Class IX

ASSIGNMENT

Ch 2: Is Matter Around Us Pure?

Multiple Choice questions:

Q1. Which among the following is a compound?

a) Sodium b) Sodium Chloride c) Magnesium d) None of these

Q2. 10% mass by mass solution of $CuSO_4$ means:

a) 10 g of $CuSO_4$ dissolved in 10 g of water
b) 10 g of $CuSO_4$ dissolved in 100 g of water
c) 10 g of $CuSO_4$ dissolved in 90 g of water
d) 1 g of $CuSO_4$ dissolved in 10 g of water

Q3. An example of True solution is:

a) Mixture of sand and water
b) Mixture of sugar and water
c) Mixture of egg albumin and water
d) All of these

Q4. All of the following are the properties of metal except:

a) Solid b) Ductile c) Malleable d) Non Conducting

Q5. .Which among the following is an Element?

a) Sodium b) Sodium Chloride c)Water d) None of these

Q6. What is not true for a Mixture?

a) Made of more than one substance
b) Retains the properties of constituent elements
c) The constituents elements are present in a fixed ratio
d) Requires energy changes for its formation

Q7. Which among the following is a Metal?

a) Glucose b) Water c) Iron d) None of these

Q8. An example of Colloid is:

a) Foam b) Cloud c) Gel d) All of these

Q9. Which among the following is a Non Metal?

a) Glucose b) Water c) Hydrogen d) Aluminium

Q10. An example of Suspension is:

a) Air
b) Mixture of sand and water
c) Mixture of alcohol and water
d) All of these

Q11. Which among the following is a Physical Change?

a) Burning of paper
b) Evaporation of water

c) Burning of wood
d) Rusting of Iron

Q12.Choose the sublimable substance.

a) Sugar b) Salt c) Camphor d) sand

Q13. Fractionating column contains?

a) Sand b) Glass beads c) air d) water

Q14. Chromatography is used to separate:

a) Miscible liquids b) Immiscible liquids c) Volatile compounds d) Coloured components

Q15. Chemical changes are accompanied by:

a) Energy changes b) Formation of new compounds c) Both of these d) None of these

Q16. A mixture of alcohol and water can be separate by:

a) Sublimation b) Distillation c) Crystallisation d) Evaporation

Q17. Seperating funnel is used to separate:

a) Coloured components b) Immiscible liquids c) Miscible liquids d) All the above

Q18. Which among the following is a Chemical Change?

a) Burning of coal b) Vaporisation of alcohol c)Melting of wax d)Painting of Aluminium

Q19. A mixture of Salt and Naphthalene can be separate by:

a) Sublimation b) Distillation c) Crystallisation d) Evaporation

Q20. Distillation is used to separate:

a) Solid Solutes b) Liquid Solutes c) gaseous solutes d) All the above

Very short answer type questions:

Q1. Identify the heterogeneous mixture from the following: Air, soda water, soap solution, brass.
Q2. Name a metal that is liquid at room temperature.
Q3. Which one of the two solutions will scatter light, sugar solution or soap solution?
Q4. What are homogeneous mixtures?
Q5. When a solution is said to be saturated?
Q6. Which of the following will show Tyndall effect?
(a) Milk
(b) Sugar solution.
Q7. Classify brass and diamond as element and mixture.
Q8. Identify solute and solvent in 80% solution of ethyl alcohol with water.
Q9. Classify soap and tin as element and mixture.
Q10. What are the two components of a solution?
Q11. On which factor does a solution said to be diluted, concentrated or saturated?
Q12. What is meant by a pure substance??
Q13. Name a substance which dissolves in carbon disulphide.

Q14. What is the heterogeneous mixture of a dispersing phase and a dispersing medium known as?
Q15. Define malleability.
Q16. How is chemical change different from a physical change?
Q17. Mention two ways to liquefy atmospheric gases.
Q18. Name the technique to separate:
(a) Salt from sea-water
(b) Butter from curd.
Q19. You have to separate a mixture of salt and ammonium chloride. Which method will you employ and why?
Q20. ‘‘The wool being knitted into a sweater is a physical change.’’ Justify the statement.
Q21. Write the name of any two substances that sublime.
Q22. Mention any one use of crystallization method?
Q23. Why crystallization is considered a better technique than evaporation.
Q24. Why the interconversions of the states of matter are considered a physical change?
Q25. How is pure common salt isolated from sea water?
Q26. Where the fractionating column is fitted in a distillation apparatus?
Q27. Name the apparatus used for separating a mixture of immiscible liquids.
Q28. Why are beads packed in a fractionating column of a fractional distillation apparatus?
Q29. Which gas liquefies first on cooling air to very low temperatures?
Q30. How can both the components of tincture of iodine be separated?

Short answer type questions:

Q1. The concentration of a salt solution in terms of mass by mass percentage is 20% and the mass of the solution is 550 g. Determine the mass of solute present in the solution.
Q2. What is Tyndall effect? ‘‘Tyndall effect can be observed when sunlight passes through the canopy of dense forest.’’ Explain how this occurs.
Q3. Write the two components of a colloidal solution. Give two examples for a colloidal solution.
Q4. Distinguish between elements and compounds with one example of each.
Q5. Solubility of potassium nitrate at 313 K is 62 g. What mass of potassium nitrate would be needed to produce a saturated solution of KNO_3 in 52 g of water at 313 K? What is the effect of change of temperature on the solubility of a salt?
Q6. A solution of acetone contains 30 mL of acetone in 570 mL of water. Calculate the percentage concentration of the solute in the solution.
Q7. Graphite is conducting whereas Diamond is not, why?
Q8. What are metalloids? Give two examples
Q9. Mention in tabular form any two differences between heterogeneous and homogeneous mixtures.
Q10. A solution contains 60 g of sugar in 480 g of water. Calculate the concentration of solution in terms of mass by mass percentage of the solution.
Q11. Distillation is method used for separation of components of a mixture containing two miscible liquids. Give two reasons.
Q12. Suggest a suitable separation technique for the following:
(a) Mercury and water (b) Colored components from blue ink.
Q13. How can you distinguish between a salt solution and a pure liquid without tasting it?

Q14. Can we separate a mixture of alcohol and water by using a separating funnel? Why? Why not?
Q15. Define sublimation. Draw a labeled diagram to illustrate the process of sublimation.
Q16. Name the process or the separation technique you would follow:
(a) Dyes in black ink
(b) Butter from cream
(c) Ammonium chloride and common salt
(d) Iron filings and sand
Q17. Which principle is used in separation in centrifugation?
Q18. On heating calcium carbonate gets converted to calcium oxide and carbon dioxide.
(a) Is this a physical or a chemical change?
(b) Can you prepare one acidic and one basic solution by using the products formed in the above process? If so, write the chemical equations involved.
Q19. Fractional distillation is suitable for separation of miscible liquids with a boiling point difference of about 25 K or less. What part of the fractional distillation apparatus makes it efficient and possess an advantage over a simple distillation process. Explain by using a diagram.
Q20. What separation technique will you apply for separation of the following?
(a) Sodium chloride from its solution water
(b) Tea leaves from tea
(c) Iron pins from sand
(d) Different pigments from an extract of leaves
(e) Butter from curd
(f) Fine mud particles suspended in water.

Long answer type questions:

Q1. (a) Define an element.
(b) Name a non-metallic element found in (i) liquid, (ii) gaseous state.
(c) Pick metalloid from the following carbon, silicon, phosphorus, gold.
(d) Which two properties of metals enable us to get the desired shape to metals?
(e) Name a metal which is liquid at room temperature?
Q2. (a) Compare true solution, suspension and colloids in terms of:
(i) Filterability (ii) stability
(b) List two factors which bring about a change in the state of matter say, gas to liquid.
Q3. (a) 5 g of sugar is dissolved in 250 mL of solution. Calculate its mass percentage by volume.
(b) Give any two characteristics of compound.
(c) Which method of separation is used to separate two immiscible liquids?
Q4. (a) A solution contains 40g of common salt in 320 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.
(b) Identify solute and solvent in 'tincture of iodine'
(c) Why Tyndall effect is not seen in true solution?
Q5. Show diagrammatically how water is purified in the waterworks system and list the processes involved.
Q6. Define distillation. What type of mixture can be separated by distillation? Draw a labeled diagram of the apparatus used for fractional distillation.
Q7. (a) Write any two points of differences between chemical and physical change?
(b) State one instance where water undergoes a physical change and one in which undergoes a chemical change.
(c) Mention any two applications of chromatography.