

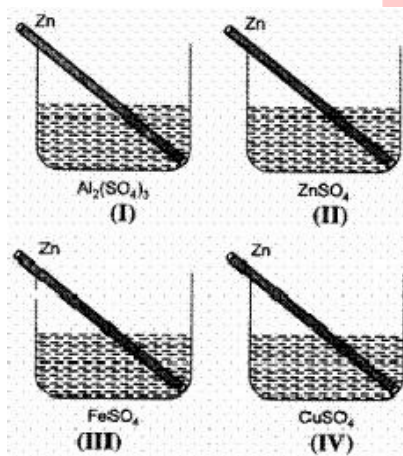
## CBSE Test Paper-03

### Chapter 01 Chemical Reactions and Equations

1. Reaction between water and quick lime gives rise to calcium hydroxide which of the following statement are correct? (1)

- A. The reaction is exothermic
  - B. The PH of final solution is less than 7
  - C. The reaction is endothermic
  - D. The PH of final solution is greater than 7
- a. A and C
  - b. C and D
  - c. A and D
  - d. All of these

2. Four students A, B, C and D noted the initial colour of the solutions in beakers I, II, III and IV. After inserting zinc rods in each solution and leaving it undisturbed for two hours, noted the colour of each solution again.



They recorded their observations in the form of table given below:

Student	Colour of the solution	I	II	III	IV
A	Initial	Colour less	Colour less	Light green	Blue
	Final	Colour less	Colour less	Colour less	Colour less
B	Initial	Colour less	Light yellow	Light green	Blue
	Final	Colour less	Colour less	Light green	Colour less

<i>C</i>	<i>Initial</i>	<i>Colour less</i>	<i>Colour less</i>	<i>Light green</i>	<i>Blue</i>
	<i>Final</i>	<i>Light blue</i>	<i>Colour less</i>	<i>Colour less</i>	<i>Light blue</i>
<i>D</i>	<i>Initial</i>	<i>Light green</i>	<i>Colour less</i>	<i>Light green</i>	<i>Blue</i>
	<i>Final</i>	<i>Colour less</i>	<i>Colour less</i>	<i>Dark green</i>	<i>Colour less</i>

Which student noted the colour change in all the four beakers correctly? **(1)**

- a. *C*
- b. *A*
- c. *B*
- d. *D*

3. Choose a displacement reaction. **(1)**

- a. *burning of metals*
- b. *addition of more active metal to a solution of a less active metal compound.*
- c. *extraction of metals.*
- d. *electrolysis*

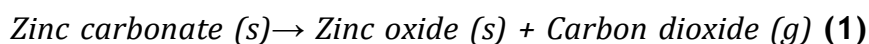
4. The colour of solid product formed on heating ferrous sulphate is **(1)**

- a. *reddish brown*
- b. *green*
- c. *black*
- d. *colourless*

5. Heat is evolved during **(1)**

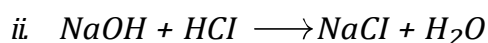
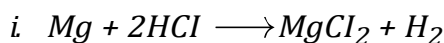
- a. *Combination Reaction*
- b. *Displacement Reaction*
- c. *Endothermic Reaction*
- d. *Combustion Reaction*

6. Write the balanced chemical equation for the following reaction and identify the type of reaction.



7. Name the type of reaction :Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen. **(1)**

8. What is the difference between the following two reactions? **(1)**



9. Define corrosion. (1)

10. Mention five ways by which rusting can be prevented. (3)

11. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case. (3)

i. In thermite reaction, iron (III) oxide reacts with aluminium and gives molten iron and aluminium oxide.

ii. Magnesium ribbon is burnt in an atmosphere of nitrogen gas to form solid magnesium nitride.

12. Translate the following statement into a chemical equation and then balance it :  
Barium chloride reacts with aluminium sulphate to give aluminium. (3)

13. Why do we store silver chloride in dark coloured bottles? (3)

14. Write the formula and then balance the following equations. (5)

a. Chlorine + Sodium hydroxide  $\longrightarrow$  Sodium chloride + Sodium chlorate + water

b. Iron sulphate + Hydrochloric acid  $\longrightarrow$  Iron chloride + Hydrogen sulphide

c. Calcium + Water  $\longrightarrow$  Calcium hydroxide + Hydrogen

d. Zinc carbonate  $\longrightarrow$  Zinc oxide + Carbon dioxide

e. Sodium nitrate + Sulphuric acid (conc.)  $\longrightarrow$  Sodium Sulphate + Nitric acid

15. i. Identify the type of reactions taking place in each of the following cases and write the balanced chemical equations for the reactions

a. Barium chloride solution is mixed, with copper sulphate solution and a white precipitate is obtained.

b. On heating copper powder in air, the surface of the copper powder turns black.

ii. What happens when hydrogen gas is passed over the heated copper oxide? Write the chemical equation involved in this reaction. (5)

**CBSE Test Paper-03**  
**Chapter 01 Chemical Reactions and Equations**

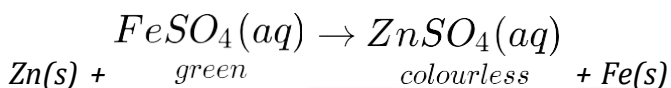
**Answers**

1. c. A and D

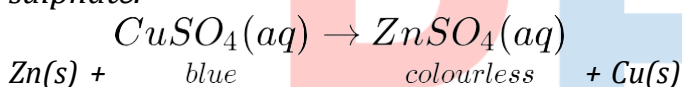
**Explanation:** Calcium hydroxide when dissolved in water is an exothermic reaction and produces an alkaline media

2. b. A

**Explanation:** In I and II no reaction takes place, therefore. In III, green solution of  $FeSO_4$  will change to colourless due to formation of zinc sulphate.



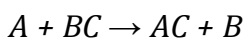
In IV blue colour of  $CuSO_4$  changes to colourless due to formation of zinc sulphate.



3. b. addition of more active metal to a solution of a less active metal compound.

**Explanation:** Reactions in which atoms or ions move from one compound to other to form new compound are known as Displacement reaction.

A general displacement reaction can be represented using chemical equation as follows:



Displacement reaction takes place only when 'A' is more reactive than B. If 'B' is more reactive than 'A', then 'A' will not displace 'C' from 'BC' and reaction will not be taken place.

Example: When zinc reacts with hydrochloric acid, it gives hydrogen gas and zinc chloride.

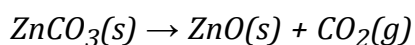
4. a. reddish brown

**Explanation:** Ferrous sulphate ( $FeSO_4$ ) is green in colour, it forms reddish brown coloured ferric oxide, sulphur oxide and sulphur trioxide, the reaction is called decomposition

5. d. Combustion Reaction

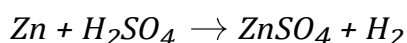
**Explanation:** *Burning takes place in combustion so it is an exothermic reaction*

6. *Zinc carbonate (s) → Zinc oxide (s) + Carbon dioxide (g)*



*This is decomposition reaction.*

7. *Reactions in which atoms or ions move from one compound to other to form new compound are known as Displacement reaction.*



*Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen this is displacement reaction.*

8. i. *Here, Mg is more reactive than H. Hence, magnesium displaces hydrogen from HCl. Therefore, it is a displacement reaction.*

ii. *In this reaction, the two metal ions are exchanged between the two reactants. Hence, it is a double displacement reaction*

9. *When a material reacts with the external environment, over a time, its structure will be deteriorated, and breaks down into small pieces. Ultimately, it can disintegrate into the atomic level. This is known as corrosion. Most commonly this happens to metals. It is the slow eating up of the metals by the action of air and moisture of their surfaces.*

10. 1. *By painting metal surface with enamel paints.*

2. *By applying oils and greases on surfaces.*

3. *By plastic coating on the surfaces.*

4. *By galvanization.*

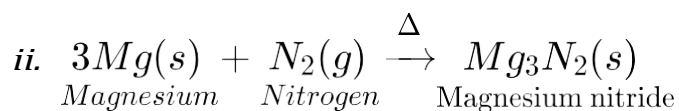
5. *By forming alloys.*

6. *By Plating*

7. *Keep away from moisture.*

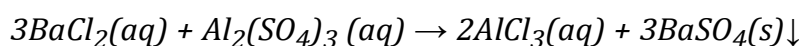
11. i. 
$$\text{Fe}_2\text{O}_3(\text{s}) + 2\text{Al}(\text{s}) \xrightarrow{\Delta} 2\text{Fe}(\text{l}) + \text{Al}_2\text{O}_3(\text{s})$$
  
*Iron(III)oxide    Aluminium                      Molten iron    Aluminium oxide*

*The thermite reaction is a displacement reaction.*



The formation of magnesium nitride as above is a combination reaction.

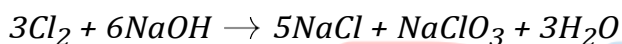
12. Barium chloride reacts with aluminium sulphate to give aluminium and separates Barium sulfate( $\text{BaSO}_4$ ).



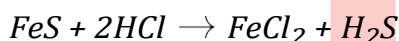
13. Silver chloride easily decomposes in the presence of sunlight to liberate silver. Silver chloride is kept in dark coloured bottles to prevent this reaction, i.e., decomposition of silver chloride.

14. The formula and balance equations are as follows:

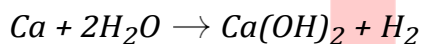
- a. Chlorine + Sodium hydroxide  $\rightarrow$  Sodium chloride + Sodium chlorate + water



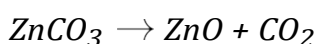
- b. Iron sulphate + Hydrochloric acid  $\rightarrow$  Iron chloride + Hydrogen sulphide



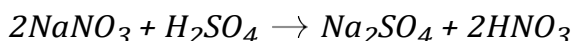
- c. Calcium + Water  $\rightarrow$  Calcium hydroxide + Hydrogen



- d. Zinc carbonate  $\rightarrow$  Zinc oxide + Carbon dioxide

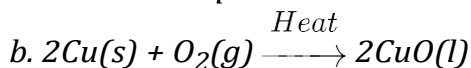


- e. Sodium nitrate + Sulphuric acid (conc.)  $\rightarrow$  Sodium Sulphate + Nitric acid



15. i. a.  $\text{BaCl}_2(aq) + \text{CuSO}_4(aq) \rightarrow \text{BaSO}_4(s) + \text{CuCl}_2(aq)$

Double decomposition reaction



Redox reaction, here Cu is changing into CuO. This is oxidised and oxygen is getting reduced by adding metal to it.

- ii. If hydrogen gas is passed over heated material (CuO) the black coating on the surface turns brown as the reaction takes place and copper is obtained.

