



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3. Camphor is a sublimable substance.



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4. Water is a compound while air is a mixture.



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5. The various components of petroleum products can be separated by fractional distillation.



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6. Mud is a sol.



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7. Colloid is stable, while suspension is unstable.



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Questions And Answers Answer The Following Questions In Short

1. What are colloids ? Explain why filter paper cannot be used to separate colloids.



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2. Give two examples from daily life where Tyndall effect is observed.



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3. Explain the following giving examples :

(a) Saturated solution (b) Pure substance (c)

Colloid (d) Suspension



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4. Name the appropriate methods to separate the following mixtures :

- (a) Nitrogen from air (b) Salt from sea water (c) Cream from milk (d) Pigments from natural colours.



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5. A sample of water labelled A boils at $100^{\circ}C$.

A sample of water labelled B boils at $102^{\circ}C$.

Which sample of water will not freeze at $0^{\circ}C$

? Why ?



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6. State the properties of a solution.



[View Text Solution](#)

7. State the properties of a suspension.



[View Text Solution](#)

8. State the properties of colloid solution.



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9. What is the principal of centrifugation ?

Give its two applications.



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10. Give the applications of chromatography.



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11. Give the differences between physical and chemical changes.



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12. How will you confirm that a colourless liquid given to you is pure water ?



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Questions And Answers Give Scientific Reasons For The Following Statements

1. Water is the best and universal solvent.



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2. Aqueous solution of copper sulphate does not show Tyndall effect, while the mixture of water and milk shows Tyndall effect.



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3. An alloy is considered as a mixture.



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4. Air is a mixture, not a compound.



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5. The sea water can be classified as a homogeneous as well as heterogeneous mixture.

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Questions And Answers Distinguish Between The Following

1. Compound and Mixture



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2. Metals and Non-metals



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Questions And Answers Answer The Following Question In Brief

1. Two miscible liquids A and B are present in a solution. The boiling point of A is $60^{\circ}C$ while that of B is $98^{\circ}C$. Suggest a method to

separate the components of the mixture. Why are they separated by this process ?



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2. (a) A solution contains 20 g of common salt in 160 g of water. Calculate the concentration in terms of mass percentage of the solution.

(b) Write dispersion medium and dispersed phase of fog (aerosol).



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3. How can we obtain different gases from air ?

Draw a flow diagram.



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4. A student wanted to separate the mixture of dyes constituting a sample of ink. He marked a line by the ink on the filter paper and placed the filter paper in a jar containing water as shown in the figure.



(i) What would he observe, if the ink contains

three different coloured components ?

(ii) Name the technique used by the student.

(iii) Suggest one more application of this technique.



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5. Write the steps you would use for making tea. Use the words solution, solvent, solute, dissolve, soluble, insoluble, filtrate and residue.



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6. Which of the following are chemical changes ?

- (a) Growth of a plant (b) Rusting of iron (c) Mixing of iron filings and sand (d) Cooking of food (e) Digestion of food (f) Freezing of water (g) Burning of a candle

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7. Explain Tyndall effect with the help of a figure.



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8. (a) What type of mixture is an alloy? Why?

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

Can a solution be heterogeneous ?



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Questions And Answers Answer The Following Question In Detail

1. Pragma tested the solubility of three different substances at different temperatures and collected the data as given below (Results are given in the following table, as grams of substance dissolved in 100 grams of water to form a saturated solution.) :



(a) What mass of potassium nitrate would be needed to produce a saturated solution of potassium nitrate in 50 grams of water at 313 K?

(b) Pragma makes a saturated solution of

potassium chloride in water at 353 K and leaves the solution to cool at room temperature. What would she observe as the solution cools ? Explain.

(c) Find the solubility of each salt at 293 K. Which salt has the highest solubility at this temperature ?

(d) What is the effect of change of temperature on the solubility of a salt ?



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2. (a) How will you separate the components of ink using chromatography ? Explain with the help of a labelled diagram.

(b) Which method out of evaporation and crystallisation is a better technique to separate sugar from sugar solution ? Give reason also.



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3. (a) Draw a well labelled diagram to show the process of separation using separating funnel.

(b) Give one example of mixture that can be separated by separating funnel.

(c) Is air a mixture or a compound ? Give two points to support your answer.



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Questions And Answers Solve The Following Examples

1. A solution contains 40 g of common salt in 320 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.



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2. 0.5 gram common salt is dissolved in 25 g of water. Calculate the concentration in term of mass by mass percentage of the solution.



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3. 120 g of solution contains 16 g of urea.

Calculate the concentration in terms of mass by mass percentage of the solution.



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4. 30 g of glucose and 20 g common salt is dissolved in 500 mL of water to make a solution. Calculate the concentration of (a) glucose and (b) common salt in terms of mass

by mass percentage of the solution.

(Density of water = 1 g/mL)



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5. 12 g of common salt is dissolved in 150 g of solution.



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6. 40 mL of alcohol is mixed with 160 mL of water.



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7. A solution of sodium sulphate is made in 100 g of water of mass by mass percentage 20. Calculate the mass of sodium sulphate in this solution.



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8. How much water should be added to 12 ml alcohol so the concentration of solution 3

becomes 12% ?



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Value Based Questions With Answers

1. Rajesh uses car to go to his office. He uses unleaded petrol and have his car always checked for pollution. Whenever possible he uses public transport.

(1) What pollutant is given out by car ?

(2) What is smog ?

(3) What values of Rajesh are reflected here ?



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2. Snehal accidentally dropped a tin of sugar on the floor. She collected sugar. Some dust particles also mixed with sugar. She was worried about cleaning sugar. Her daughter Heena studying in Std. IX told her mother not to worry. She made the sugar free of dust.

(1) Which process did Heena use to purify

sugar ?

(2) What value of Heena is seen here ?



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Questions Based On Practical Skills With Answers
Select The Oppropriate Option And Complete
The Sentence

1. The mixture of sand and ammonium chloride is separated by _____ .

A. sedimentation

B. sublimation

C. evaporation

D. both (a) and (b)

Answer: A



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2. Tincture of iodine has antiseptic properties.

This solution is made by dissolving _____ .

A. iodine in potassium iodide

B. iodine in vaseline

C. iodine in water

D. iodine in alcohol

Answer: A::C::D



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3. Find the odd one out.

A. Bronze

B. Air

C. Sea water

D. Copper

Answer: C



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4. Which of the following will show Tyndall effect ?

A. Sugar solution

B. Milk

C. Salt solution

D. Lime juice

Answer:



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5. Which of the following are homogeneous in nature ?

(i) Soda water (ii) Coal (iii) Air (iv) Wood

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iii)

D. (iii) and (iv)

Answer: A::D



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6. An impure sample of copper sulphate can be purified by ____ .

A. crystallisation

B. evaporation

C. filtration

D. distillation

Answer: A::B::C::D



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7. Which of the following is a liquid-liquid colloid ?

A. Fog

B. Butter

C. Milk

D. Milk of magnesia

Answer:



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8. The mixture of the following substance is made in water. Which will appear semi-transparent (translucent)?

A. Common salt

B. Sugar

C. Potassium permanganate

D. Chalk powder

Answer: A::C::D



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9. A student wants to prepare a colloidal solution with gas phase and liquid medium.

Which of the following should be chosen?

(i) Shaving cream

(ii) Face cream

(iii) Soap

(iv) Pumice

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (ii) and (iv)

Answer: A::D



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10. A student mixed egg albumen with water and stirred well. He observed that _____ .

A. a transparent solution was formed

B. a translucent mixture was formed

C. egg albumen settled down at the bottom

D. egg albumen floated on the surface of the water

Answer: A::C::D



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11. Ammonium chloride and camphor are volatile substances. The mixture of these can be separated by _____ .

A. sublimation

B. distillation

C. dissolving and filtration

D. evaporation

Answer: A::D



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12. Bijal took (i) chalk powder (ii) slaked lime (iii) charcoal powder and (iv) detergent powder. She prepared four different mixtures with water and she filtered them using a filter paper. There will be no residue left after filtration in case of _____ .

A. chalk powder

B. slaked lime

C. charcoal powder

D. detergent powder

Answer: D



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Questions Based On Practical Skills With Answers

Answer The Following As Asked

1. How will you separate a mixture of salt, ammonium chloride and sand ? Write only the names of four methods used in proper order.





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2. Three students A, B and C were asked to prepare 50% (mass by volume) solution of NaOH.

A dissolved 50 g of NaOH in 100 mL water.

B dissolved 50g of NaOH in 100 g of water.

C dissolved 50 g of NaOH in water to make 100 mL solution.

Which one of them has made the desired solution and why?



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3. On dissolving chalk powder in water, a suspension is obtained. Give any two reasons to support the fact that the mixture so obtained is a suspension only.



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4. Which component of the mixture (Iron + Sulphur) reacts with dilute hydrochloric acid to evolve a gas ? Name the gas which is evolved during the reaction.



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5. What is the use of fractional distillation ?



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6. Which of the gases, oxygen and nitrogen will be separated first from liquid air ? Why?



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7. Name the process associated with the following:

(i) Setting of solid particles in a liquid.

(ii) Acetone bottle is left open by mistake and the bottle becomes empty.

(iii) Milk is churned to separate cream from it.

(iv) Potassium permanganate crystals are dropped in water with stirring.



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8. Can you separate a mixture of alcohol and water by using a separating funnel ? if not. Why? Explain how to separate them.



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