CHEMISTRY

BOOKS - ICSE

CHEMICAL REACTIONS

Exercises A Multiple Choice Questions

1. A chemical reaction may show the following characteristics.

A. release of gas

B. release of heat

C. change in state

D. all of the above

Answer: D

Watch Video Solution

2. Reaction between two compounds to form a new compound.

A. combination

B. decomposition

C. single displacement

D. double displacement

Answer: A

Watch Video Solution

3. Reaction in which one of the products is water.

A. precipitation reaction

B. decomposition reaction

C. neutralizaion reaction

D. single displacement reaction

Answer: C

Watch Video Solution

4. If an oxide does not form salt when it reacts with acids or bases, it is called

A. basic

B. acidic

C. amphoteric

D. neutral

Answer: D

Watch Video Solution

5. Aluminium oxide is following type of an oxide.

A. basic

B. acidic

C. amphoteric

D. neutral

Answer: C

Watch Video Solution

Exercises B True Or False

1. A chemical reaction always involves absorption of energy.

Watch Video Solution

2. Non-metallic oxides can be acidic or neutral in nature.

Watch Video Solution

3. Copper metal can displace magnesium sulphate to give copper sulphate and magnesium.

Watch Video Solution

4. In an endothermic reaction energy absorbed is more than the energy released.

Watch Video Solution

5. NO is an acidic oxide, while NO_2 is a neutral oxide.

Watch Video Solution

Exercises C Fill In The Blanks

1. Carbonic acid is formed when .....oxide reacts with water.

Watch Video Solution

2. ..... reaction is also known as a substitution reaction.

Watch Video Solution

3. When magnesium ribbon burns in air to form magnesium oxide, it is a ..... reaction.

Watch Video Solution

4. During photosynthesis, energy is ..... And during burning, energy is ..... .

Watch Video Solution

Watch Video Solution

5. Amphoteric oxides are ..... Oxides that show both acidic and basic properties.

Watch Video Solution

Exercises D Match The Following

1. Match the following

	Process		Type if re
1.	Crumbling of chalk when heated	(a)	single dis
2.	Iron displacing copper from copper sulphate	(b)	Decompo
3.	Formation of an insoluble compound	(c)	Exotherm
4.	Energy released is more than the energy absorbed	(d)	Endother
5.	Dissolution of ammonium chloride(NH_4Cl) in water	(e)	Precipita

Watch Video Solution

2. Reaction in which a great amount of energy is released to form new bonds.

Watch Video Solution

3. Oxides that react with acids to form salts.

Watch Video Solution

4. Oxides that react with both acids and bases are known as :

Watch Video Solution

5. A metal which is more reactive than calcium.

Watch Video Solution

Exercises F Diagram Based Questions

1. Give the type of reaction in figures (a), (b) and (c).

View Text Solution

2. Give an example of fig (b) taking silver chloride as the reactant.

View Text Solution

3. Explain fig. (c) by taking sodium chloride and silver nitrate as reactants.

View Text Solution

Exercises G Give Reasons For The Following

1. Atoms simply rearrange themselves during a chemical reaction.

Watch Video Solution

2. Displacement reactions help to predict the reactivity of elements.

Watch Video Solution

3. Electrolysis is considered to be an endothermic reaction.

Watch Video Solution

4. Explain: Neutralization plays an important role in the treatment of indigestion.

Watch Video Solution

Exercises H Short Answer Questions

1. State three characteristics that show a chemical reaction has occurred.

Watch Video Solution

2. Differentiate between combination and decomposition reaction with examples.

Watch Video Solution

3. What is the difference between displacement and double displacement reactions? Write equations for these reactions.

Watch Video Solution

4. Name two metals that can displace hydrogen from dilute acids to form metal salts and hydrogen gas.

Watch Video Solution

5. Explain with an example how displacement reactions help to distinguish between more reactive and less reactive elements.

Watch Video Solution

6. Give two differences between basic and acidic oxides along with examples.

Watch Video Solution

7. Give an example of an endothermic reaction.

Watch Video Solution

8. What are amphoteric oxides? Give two examples of amphoteric oxides.

Watch Video Solution

Test Yourself 1

1. A chemical reaction involves ..... And ..... Of bonds.

Watch Video Solution

2. Chemical reaction in which two elements combine to form a new compound is known as a ..... Reactions.

Watch Video Solution

3. When electric current is passed through water, it undergoes a ..... Reaction.

Watch Video Solution

4. Single displacement reaction is also known as a ..... reaction.

Watch Video Solution

5. Reaction between a base and a acid to form salt and water is known as a .....

Watch Video Solution

Test Yourself 2

	1.	Net result is absorption of energy	a. Exothermic reaction
	2.	Burning is this type of a reaction	b. Basic oxide
1.	3.	Oxides of metals	c. Acidic oxides
	4.	Oxides of non-metals	d. Neutral oxide
	5.	Water is an example of	e. Endothermic reaction

Watch Video Solution

Check Your Progress Answer These Questions

1. Name the attractive forces that hold atoms or ions together to form molecules or compounds.

Watch Video Solution

2. Name the type of chemical reaction that occurs when magnesium ribbon is burned in air.

Watch Video Solution

3. What happens to limestone on heating?

Watch Video Solution

4. What type of chemical reaction is involved when silver chloride is exposed to light?

Watch Video Solution

5. Name the type of chemical reaction that occurs between a solution of sodium chloride and a solution of silver nitrate.

Watch Video Solution

6. What type of reaction is the following? acid + base $\rightarrow$ salt + water

Watch Video Solution

Exercise Tick The Most Appropriate Answer

1. Attractive forces that hold atoms or ions together to form molecules or compounds are called

A. ionic bonds.

B. covalent bonds.

C. chemical bonds.

D. none of these

Answer:

Watch Video Solution

2. An atom that loses electrons becomes a positively-charged ion called

A. cation

B. anion

C. ion

D. all of these

Answer:

Watch Video Solution

3. When two atoms share electrons, they form a bond called

A. ionic bond.

B. covalent bond.

C. chemical bond.

D. electrovalent bond.

Answer:

Watch Video Solution

4. $2Mg(s) + O_2(g) \rightarrow 2MgO(s)$ is an example of a

A. combination reaction.

B. double displacement reaction.

C. decomposition reaction.

D. displacement reaction.

Answer:

Watch Video Solution

5. $AB \rightarrow A + B$ is the representation of a

A. combination reaction.

B. double displacement reaction.

C. decomposition reaction.

D. displacement reaction.

Answer:

Watch Video Solution

6. When chlorine gas is passed through an aqueous solution of potassium bromide, the solution turns brown due to the liberation of

A. chlorine

B. oxygen

C. bromine

D. iodine

Answer:

Watch Video Solution

7. Solutions of silver nitrate and sodium chloride react to form a white precipitate of

A. sodium chloride.

B. silver nitrate.

C. sodium nitrate.

D. silver chloride.

Answer:

Watch Video Solution

8. Our stomach produces

A. hydrochloric acid

B. sulphuric acid

C. nitric acid.

D. none of these

Answer:

Watch Video Solution

9. As we move down the activity series, the reactivity of metals :

A. increases

B. does not change

C. decreases

D. varies

Answer:

Watch Video Solution

10. Chemical reactions in which heat energy is evolved are called

A. endothermic reactions.

B. decomposition reactions.

C. displacement reactions.

D. exothermic reactions.

Answer:

Watch Video Solution

Exercise Fill In The Blanks

1. Metals react with non-metals to form stable compounds called _____ compounds.

Watch Video Solution

2. An atom that gains electrons becomes a negatively-charged ion called _____

Watch Video Solution

3. The attractive force between oppositely charged ions that holds ions together is called an _____ bond.

Watch Video Solution

4. An acid turns blue litmus paper or solution _____

Watch Video Solution

5. Salts are compounds formed by the combination of an acid and a _____

Watch Video Solution

6. The most reactive metal is at the _____ of the activity series of metals.

Watch Video Solution

7. Chemical reactions in which heat is absorbed are called _____

Watch Video Solution

8. _____ are formed when metals or non-metals react with oxygen in the air.

Watch Video Solution

Exercise Match The Columns

1. Match the columns

1. Electronegative ion	a. neutralization reaction
2. Reaction between sodium hydroxide and hydrochloric acid	b. basic oxides
3. Limestone on heating	c. show neither basic nor acidic properties
4. Dissolution of ammonium chloride in water	d. exothermic reaction
5. Oxides of metals	e. acidic oxides
6. Oxides of non-metals	f. show both basic and acidic properties
7. Amphoteric oxides	g. anion
8. Neutral oxides	h. decomposition reaction
	i. endothermic reaction

Watch Video Solution

Exercise Write True Or False Correct The False Statements

1. The attractive force between oppositely charged ions that holds ions together is called an _____ bond.

Watch Video Solution

2. When electricity is passed through acidified water, it decomposes to give hydrogen and carbon dioxide.

Watch Video Solution

3. Potassium chlorate on heating gives potassium chloride and oxygen.

Watch Video Solution

4. silver chloride $\rightarrow$ silver + chlorine

Watch Video Solution

5. Neutralization reactions between acids and bases are endothermic reactions.

Watch Video Solution

6. When metal carbonates are heated strongly, metal oxides are formed.

Watch Video Solution

7. Acidic oxides that are dissolved in water turn red litmus blue.

Watch Video Solution

Exercise Name The Following

1. Substances that take part in a chemical reaction

Watch Video Solution

2. Name: Substances produced because of a reaction

Watch Video Solution

3. Stable compounds that are formed when metals react with non-metals

Watch Video Solution

4. Name: A reaction in which a substance breaks up into two or more simpler substances

Watch Video Solution

5. A reaction in which an element displaces another element from its compound

Watch Video Solution

6. A substance that alters the speed of a chemical reaction but does not take part in the reaction

Watch Video Solution

7. The insoluble residue formed when solutions of two compounds react with each other

Watch Video Solution

8. Compounds that are formed when metals or non-metals react with oxygen in the air

Watch Video Solution

Exercise Classify The Folllowing Reactions

1. Classify the following reactions as combination, displacement, decomposition or neutralization reactions.

$CaCO_3 \rightarrow CaO + CO_2$

Watch Video Solution

2. Classify the following reactions as combination, displacement, decomposition or neutralization reactions.

$Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$

Watch Video Solution

3. Classify the following reactions as combination, displacement, decomposition or neutralization reactions.

$NaOH + HCl \rightarrow NaCl + H_2O$

Watch Video Solution

4. Classify the following reactions as combination, displacement, decomposition or neutralization reactions.

$Fe + S \rightarrow FeS$

Watch Video Solution

Exercise Complete The Following Chemical Equations And Balance Them

1. $AgCl(s) \xrightarrow{\text{light}} Ag(s) + \_\_\_\_$

Watch Video Solution

2. $Cl_2(g) + KBr(aq) \rightarrow \_\_\_ + Br_2(g)$

Watch Video Solution

3. $BaCl_2 + \_\_\_\_ \rightarrow BaSO_4 + NaCl$

Watch Video Solution

4. $CuO + \_\_\_\_ \rightarrow CuSO_4 + H_2O$

Watch Video Solution

5. $Pb(NO_3)_2 \rightarrow$ _____ $+ NO_2 + O_2$

Watch Video Solution

Exercise Answer The Following In Short

1. What is a chemical reaction?

Watch Video Solution

2. Differentiate between an electrovalent bond and a covalent bond.

Watch Video Solution

3. What are double displacement reactions ?

Watch Video Solution

4. What is a neutralisation reaction? Give two examples.

Watch Video Solution

5. Differentiate between an acid and a base

Watch Video Solution

6. What type of reaction is governed by the position of a metal in the metal activity series?

Watch Video Solution

7. Differentiate between the following : Exothermic reaction and Endothermic reaction

Watch Video Solution

8. Name the types of oxides.

Watch Video Solution

Exercise Answer The Following In Detail

1. Name all the types of chemical reactions and write an example of each.

Watch Video Solution

2. Explain how the principle of a displacement reaction is based on the reactivity of metals and non-metals.

Watch Video Solution

3. Describe an experiment to study a neutralization reaction.

Watch Video Solution

4. Explain exothermic reactions with the help of examples.

Watch Video Solution

5. Describe the methods used to prepare oxides.

Watch Video Solution

6. Differentiate among acidic oxides, basic oxides, amphoteric oxides and neutral oxides.

Watch Video Solution

Think And Answer

1. Sodium chloride is an ionic compound. Why?

Watch Video Solution

2. The reaction between solutions of silver nitrate and sodium chloride is a precipitation reaction. Explain.

Watch Video Solution

3. The dissolution of quicklime in water is an exothermic reaction. Why?

Watch Video Solution

4. Acidic oxides that are dissolved in water turn blue litmus red. Why?

Watch Video Solution

5. Nitrous oxide is a neutral oxide. Explain.

Watch Video Solution

Exercise

1. State why a direct combination reaction is called a-synthesis reaction.

Watch Video Solution

2. Differenctiate between,- a. Direct combination reaction & a decomposition reaction b. Displacement reaction & a neutralization reaction.

Watch Video Solution

3. Classify the following reactions into- a. Direction combination b. Decomposition c. Displacement d. Double decomposition - The reactions are - i. Zinc hydroxide on heating gives zinc oxide & water ii. Zinc reacts with copper [II] sulphate to give zinc sulphate & copper iii. Zinc sulphate reacts with ammonium hydroxide to give ammonium sulphate & zinc

hydroxide iv. Molten zinc at high temperatures, burns in air to give zinc oxide.

Watch Video Solution

4. Give balance equations for -i. A direct combination reaction involving two elements, one of which is a non metal ii. A thermal decomposition reaction involving heat on limestone [calcium carbonate] iii. An electrolytic decombosition reaction involving a neutral liquid iv. A displacement reaction involving a metal above hydrogen in the activity series with copper [II] sulphate solution v. A double decomposition neutralization reaction involving an acid & a base vi. A white precipitate obtained during a double decomposition reaction involving a silver salt with a sodium salt.

Watch Video Solution

5. A chemical reaction may b reversible in nature. State the meaning of the term in italics. Give a reason why a catalyst is used in certain chemical

reactions. Give a balanced equation for the following - a. A reversible catalytic reaction involving-

i. nitrogen as one of the reactants ii. Sulphur dioxide as one of the reactants.

Watch Video Solution

6. State which type of chemical reactions proceed with - a. Evolution of heat energy b. Absorption of heat energy. State in each of the following reactions whether heat is evolved or absorbed - i. Water is added to quicklime ii. Two neutral gases on passage through an electric arc give niric oxide iii. Two neutral gases combine to give - a basic gas.

Watch Video Solution

7. Certain thermal decomposition reactions, result in formation of oxides. Give balanced equations for the thermal decomposition of the following, which result in formation of a metallic oxide. A. Limestone b. Lead carbonate c. Calcium nitrate d. Calcium hydroxide.

Watch Video Solution

8. State the meaning of the term oxide. Give a balanced equation for formation of the following oxides- a. Sulphur dioxide from a non metal b. Zinc oxide from a metal c. Lead oxide from a mixed oxide.

Watch Video Solution

9. Give two examples each of the following oxides - a. Acidic oxides b. Basic oxides c. Amphoteric oxides d. Neutral oxides. State which of the following oxides i.e. a. to d. -

(i) React with water to give a base (ii) React with a base to give salt & water

(iii) React with acids & bases to give salt & water.

Watch Video Solution

10. Give one example each of - a. A peroxide b. A mixed oxide c. A dioxide.

Watch Video Solution

Objective Type Questions

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

A. Iron B. Carbonic acid C. Hydrogen D. Oxygen E. Carbon monoxide

The product formed during direct combination reaction of carbon dioxide & water.

Watch Video Solution

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

A. Iron B. Carbonic acid C. Hydrogen D. Oxygen E. Carbon monoxide

the neutral gas obtained on thermal decomposition of potassium nitrate.

Watch Video Solution

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

A. Iron B. Carbonic acid C. Hydrogen D. Oxygen E. Carbon monoxide

The displaced product of the displacement reaction of sodium with cold water.

Watch Video Solution

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

A. Iron B. Carbonic acid C. Hydrogen D. Oxygen E. Carbon monoxide

The catalyst used in the catalytic reaction involving the reactants nitrogen & hydrogen.

Watch Video Solution

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

A. Iron B. Carbonic acid C. Hydrogen D. Oxygen E. Carbon monoxide

A neutral oxide which does not react with an acid or a base to give salt & water.

Watch Video Solution

6. Complete the statements by filling in the blank with the correct word/s: Direct combination reaction of phosphorus pentoxide with water gives_____$[H_3PO_3 / H_3PO_4]$

Watch Video Solution

7. Complete the statements by filling in the blank with the correct word/s: Decomposition of silver salts in the presence of sunlight is an example of _____[double decomposition/photochemical decomposition]

Watch Video Solution

8. Complete the statements by filling in the blank with the correct word/s:

The element molybdenum used in the reaction of nitrogen with hydrogen at elevated temperatures is an example of a _____[promoter/catalyst].

Watch Video Solution

9. Complete the statements by filling in the blank with the correct word/s:

The reaction of coke with steam to give water gas is an example of an_____[exothermic/endothermic] reaction.

Watch Video Solution

10. Complete the statements by filling in the blank with the correct word/s:

The metal which reacts with steam and the reaction is reversible is _____[calcium/iron]

Watch Video Solution

Watch Video Solution

11. Give a balanced equation for each of the following types of reaction:

A thermal decomposition reaction in which a compound decomposes to give two new compounds.

Watch Video Solution

12. Give a balanced equation for each of the following types of reaction:

A reaction of direct combination i.e. synthesis in which two gases combine to give another gas-which turns lime water milky.

Watch Video Solution

13. Give a balanced equation for each of the following types of reaction:

A thermal decomposition reaction in which a metallic nitrate decomposes to give - a basic oxide.

Watch Video Solution

14. Give a balanced equation for each of the following types of reaction:

A catalytic, reversible, exothermic reaction.

Watch Video Solution

15. Give a balanced equation for each of the following types of reaction:

A displacement reaction in which a metal above hydrogen in the reactivity series, displaces another metal from the solution of its compound.

Watch Video Solution

16. Differentiate between the following: Thermal decomposition & thermal dissociation.

Watch Video Solution

17. Differentiate between the following: Neutralization reaction & a precipitation reaction.

Watch Video Solution

18. Differentiate between the following: Electrolytic decomposition & photochemical decomposition.

Watch Video Solution

19. Differentiate between the following: A catalyst & a promoter.

Watch Video Solution

20. Differentiate between the following: An acidic oxide & a basic oxide.

Watch Video Solution

21. Match the chemical reactions in List I with the appropriate answer in List II.

List I

1. $XY \underset{\text{heat}}{\rightleftharpoons} X + Y$
2. $XY \rightarrow X + Y$
3. $X^+Y^- + A^+B^- \rightarrow X^+B^- + A^+Y^-$
4. $X + YZ \rightarrow XZ + Y$
5. $X + Y \xrightarrow{\text{heat}} XY - \Delta$

List II

A: Displacement reaction
B: Double decomposition
C: Endothermic reaction
D: Thermal dissociation
E: Decomposition reaction

Watch Video Solution