



CHEMISTRY

BOOKS - ICSE

WATER

Test Yourself 1 Fill In The Blanks

1. Water covers nearly.....% of earth.



Watch Video Solution

2.and.....are some of the main sources of water on earth.



Watch Video Solution

3.is the purest form of natural water.



Watch Video Solution

4.andaffect the solubility of a solute in water.



[Watch Video Solution](#)

5.means the dissolving capacity of a solute in a solvent.



[Watch Video Solution](#)

6. Water covers nearly.....% of earth.



[View Text Solution](#)

7.and.....are some of the main sources of water on earth.



[View Text Solution](#)

8.is the purest form of natural water.



[View Text Solution](#)

9.andaffect the solubility of a solute in water.



[View Text Solution](#)

10.means the dissolving capacity of a solute in a solvent.



[View Text Solution](#)

Test Yourself 3 True Or False

1. Calcium reacts vigorously even with cold water.



[Watch Video Solution](#)

2. Magnesium reacts vigorously with hot water to form magnesium hydroxide.



[Watch Video Solution](#)

3. Metal oxides react with water to produce metal hydroxides.



[Watch Video Solution](#)

4. Hard water forms lather with soap easily.



[Watch Video Solution](#)

5. Hard water is not good for washing and industrial purposes.



[Watch Video Solution](#)

6. Calcium reacts vigorously even with cold water.



[View Text Solution](#)

7. Magnesium reacts vigorously with hot water to form magnesium hydroxide.

 [View Text Solution](#)

8. Metal oxides react with water to produce metal hydroxides.

 [View Text Solution](#)

9. Hard water forms lather with soap easily.



[View Text Solution](#)

10. Soft water is not good for washing and industrial purposes.



[View Text Solution](#)

Exercises A Multiple Choice Questions

1. A saturated solution has:

A. less solute

B. more solvent

C. maximum solute

D. no solute

Answer: C



Watch Video Solution

2. Increase in temperature changes the solubility of a solution in the following way

A. solubility decreases

B. solubility increases

C. solubility remains same

D. increases solute

Answer: B



Watch Video Solution

3. Which of the following is a suspension?

A. milk

B. chalk in water

C. butter

D. sugar in water

Answer: B



Watch Video Solution

4. What is the formula of hydrated blue copper sulphate crystal?



Answer: A



Watch Video Solution

5. Which of the following metal reacts vigorously with cold water?

A. zinc

B. iron

C. aluminium

D. sodium

Answer: D



Watch Video Solution

6. A saturated solution has:

A. less solute

B. more solvent

C. maximum solute

D. no solute

Answer: C



View Text Solution

7. Increase in temperature changes the solubility of a solution in the following way

- A. solubility decreases
- B. solubility increases
- C. solubility remains same
- D. increases solute

Answer: B



View Text Solution

8. Which of the following is a suspension?

A. milk

B. chalk in water

C. butter

D. sugar in water

Answer: B



View Text Solution

9. What is the formula of hydrated blue copper sulphate crystal?



Answer: A



View Text Solution

10. Which of the following metal reacts vigorously with cold water?

A. zinc

B. iron

C. aluminium

D. sodium

Answer: D



View Text Solution

Exercises B True Or False

1. Water has maximum density at 4°C.



[Watch Video Solution](#)

2. Solvent is formed by dissolving solute in a solution.



[Watch Video Solution](#)

3. Water of crystallization is a fixed amount of water present in the crystals of compounds.



[Watch Video Solution](#)

4. Silica gel is a hygroscopic substance.



[Watch Video Solution](#)

5. Aluminium reacts strongly with cold water to form hydroxide.



[Watch Video Solution](#)

6. Water has maximum density at 4°C .



[View Text Solution](#)

7. Solvent is formed by dissolving solute in a solution.



[View Text Solution](#)

8. Water of crystallization is a fixed amount of water present in the crystals of compounds.



View Text Solution

9. Silica gel is a hygroscopic substance.



View Text Solution

10. Aluminium reacts strongly with cold water to form hydroxide.



[View Text Solution](#)

Exercises C Fill In The Blanks

1. Colloid seems and the solute particles are to eyes.



[Watch Video Solution](#)

2. Anhydrous substance is the one that does not contain



[Watch Video Solution](#)

3. Efflorescent substanceswater when exposed to air.



[Watch Video Solution](#)

4. Magnesium reacts vigorously with..... and produces intense heat and forms magnesium oxide.



[Watch Video Solution](#)

5. Hard water contains compounds of.....and



[Watch Video Solution](#)

6. Colloid seems and the solute particles are to eyes.



[View Text Solution](#)

7. Anhydrous substance is the one that does not contain



[View Text Solution](#)

8. Efflorescent substanceswater when exposed to air.



[View Text Solution](#)

9. Magnesium reacts vigorously with.....
and produces intense heat and forms
magnesium oxide.



[View Text Solution](#)

10. Hard water contains compounds
of.....and



[View Text Solution](#)

1. A solution that has maximum amount of solute dissolved in it.



[Watch Video Solution](#)

2. A cloudy heterogeneous solution in which the solute particles are visible with the eyes is called.....



[Watch Video Solution](#)

3. Water that does not contain compounds of calcium and magnesium.



[Watch Video Solution](#)

4. Chemical compound that can be used to soften hard water.



[Watch Video Solution](#)

5. Metals that react with steam to form metal oxides.



[Watch Video Solution](#)

6. A solution that has maximum amount of solute dissolved in it.



[View Text Solution](#)

7. A cloudy heterogeneous solution in which the solute particles are visible with the eyes.



[View Text Solution](#)

8. Water that does not contain compounds of calcium and magnesium.



[View Text Solution](#)

9. Chemical compound that can be used to soften hard water.



[View Text Solution](#)

10. Metals that react with steam to form metal oxides.



View Text Solution

Exercises F Diagram Based Questions

1. Name the type of solutions shown in glass A, B and C.



View Text Solution

2. What will happen if glass C is heated?



 [View Text Solution](#)

3. Name the type of solutions shown in glass A, B and C.





[View Text Solution](#)

4. What will happen if glass C is heated?



[View Text Solution](#)

Exercises G Differentiate Between The Following

1. Differentiate between: Unsaturated and saturated solution



[Watch Video Solution](#)

2. Differentiate between :Solute and solvent



[Watch Video Solution](#)

3. Suspension and colloid



[Watch Video Solution](#)

4. Differentiate between :Anhydrous and hydrated substances



[Watch Video Solution](#)

5. Soft and hard water



[Watch Video Solution](#)

Exercises H Give Reasons For The Following

1. Water is a universal solvent'. Comment



[Watch Video Solution](#)

2. State one relevant observation for the following: Anhydrous calcium chloride is exposed to air for some time



[Watch Video Solution](#)

3. What will happen if sodium sulphate is left exposed to air?



[Watch Video Solution](#)

4. Give reason: Silica gel is used in closed boxes or medicine bottles.



[Watch Video Solution](#)

5. Give reason :The reaction of aluminium with steam stops after sometime.



[Watch Video Solution](#)

6. Hard water is not used in boilers.



[Watch Video Solution](#)

7. Soft water is not used for washing clothes.



[Watch Video Solution](#)

Exercises I Short Answer Questions

1. Which type of water can be used for human consumption?



[Watch Video Solution](#)

2. Give the molecular formula and chemical name of water.



[Watch Video Solution](#)

3. What is a solute?



Watch Video Solution

4. How is a solution formed?



Watch Video Solution

5. Name the factors that increase the solubility of a solution.





[Watch Video Solution](#)

6. How can you differentiate between a suspension and a colloid by looking at them?



[Watch Video Solution](#)

7. What is water of crystallization?



[Watch Video Solution](#)

8. What is hygroscopy?



Watch Video Solution

9. What is efflorescence?



Watch Video Solution

10. Name the products formed when metals react with cold water.



Watch Video Solution

11. What do metal oxides form when they react with water?



Watch Video Solution

12. Give two important properties of hard water.



Watch Video Solution

13. How can we remove hardness in temporary hard water?



Watch Video Solution

14. State the disadvantages of using hard water.



Watch Video Solution

15. What happens when hard water is treated with washing soda?



[Watch Video Solution](#)

Check Your Progress Answer The Following

1. What are the main sources of water?



[Watch Video Solution](#)

2. Water dissolves all nitrate salts and most chloride salts. True or false?



[Watch Video Solution](#)

3. Miscible and immiscible liquids



[Watch Video Solution](#)

4. What type of solution is sugar in water - homogeneous or heterogeneous?



[Watch Video Solution](#)

5. Can you see the particles of a suspension?



[Watch Video Solution](#)

6. Calcium chloride is a hygroscopic substance.

True or false?



[Watch Video Solution](#)

7. What will happen when sodium reacts with cold water?



[Watch Video Solution](#)

8. What is the chemical formula of aluminium oxide?



[Watch Video Solution](#)

9. Write the reaction between magnesium oxide and water.



[Watch Video Solution](#)

10. What are the types of hardness of water?



[Watch Video Solution](#)

Exercise Tick The Most Appropriate Answer

1. Which of the following exists in three different states in natural conditions on the earth?

A. soil

B. water

C. oxygen

D. salt

Answer:



Watch Video Solution

2. Which of the following does not dissolve in water?

A. sand

B. sugar

C. salt

D. vinegar

Answer:



Watch Video Solution

3. What are the dispersed phase and dispersion medium in milk

A. homogeneous solution

B. suspension

C. colloid

D. none of these

Answer:



Watch Video Solution

4. Which of the following is an anhydrous salt?

A. copper sulphate pentahydrate

B. calcium chloride hexahydrate

C. Magnesium sulphate heptahydrate

D. sodium nitrate

Answer:



Watch Video Solution

5. Which gas is evolved during the reaction of water with metals?

A. carbon dioxide

B. hydrogen

C. oxygen

D. nitrogen

Answer:



Watch Video Solution

6. By which of the following can temporary hardness of water be removed from hard water?

A. boiling

B. freezing

C. melting

D. none of these

Answer:



Watch Video Solution

Exercise Fill In The Blanks

1. Water is a universal solvent'. Comment



[Watch Video Solution](#)

2. The particles of _____ are bigger than those of a colloid.



[Watch Video Solution](#)

3. A _____ is a heterogeneous solution in which the solute particles are larger than those of a solution and smaller than those of a suspension.



[Watch Video Solution](#)

4. In a _____ solution, no more solute can dissolve at a given temperature.



[Watch Video Solution](#)

5. The process in which the crystals of a solute are separated on cooling a hot saturated solution is called _____



[Watch Video Solution](#)

6. State the term : (Do not give examples)

A substance which contains water of crystallisation.



[Watch Video Solution](#)

7. Metal oxides that are soluble in water dissolve in it to form _____



[Watch Video Solution](#)

Exercise Write True Or False Correct The False Statements

1. Liquids such as petrol and vegetable oil are miscible.



[Watch Video Solution](#)

2. Chalk powder in water is an example of a suspension.



[Watch Video Solution](#)

3. Blue copper sulphate crystals are anhydrous. (T/F)



[Watch Video Solution](#)

4. Silica gel is a desiccant. (T/F)





[Watch Video Solution](#)

5. The reaction of iron with steam is reversible.

(T/F)



[Watch Video Solution](#)

6. Hard water gives rich lather with soap. (T/F)



[Watch Video Solution](#)

7. Limescale is produced when hard water is heated. (T/F)



[Watch Video Solution](#)

Exercise Write The Chemical Equations For The Following

1. Sodium oxide reacting with water



[Watch Video Solution](#)

2. Potassium reacting with cold water



[Watch Video Solution](#)

3. Aluminium reacting with steam



[Watch Video Solution](#)

4. Write a balanced chemical equation for the following:

Action of heat on calcium bicarbonate



[Watch Video Solution](#)

5. Calcium chloride reacting with sodium carbonate



[Watch Video Solution](#)

Exercise Matching

1. Match the columns

- | | |
|------------------------------------|-------------------------|
| 1. Universal solvent | a. Calcium oxide |
| 2. Desiccant | b. Calcium bicarbonate |
| 3. Hygroscopic salt | c. Water |
| 4. Magnesium sulphate heptahydrate | d. Phosphorus pentoxide |
| 5. Temporary hardness of water | e. Potassium nitrate |
| 6. Anhydrous substance | f. Hydrated substance |
| | g. Magnesium oxide |



Watch Video Solution

Exercise Answer The Following In Short

1. Why is water called the universal solvent?



Watch Video Solution

2. What happens when a carbonated drink bottle is opened?



[Watch Video Solution](#)

3. What is a suspension?



[Watch Video Solution](#)

4. Differentiate between: Unsaturated and saturated solution



[Watch Video Solution](#)

5. Define crystallization.



[Watch Video Solution](#)

6. What do you mean by water of crystallization?



[Watch Video Solution](#)

7. What happens when metal oxides dissolve in water?



[Watch Video Solution](#)

8. What do you understand by the temporary hardness and permanent hardness of water ?



[Watch Video Solution](#)

Exercise Answer The Following In Detail

1. Suspension and colloid



[Watch Video Solution](#)

2. State two ways, by which a saturated solution can be changed to unsaturated solution.



[Watch Video Solution](#)

3. Explain the reactions of water with metals with the help of examples.



Watch Video Solution

4. Hardness of Water



Watch Video Solution

5. State the advantages and disadvantages of hard water.



[Watch Video Solution](#)

Think And Answer

1. Explain why : The solute cannot be separated from a solution by filtration.



[Watch Video Solution](#)

2. Filter paper can be used to separate the components of a suspension. Why?



[Watch Video Solution](#)

3. Permanent hardness of water cannot be removed by boiling. Why?



[Watch Video Solution](#)

4. Temporary hardness can reduce the heating efficiency of utensils, industrial boilers and hot water pipes. Explain.



[Watch Video Solution](#)

Exercise

1. Name a 'pure form' and an 'impure form' of water in the natural state



[Watch Video Solution](#)

2. State what is potable water. Give its qualities or characteristics which make it fit for human consumption.



[Watch Video Solution](#)

3. Give a reason why water is called a 'universal solvent but, an alkali is not.



[Watch Video Solution](#)

4. Name the solute, solvent & solution in the statement - 'sodium chloride dissolves in water to give sodium chloride solution'. Define each of the terms in italics.



[Watch Video Solution](#)

5. Explain how each of the following factors affects the formation of a solution -

(A) Proportion of the solute & the solvent



[Watch Video Solution](#)

6. Explain how each of the following factors affects the formation of a solution -

(B) Particle size of the solute



[Watch Video Solution](#)

7. Explain how each of the following factors affects the formation of a solution -

(c) Temperature of the solvent



[Watch Video Solution](#)

8. Define the term 'solubility of a solute in water. If 10 g. of a solute is added to 100 g. of water at ($50^{\circ}C$) and stirred, it is seen that the total solute dissolves at that temperature giving an unsaturated solution. Is 10 g, the solubility of the solute in water. Give reasons.



[Watch Video Solution](#)

9. Give a reason why - a] Alcohol & water form a miscible mixture while oil & water do not. b] Boiled water tastes flat c On opening a bottle of soda [carbon dioxide dissolved in water] the gas escapes out with a 'fizz'.



[Watch Video Solution](#)

10. Give the importance of - a) Dissolved minerals & salts b] Dissolved air - in water



[Watch Video Solution](#)

11. How are solutions generally classified. What is the basis of this classification.



[Watch Video Solution](#)

12. How are solutions generally classified. What is the basis of this classification. with respect to i] Type of mixture ii] Solute particles in the mixture



[Watch Video Solution](#)

13. Give four examples of each of the above types of solutions i.e. true solution, colloidal solution & suspension. Give a reason why a true solution does not exhibit 'Tyndall effect'.



[Watch Video Solution](#)

14. If 5 g. of a solute is added to 50 ml. of a solvent at a particular temperature and the solution can dissolve more of the solute at

that temperature - is the solution obtained a saturated or an unsaturated solution. Give reasons.



[Watch Video Solution](#)

15. Explain the meaning of the term 'saturated solution'. State two methods to convert a saturated solution to an unsaturated solution.



[Watch Video Solution](#)

16. State how a 'supersaturated solution differs from a 'saturated solution'. State briefly how you would prepare a supersaturated solution using potassium chloride and water.



Watch Video Solution

17. Differentiate between 'hydrated & 'anhydrous' crystals. Give the chemical formula of the following hydrated crystals

a] Washing soda





[Watch Video Solution](#)

18. Differentiate between 'hydrated' & 'anhydrous' crystals. Give the chemical formula of the following hydrated crystals

b] Gypsum



[Watch Video Solution](#)

19. Differentiate between 'hydrated' & 'anhydrous' crystals. Give the chemical formula

of the following hydrated crystals

c] Blue vitriol



[Watch Video Solution](#)

20. Differentiate between 'hydrated & 'anhydrous' crystals. Give the chemical formula of the following hydrated crystals

d) Epsom salt



[Watch Video Solution](#)

21. Differentiate between 'hydrated' & 'anhydrous' crystals. Give the chemical formula of the following hydrated crystals

e] Glauber's salt. Give one example a pentahydrate crystal.



[Watch Video Solution](#)

22. Differentiate between an efflorescent, deliquescent & hygroscopic substance with suitable examples.





[Watch Video Solution](#)

23. Differentiate the function of concentrated sulphuric acid as a drying agent & as a dehydrating agent. Is fused calcium chloride a dehydrating or a desiccating agent. Give reasons.



[Watch Video Solution](#)

24. Give a reason why metals are arranged in a series called - activity series of metals. Name a

metal which reacts with

a] Cold water



[Watch Video Solution](#)

25. Give a reason why metals are arranged in a series called - activity series of metals. Name a metal which reacts with

b] Boiling water



[Watch Video Solution](#)

26. Give a reason why metals are arranged in a series called - activity series of metals. Name a metal which reacts with

c) Steam - to liberate hydrogen in each case.



Watch Video Solution

27. Difference between Hard water and Soft water



Watch Video Solution

28. What causes the temporary and permanent hardness of water ?



Watch Video Solution

29. Give balanced equations to show how -
a] Temporary hardness enters into water.



Watch Video Solution

30. Give balanced equations to show how -

(b) Temporary hardness in water can be removed by boiling



Watch Video Solution

31. Give balanced equations to show how -

Permanent hardness in water can be removed by addition of washing soda



Watch Video Solution

Objective Type Questions

1. Select the correct answer from A, B, C, D & E for each statement given below:

A: Colloidal B: Fused calcium chloride C: Solvent D: Suspension E: Washing soda

The medium of dissolution which allows the solute to dissolve in it.



[Watch Video Solution](#)

2. Select the correct answer from A, B, C, D & E for each statement given below:

A: Colloidal B: Fused calcium chloride C: Solvent D: Suspension E: Washing soda

A solution which can pass through a filter paper but not through a semipermeable membrane.



Watch Video Solution

3. Select the correct answer from A, B, C, D & E

for each statement given below:

A: Colloidal B: Fused calcium chloride C:

Solvent D: Suspension E: Washing soda

A monohydrate crystal.



[Watch Video Solution](#)

4. Select the correct answer from A, B, C, D & E

for each statement given below:

A: Colloidal B: Fused calcium chloride C:

Solvent D: Suspension E: Washing soda

A drying agent placed in desiccator.



[Watch Video Solution](#)

5. Select the correct answer from A, B, C, D & E for each statement given below:

A: Colloidal B: Fused calcium chloride C:

Solvent D: Suspension E: Washing soda

A heterogenous mixture of undissolved particles in dispersion medium, visible to the naked eye.



[Watch Video Solution](#)

6. Give a balanced equation for the following conversions:

Calcium sulphate in permanent hard water to calcium carbonate using sodium carbonate.



[Watch Video Solution](#)

7. Give a balanced equation for the following conversions:

Iron to triiron tetroxide using steam.



[Watch Video Solution](#)

8. Give a balanced equation for the following conversions:

Sulphur dioxide to sulphurous acid using a neutral liquid



[Watch Video Solution](#)

9. Give a balanced equation for the following conversions:

Potassium oxide to a strong alkali.



[Watch Video Solution](#)

10. Give a balanced equation for the following conversions:

Magnesium bicarbonate in temporary hard water to magnesium carbonate by boiling.



[Watch Video Solution](#)

11. Complete the statements by filling the blanks with the correct word from the bracket.

Solubility of most solids.....

[decreases/increases) with rise in temperature.



[Watch Video Solution](#)

12. Complete the statements by filling the blanks with the correct word from the bracket.

Kerosene & water form a.....

(miscible/immiscible) mixture.





[Watch Video Solution](#)

13. Complete the statements by filling the blanks with the correct word from the bracket.

Solubility of a solute is the.....

[minimum/maximum) amount of solute that

will saturate 100 g. of water at ($t^{\circ} C$)



[Watch Video Solution](#)

14. Complete the statements by filling the blanks with the correct word from the bracket.

Hygroscopic substance absorb moisture from the atmosphere &(do not change/change) their original state.



[Watch Video Solution](#)

15. Complete the statements by filling the blanks with the correct word from the bracket.
The ratio of hydrogen & oxygen in water is.....[2:1/1:2]



[Watch Video Solution](#)

16. Give reasons for the following:

All solutions are homogenous mixtures of a solute in a solvent.



Watch Video Solution

17. Give reasons for the following:

Hardness in temporary water can be removed by boiling, but hardness in permanent hard water cannot.



Watch Video Solution

18. What causes Brownian movement in a colloidal solution?



Watch Video Solution

19. Give reasons for the following:

The percentage of oxygen, in air dissolved in water, is higher than the percentage of oxygen in ordinary air.



Watch Video Solution

20. Give reasons for the following:

Washing soda can be used to remove both temporary and permanent hardness in water.



Watch Video Solution

21. Match the substances in List I with the appropriate answer in List II.

List I

1. Green vitriol
2. Paint
3. Magnesium chloride
4. Magnesium bicarbonate
5. Calcium oxide

List II

- A: Permanent hardness in water
- B: Hygroscopic
- C: Temporary hardness in water
- D: Heptahydrate
- E: Colloidal



Watch Video Solution

