

CBSE Test Paper 04
Chapter 01 Chemical Reactions & Equations

1. When you place iron in copper sulphate solution, the reddish brown coating formed on the nail is **(1)**

- a. rough and granular
- b. soft and dull
- c. smooth and shining
- d. hard and flaky

2. The compound formed by Hg^{+2} and Cl^- is **(1)**

- a. Hg_2Cl_2
- b. $HgCl$
- c. $HgCl_2$
- d. Hg_2Cl

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3. $BaCl_2 + Na_2SO_4 \rightarrow BaSO_4 + 2NaCl$

It is type of **(1)**

- a. Both Precipitation reaction and Double displacement reaction
- b. Double displacement reaction
- c. Decomposition reaction
- d. Precipitation reaction

4. Pieces of Zn metal are added to four different test tubes containing different solutions. In which test tube no change is observed? **(1)**

- a. $ZnSO_4$
- b. $CuSO_4$
- c. $Al_2(SO_4)_3$
- d. $FeSO_4$

5. For the reaction, $3Fe + 4H_2O \rightarrow Fe_2O_3 + 4H_2$. Which of the following statement is correct? (1)

- A. Iron is oxidized
- B. water is reduced
- C. water act as reducing agent
- D. Iron act as reducing agent

- a. A, B and D
- b. B and D
- c. A and D
- d. All of these

6. In the reaction, $Be_2C + xH_2O \rightarrow yBe(OH)_2 + CH_4$

Write the values of x and y. (1)

7. State the law of conservation of mass. (1)

8. Write the balanced equation for the following chemical reactions: (1)

- i. Hydrogen + Chlorine \rightarrow Hydrogen chloride
- ii. Barium chloride + Aluminium sulphate \rightarrow Barium sulphate + Aluminium chloride
- iii. Sodium + water \rightarrow Sodium hydroxide + Hydrogen

9. Write the formula and then balance the following equation.

Potassium bicarbonate + Sulphuric acid \rightarrow Potassium sulphate + Carbon dioxide + Water

(1)

10. Why do we keep food in refrigerator ? (3)

11. Which of the following statement is correct and why? (3)

- i. Copper can displace silver from the solution of silver nitrate.
- ii. Silver can displace copper from the solution of copper sulphate.

12. A copper coin is kept immersed in a solution of silver nitrate for sometime. What will happen to the coin and colour of the solution? (3)

13. Why does not silver evolve hydrogen on reacting with dilute H_2SO_4 ? (3)

14. You are provided with the following substances:

- i. Iron Nails
- ii. CuSO_4 solution
- iii. BaCl_2
- iv. Cu powder
- v. Ferrous sulphate crystals
- vi. Quick lime

Make any five reactions using these substances. (5)

15. Convert the following word equations to balanced chemical equations. (5)

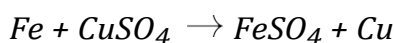
- i. Hydrogen gas combines with nitrogen to form ammonia.
- ii. Hydrogen sulphide gas burns in air to give water and sulphur dioxide.
- iii. Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of barium sulphate.
- iv. Potassium metal reacts with water to give potassium hydroxide and hydrogen gas.
- v. Hydrogen sulphide gas reacts with oxygen gas to form solid sulphur and liquid water.

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Answers

1. b. soft and dull

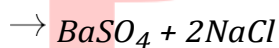
Explanation: When you dip an iron nail in CuSO_4 , iron replaces copper from CuSO_4 , since it is more reactive than copper. The displaced copper gets deposited on the nail, which is soft and dull in nature.



2. a Hg_2Cl_2

Explanation: $2 \text{Cl}\{\} + \text{Hg}_2\{^{2+}\} = \text{Hg}_2\text{Cl}_2$

3. a. Both Precipitation reaction and Double displacement reaction **Explanation:** Double decomposition takes place, due to exchange of ions between the 2 substances. A white precipitate of barium sulphate is formed. $\text{BaCl}_2 + \text{Na}_2\text{SO}_4$



BaSO_4 is insoluble in water. NaCl dissolves in water. BaSO_4 is Barium Sulphate

NaCl is common salt of Sodium Chloride

4. c $\text{Al}_2(\text{SO}_4)_3$

Explanation: Zn cannot displace Al from $\text{Al}_2(\text{SO}_4)_3$ solution. Zn can displace Fe from FeSO_4 solution. $\text{Zn} + \text{FeSO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$

Al can displace Zn from ZnSO_4 solution. $2\text{Al} + 3\text{ZnSO}_4 \rightarrow 3\text{Zn} + \text{Al}_2(\text{SO}_4)_3$ Zn

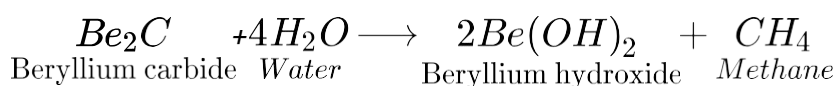
can displace Cu from CuSO_4 solution. $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$

5. a. A, B and D

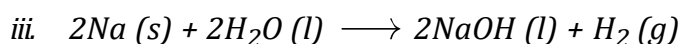
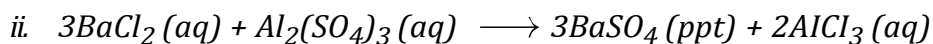
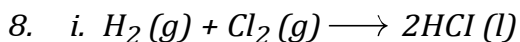
Explanation: Fe is oxidized water is reduced so Fe is a reducing agent

6. Here, $x = 4$ and $y = 2$

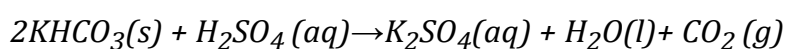
The balanced chemical equation is given below:



7. Mass is never lost or gained in chemical reactions. We say that mass is always conserved. In other words, the total mass of products at the end of the reaction is equal to the total mass of the reactants at the beginning.



9. Potassium bicarbonate + Sulphuric acid \rightarrow Potassium sulphate + Carbon dioxide + Water

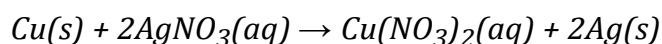


10. Food is stored in a refrigerator to prevent the growth of micro organisms like bacteria, fungi etc. they cannot grow in cold or low temperature. To prevent oxidation and decay of food it should be kept in refrigerator.

11. i. This statement is correct because copper is more reactive than silver and it can displace silver from silver nitrate. $Cu(s) + 2AgNO_3(aq) \rightarrow Cu(NO_3)_2(aq) + 2Ag(s)$

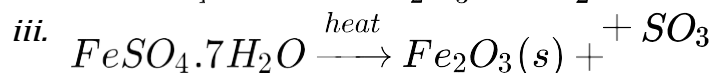
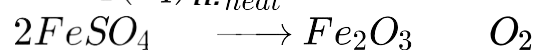
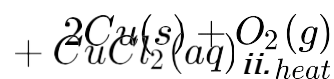
ii. This statement is wrong as copper is more reactive than silver so silver cannot displace copper from copper sulphate.

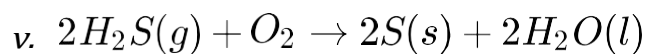
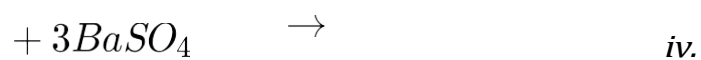
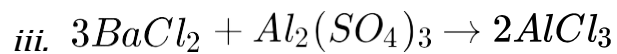
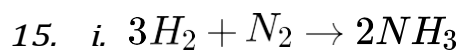
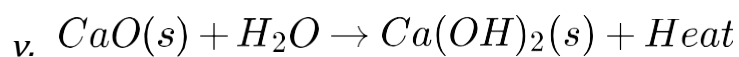
12. Copper metal is more reactive than silver metal thus, when copper coin is kept immersed in silver nitrate solution for some time, it displaces silver from silver nitrate solution.



The grey solid crystal of Ag metal are seen growing on the copper coin and solution turns blue in colour.

13. Silver is less reactive than hydrogen so it does not displace hydrogen from the acid and the hydrogen gas is not evolved.





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