



## CHEMISTRY

### BOOKS - OSWAL PUBLICATION

### CHEMICAL REACTIONS

#### Stand Alone Mcqs

1. Which of the following is not a physical change?

- A. Boiling of water to give water vapour
- B. Melting of ice to give water
- C. Dissolution of salt in water
- D. Combustion of liquified petroleum gas (LPG)

**Answer: D**



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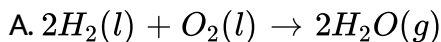
2. Which one of the following processes involve chemical reactions?

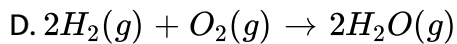
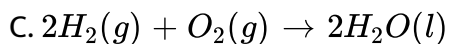
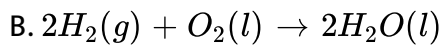
- A. Storing of oxygen gas under pressure in a gas cylinder
- B. Liquification of air
- C. Keeping petrol in a china dish in the open
- D. Heating copper wire in presence of air at high temperature

**Answer: D**

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3. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?





**Answer: C**

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4. The reaction in which a substance or substances undergo change to produce new substances with new properties is called

A. A biochemical reaction

B. A nuclear reaction

C. A physical reaction

D. A chemical reaction

**Answer: D**

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5. Which of the following conditions is necessary for a chemical reaction?

- A. It must be accompanied with change in temperature and pressure.
- B. At least one of the reactants must be in a fixed quantity.
- C. It must follow the law of conservation of mass.
- D. All of the above.

**Answer: C**



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6. There is an equation 'X', which contains equal number of atoms of each element on both the sides. What is 'X'?

- A. A balanced equation
- B. An unbalanced equation
- C. A chemical equation

D. All of the above

**Answer: A**



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7. Which among the following is not a physical change?

A. Evaporation of petrol

B. Burning of liquified petroleum gas (LPG)

C. Heating of an iron rod to red hot.

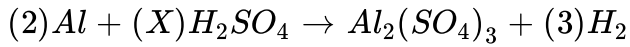
D. Sublimation of solid ammonium chloride

**Answer: B**



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8. In the given equation, what does 'X' stand for?



A. 2

B. 3

C. 1

D. 5

**Answer: B**



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9. Which of the following reactions is an endothermic reaction?

A. Burning of coal.

B. Decomposition of vegetable matter into compost.

C. Process of respiration.

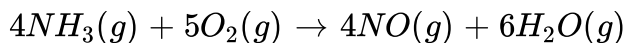
D. Decomposition of calcium carbonate to form quick lime and carbon dioxide.

**Answer: D**



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10. The following reaction is an example of a



1. displacement reaction

2. combination reaction

3. redox reaction

4. neutralisation reaction

A. (i) and (iv)

B. (ii) and (iii)

C. (i) and (iii)

D. (iii) and (iv)

**Answer: B**



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11. Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous  $CuSO_4$  and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement (s) is (are) correct?

1. In beakers A and B, exothermic process has occurred.
2. In beakers A and B, endothermic process has occurred.
3. In beaker C, exothermic process has occurred.
4. In beaker C, endothermic process has occurred.

A. (i) only

B. (ii) only

C. (i) and (iv)



D. (ii) and (iii)

**Answer: C**

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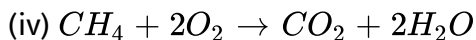
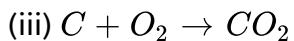
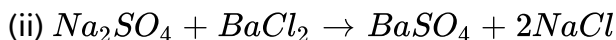
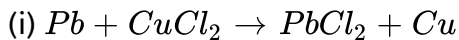
12. A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

- A.  $KMnO_4$  is an oxidising agent, it oxidises  $FeSO_4$
- B.  $FeSO_4$  acts as an oxidising agent and oxidises  $KMnO_4$ .
- C. The colour disappears due to dilution, no reaction is involved.
- D.  $KMnO_4$  is an unstable compounds and decomposes in presence of  $FeSO_4$  to a colourless compound.

**Answer: A**

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13. Which among the following is (are) double displacement reaction (s)?



A. (i) and (iv)

B. (ii) only

C. (i) and (ii)

D. (iii) and (iv)

**Answer: B**



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14. Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?

- (i) Displacement reaction
- (ii) Precipitation reaction
- (iii) Combination reaction
- (iv) Double displacement reaction

A. (i) only

B. (ii) only

C. (iv) only

D. (ii) and (iv)

**Answer: D**



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15. What happens when dilute hydrochloric acid is added to iron filings?

Choose the correct answer.

A. Hydrogen gas and iron chloride are produced.

B. Chlorine gas and iron hydroxide are produced.

C. No reaction takes place.

D. Iron salt and water are produced.

**Answer: A**



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16. Which among the following statement (s) is /are true? Exposure of silver chloride to sunlight for a long duration turns grey due to

(i) the formation of silver by decomposition of silver chloride.

(ii) sublimation of silver chloride.

(iii) decomposition of chlorine gas from silver chloride.

(iv) oxidation of silver chloride.

A. (i) only

B. (i) and (iii)

C. (ii) and (iii)

D. (iv) only

**Answer: A**



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## Assertion And Reason Based Mcqs

1. Assertion (A): Carbon dioxide turns lime water milky.

Reason (R ): Carbon dioxide sullies the water.

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true but R is NOT the correct explanation of A.

C. A is true but R is false.

D. A is false and R is true.

**Answer: C**

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2. Assertion (A): A chemical reaction becomes faster at higher temperatures.

Reason (R): At higher temperatures, molecular motion becomes more rapid.

- A. Both A and R are true and R is the correct explanation of A.
- B. Both A and R are true but R is NOT the correct explanation of A.
- C. A is true but R is false.
- D. A is false and R is true.

**Answer: A**

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3. Assertion: After white washing the walls, a shiny white finish on walls is obtained after two to three days.

Reason: Calcium Oxide reacts with Carbon dioxide to form Calcium Hydrogen Carbonate which gives shiny white finish.

- A. Both A and R are true and R is the correct explanation of A.
- B. Both A and R are true but R is NOT the correct explanation of A.
- C. A is true but R is false.
- D. A is false and R is true.

**Answer: C**

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4. Assertion (A): Burning of candle is a physical change.

Reason (R ): In physical change, no new substance is formed.

- A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true but R is NOT the correct explanation of A.

C. A is true but R is false.

D. A is false and R is true.

**Answer: D**

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5. Assertion (A): Sodium metal is stored under kerosene.

Reason (R ): Metallic sodium melts when exposed to air.

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true but R is NOT the correct explanation of A.

C. A is true but R is false.

D. A is false and R is true.

**Answer: C**

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6. Assertion (A): To dilute sulphuric acid, acid is added to water and not water to acid.

Reason (R ): Specific heat of water is quite large.

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true but R is NOT the correct explanation of A.

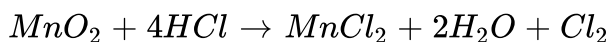
C. A is true but R is false.

D. A is false and R is true.

**Answer: A**

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7. Assertion: In the reaction :



HCl is getting oxidized while  $\text{MnO}_2$  is getting reduced.

Reason: The process in which oxygen is added to a substance is called

oxidation.

whereas the process in which oxygen is removed from a substance is called reduction.

- A. Both A and R are true and R is the correct explanation of A.
- B. Both A and R are true but R is NOT the correct explanation of A.
- C. A is true but R is false.
- D. A is false and R is true.

**Answer: A**



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**8. Assertion (A):** Chips manufacturers usually flush bags of chips with gas such as nitrogen.

**Reason (R ):** Nitrogen gas prevents the oil and fats of the chips from being oxidized.

- A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true but R is NOT the correct explanation of A.

C. A is true but R is false.

D. A is false and R is true.

**Answer: A**



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## Case Based Mcqs

1. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.



The substance not likely to contain  $CaCO_3$  is

- A. Dolomite
- B. A marble statue
- C. Calcined gypsum
- D. Sea shells.

**Answer: C**



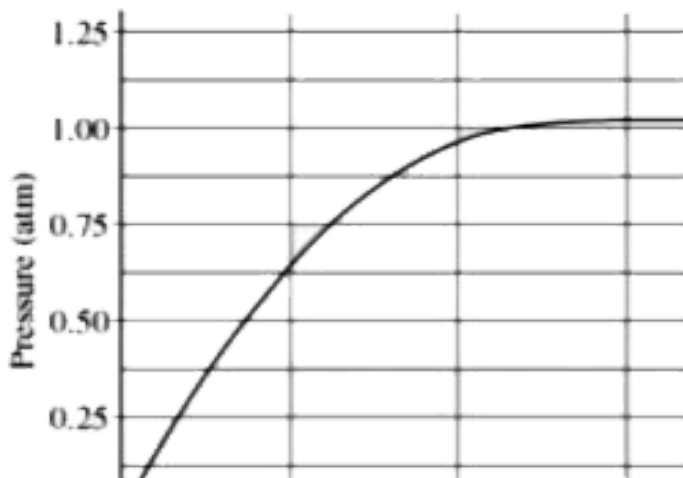
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2. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from

hand-held sculptures to massive pillars and buildings.



A student added 10g of calcium carbonate in a rigid container, secured it tightly and started to heat it. After some time, an increase in pressure was observed, the pressure reading was then noted at intervals of 5 mins and plotted against time, in a graph as shown below. During which time interval did maximum decomposition took place?



A. 15-20 min

B. 10-15 min

C. 5-10 min

D. 0-5 min

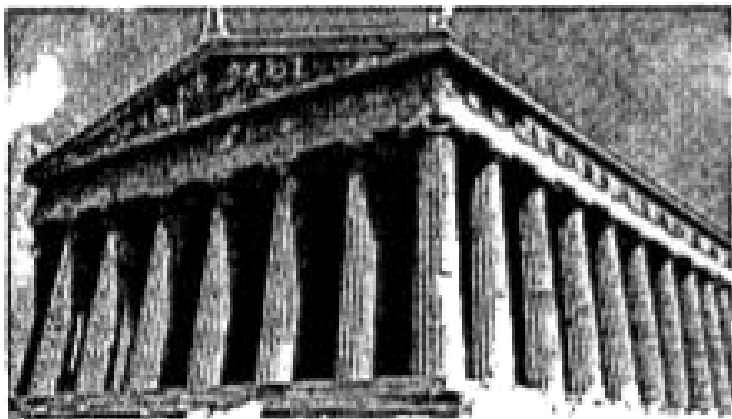
**Answer: D**



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**3.** Read the following and answer the question.

Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand held sculptures to massive pillars and buildings.



Gas A, obtained above is a reactant for a very important biochemical process which occurs in the presence of sunlight. Identify the name of the process -

- A. Respiration
- B. Photosynthesis
- C. Transpiration
- D. Photolysis

**Answer: B**



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4. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.



Marble statues are corroded or stained rain water. Identify the main reason





- A. decomposition of calcium carbonate to calcium oxide
- B. polluted water is basic in nature hence it reacts with calcium carbonate
- C. polluted water is acidic in nature he
- D. calcium carbonate dissolves in water to give calcium hydroxide.

**Answer: B**

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5. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.



Calcium oxide can be reduced to calcium, by heating with sodium metal.

Which compound would act as an oxidizing agent in the above process

- A. sodium
- B. sodium oxide
- C. calcium
- D. calcium oxide

**Answer: D**

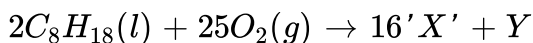


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6. Read the following and answer the question:

Chemistry in Automobiles:

For an internal combustion engine to move a vehicle down the road, it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:



Which of the following are the products obtained from the reaction mentioned in the above case?

A. Product 'X' Product 'Y'



B. Product 'X' Product 'Y'



C. Product 'X' Product 'Y'



D. Product 'X' Product 'Y'



**Answer: D**

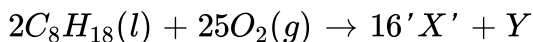


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7. Read the following and answer the question:

Chemistry in Automobiles:

For an internal combustion engine to move a vehicle down the road, it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:



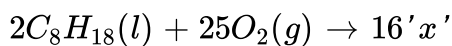
Identify the types of chemical reaction occurring during the combustion of fuel:

- A. Oxidation & Endothermic reaction
- B. Decomposition & Exothermic reaction
- C. Oxidation & Exothermic reaction
- D. Combination & Endothermic reaction

**Answer: C**

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8. For an internal combustion engine to move a vehicle down the road ,it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:



On the basis of evolution/absorption of energy, which of the following processes are similar to combustion of fuel?

- (a) Photosynthesis in plants
- (b) Respiration in the human body
- (c) Decomposition of vegetable matter
- (d) Decomposition of ferrous sulphate .

A. (ii) & (iii)

B. (i) & (ii)

C. (iii) & (iv)

D. (ii) & (i)

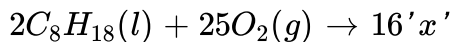
**Answer: A**



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9. For an internal combustion engine to move a vehicle down the road, it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting

complete combustion of gasoline in full supply of air:



'A student while walking on the road observed that a cloud of black smoke belched out from the exhaust stack of moving trucks on the road.'

Choose the correct reason for the production of black smoke:

- A. Limited supply of air leads to incomplete combustion of fuels
- B. Rich supply of air leads to complete combustion of fuel.
- C. Rich supply of air leads to a combination reaction.
- D. Limited supply of air leads to complete combustion of fuel.

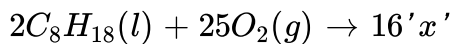
**Answer: A**



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**10.** For an internal combustion engine to move a vehicle down the road, it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in

combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:



'Although nitrogen is the most abundant gas in the atmosphere, it does not combustion'. Identify the correct reason for this statement.

- A. Nitrogen is a reactive gas
- B. Nitrogen is an inert gas
- C. Nitrogen is an explosive gas
- D. Only hydrocarbons can take part in combustion

**Answer: B**

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**11.** Read the given passage and answer the questions.

The physical states of the reactants and products can be represented by using the symbols (s) for solids, (l) for liquids, (g) for gases and (aq) for aqueous solution along with their respective formulae. The word aqueous



is written if the reactant or product is present as a solution in water.

Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

If the reactant or product is present as a solution of water , it is represented as:

A. (s)

B. (l)

C. (aq)

D.  $\downarrow$

**Answer: C**



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**12.** Read the given passage and answer the questions.

The physical states of the reactants and products can be represented by using the symbols (s) for solids, (l) for liquids, (g) for gases and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

The correct way to represent the evolution of gas, is to use which of the following symbol:

A.  $\downarrow$

B.  $\rightarrow$

C.  $\uparrow$

D. (g)

**Answer: C**



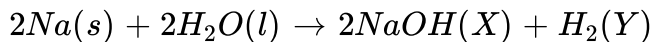
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**13.** Read the given passage and answer the questions.

The physical states of the reactants and products can be represented by using the symbols (s) for solids, (l) for liquids, (g) for gases and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Complete the missing variable given as X and Y in the following reaction:



A. (aq) and (g)

B. (s) and (g)

C. (g) and (l)

D. (g) and (aq)

**Answer: A**



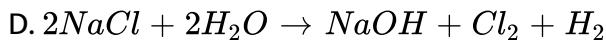
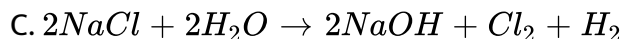
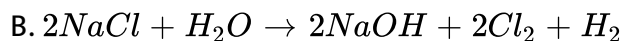
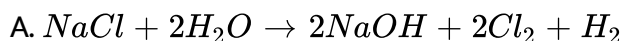
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**14.** Read the given passage and answer the questions.

The physical states of the reactants and products can be represented by using the symbols (s) for solids, (l) for liquids, (g) for gases and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Which of the following reaction is balanced?



**Answer: C**



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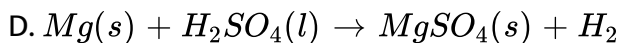
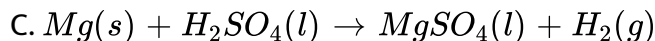
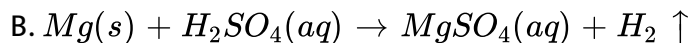
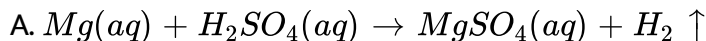
**15.** Read the given passage and answer the questions.

The physical states of the reactants and products can be represented by using the symbols (s) for solids, (l) for liquids, (g) for gases and (aq) for

aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Which of the following reaction is balanced?



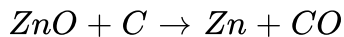
**Answer: B**



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16. Read the given passage and answer the questions.

In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide."



Name the substance getting oxidised and reduced in the above reaction:

- A. C and ZnO
- B. Zn and C
- C. ZnO and CO
- D. CO and ZnO

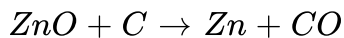
**Answer: A**



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17. Read the given passage and answer the questions.

In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide."



Name the type of reaction:

- A. oxidation reaction
- B. reduction reaction
- C. redox reaction
- D. decomposition reaction

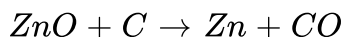
**Answer: C**



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**18.** Read the given passage and answer the questions.

In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide."



The reduction reaction involves:

- A. gain of electrons



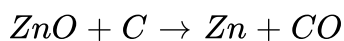
- B. loss of electrons
- C. increase in oxidation state
- D. addition of oxygen

**Answer: A**

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**19.** Read the given passage and answer the questions.

In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide."



The reactions used in black and white photography:

- A. Decomposition of silver bromide
- B. Decomposition of silver chloride
- C. Both
- D. None of the above

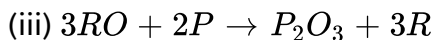
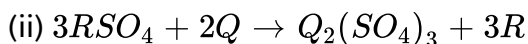
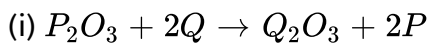
**Answer: C**



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**20.** Read the given passage and answer the questions.

P, Q and R are three elements which undergo chemical reactions according to the following equations.



The most reactive and the least reactive elements are:

A. Q and P

B. Q and R

C. R and Q

D. R and P

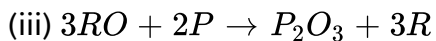
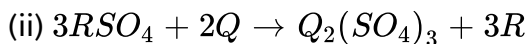
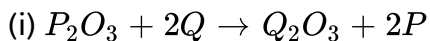
**Answer: B**



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21. Read the given passage and answer the questions.

P, Q and R are three elements which undergo chemical reactions according to the following equations.



The type of reaction is:

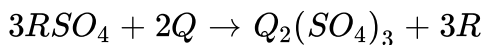
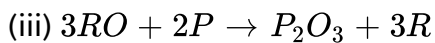
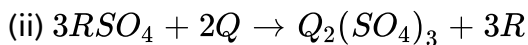
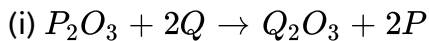
- A. Displacement reaction
- B. Combination reaction
- C. Neutralisation reaction
- D. Substitution reaction

**Answer: A**

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22. Read the given passage and answer the questions.

P, Q and R are three elements which undergo chemical reactions according to the following equations.



The given reaction shows:

- A. Q is more reactive than R
- B. Q is less reactive than R
- C. Q and R are equally reactive
- D. none of the above

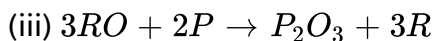
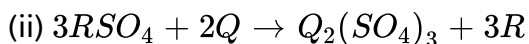
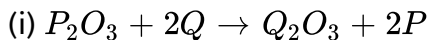
**Answer: A**



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23. Read the given passage and answer the questions.

P, Q and R are three elements which undergo chemical reactions according to the following equations.



Choose the correct statement:

A. Zinc and lead are more reactive elements than copper.

B. Zinc and lead are less reactive elements than copper.

C. Zinc and copper are more reactive elements than lead.

D. Copper and lead are more reactive elements than zinc.

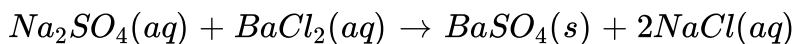
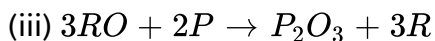
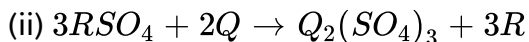
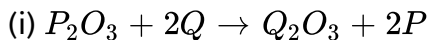
**Answer: A**



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24. Read the given passage and answer the questions.

P, Q and R are three elements which undergo chemical reactions according to the following equations.



The above reaction is an example of:

A. Double displacement reaction.

B. Displacement reaction.

C. Can be both.

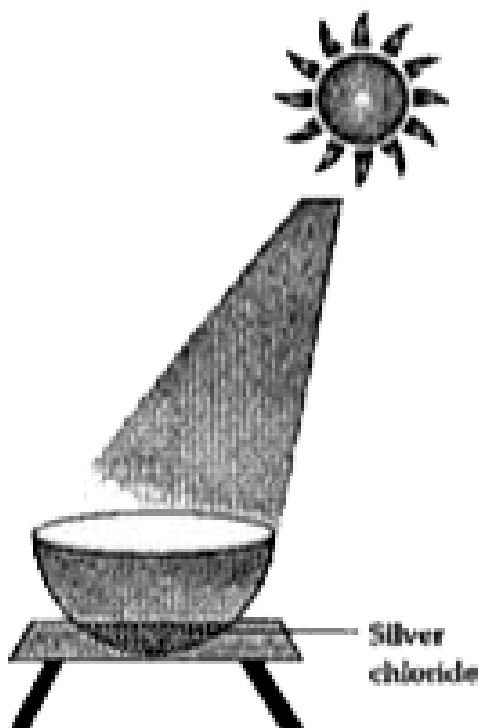
D. None of the above.

**Answer: A**



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25. The following diagram displays a chemical reaction. Observe carefully and answer the questions.



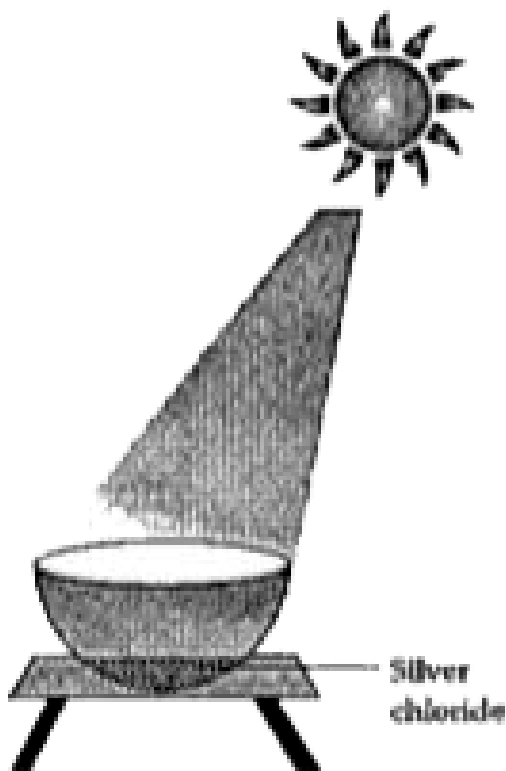
The type of chemical reaction that will take place is

- A. Photochemical decomposition
- B. Displacement reaction
- C. Reduction reaction
- D. Combination reaction

Answer: A

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26. The following diagram displays a chemical reaction. Observe carefully and answer the questions.



What colour change is observed in silver chloride?



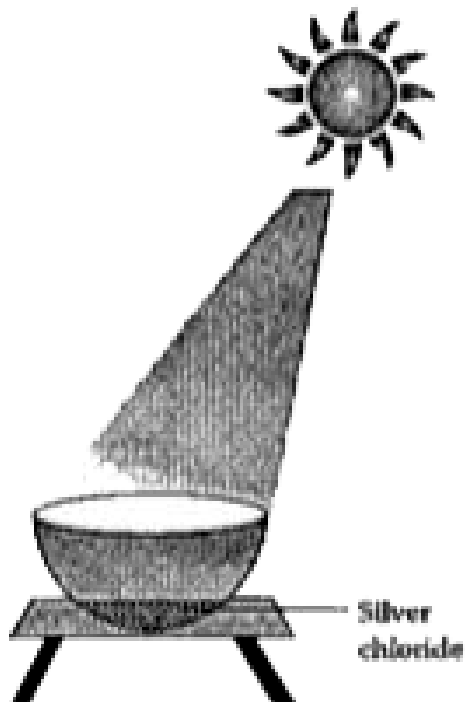
- A. Silver chloride turns white.
- B. Silver chloride turns brown.
- C. Silver chloride shows no colour change.
- D. White silver chloride changes to grey.

**Answer: A**

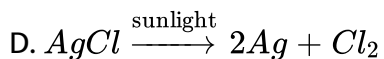
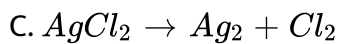
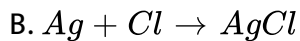
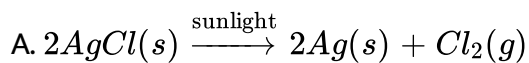


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**27.** The following diagram displays a chemical reaction. Observe carefully and answer the questions.



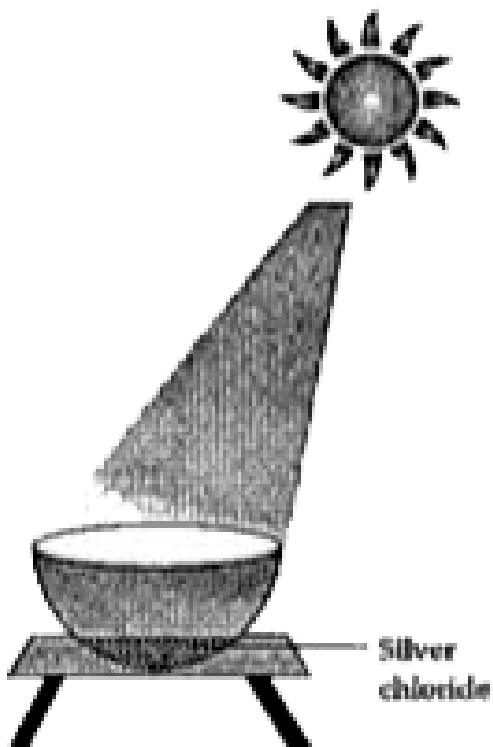
The correct balanced chemical equation involves:



Answer: A

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28. The following diagram displays a chemical reaction. Observe carefully and answer the questions.



When decomposition is carried out by heating, it is called as:

- A. Heat decomposition
- B. Photolytic decomposition
- C. Electrolytic decomposition

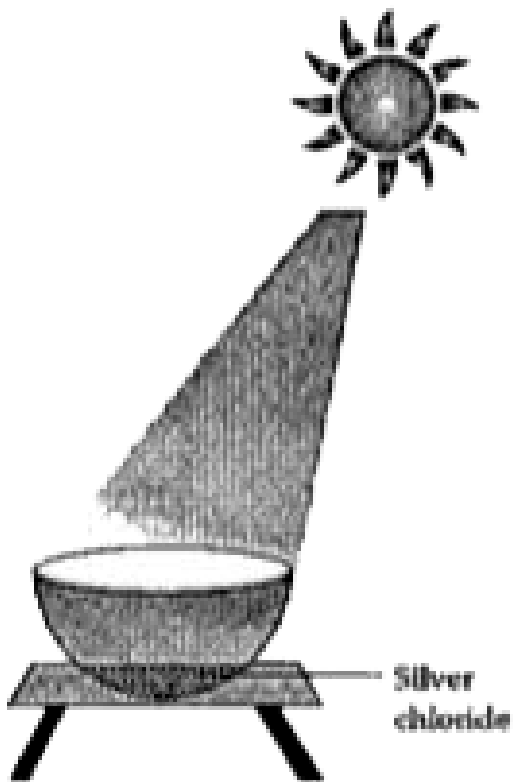
D. Thermal decomposition

**Answer: D**



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**29.** The following diagram displays a chemical reaction. Observe carefully and answer the questions.



The other silver salt which behaves like silver chloride in sunlight is:

- A. silver hydride
- B. silver bromide
- C. silver iodide
- D. silver nitrite

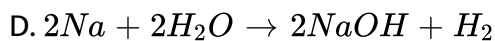
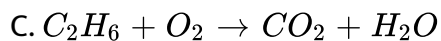
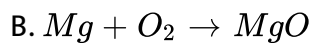
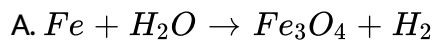
**Answer: B**



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## Self Assessment 1 Multiple Choice Questions

1. Which of these is a balanced chemical equation?



Answer:



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2. Which of these is a physical change?

A. Heating of copper wire in presence of air at high temperature

B. Combustion of liquefied petroleum gas

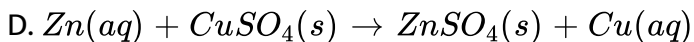
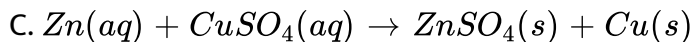
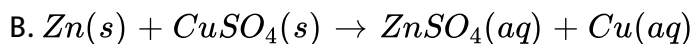
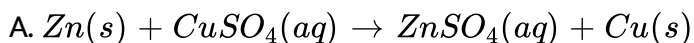
C. Boiling of water to give water vapour

D. Rusting of iron

**Answer:**

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3. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?



**Answer:**



## Self Assessment 1 Passage Diagram Based Questions

1. Read the given passage and answer the following questions :

The physical states of the reactants and products can be represented by using the symbols, (s) for solids, (l) for liquids, (g) for gas and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Write the balanced chemical equation with state symbols for the given reaction : Magnesium reacting with dilute sulphuric acid







2. Read the given passage and answer the following questions :

The physical states of the reactants and products can be represented by using the symbols, (s) for solids, (l) for liquids, (g) for gas and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

To indicate the presence of gaseous reactant or product, we use \_\_\_\_\_ or \_\_\_\_\_ symbol.

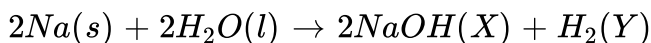


3. Read the given passage and answer the following questions :

The physical states of the reactants and products can be represented by using the symbols, (s) for solids, (l) for liquids, (g) for gas and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Complete the missing variable given as X and Y in the following reaction :



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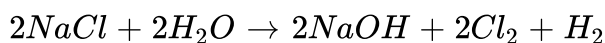
4. Read the given passage and answer the following questions :

The physical states of the reactants and products can be represented by

using the symbols, (s) for solids, (l) for liquids, (g) for gas and (aq) for aqueous solution along with their respective formulae. The word aqueous is written if the reactant or product is present as a solution in water. Precipitate can also be represented by using an arrow pointing downwards ( ↓ ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction ( ↑ ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Which of the following reaction is balanced?



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5. Read the given passage and answer the following questions :

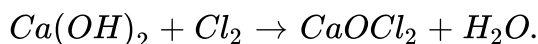
The physical states of the reactants and products can be represented by using the symbols, (s) for solids, (l) for liquids, (g) for gas and (aq) for aqueous solution along with their respective formulae. The word aqueous

is written if the reactant or product is present as a solution in water.

Precipitate can also be represented by using an arrow pointing downwards (  $\downarrow$  ) instead of using symbol (s).

In the same way, the gaseous state of an evolved gas can be represented by using an arrow pointing upward direction (  $\uparrow$  ) instead of using symbol (g). The specific condition of the reaction like temperature, pressure, catalyst etc. is written above or below the arrow in the chemical equation.

Which of the following reaction is balanced?



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## Self Assessment 1 Assertion And Reason Type Questions

1. Assertion : A chemical reaction is a process in which the original substance(s) lose its nature and identity and form new substance(s) with different properties.

Reason : Breaking of the chemical bonds and formation of new chemical bonds is responsible for the occurrence of a chemical reaction.

- A. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C. Assertion (A) is true but reason (R) is false.
- D. Assertion (A) is false but reason (R) is true.

**Answer:**



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**2. Assertion :** Burning of candle is a physical change.

**Reason :** In physical change, no new substance is formed.

- A. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C. Assertion (A) is true but reason (R) is false.
- D. Assertion (A) is false but reason (R) is true.

**Answer:**

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### Self Assessment 1 Very Short Answer Type Questions

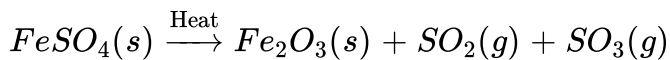
1. Write the chemical equation for the reaction that takes place when lead nitrate and potassium iodide solutions are mixed.

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2. Name and state the law which is kept in mind while we balance a chemical equation.

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3. Write a balanced chemical equation :



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## Self Assessment 2 Multiple Choice Questions

1. Which of the following reactions is an endothermic reaction?

- A. Burning of coal.
- B. Decomposition of vegetable matter into compost.
- C. Process of respiration.

D. Decomposition of calcium carbonate to form quick lime and carbon dioxide.

**Answer:**

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2. Name the products formed when iron filings are heated with dilute hydrochloric acid.

A. Fe (III) chloride and  $H_2O$

B. Fe (II) chloride and  $H_2O$

C. Fe (II) chloride and  $H_2$  gas

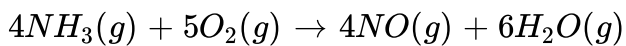
D. Fe (III) chloride and  $H_2$  gas

**Answer:**

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3. The following reaction is an example of a



1. displacement reaction

2. combination reaction

3. redox reaction

4. neutralisation reaction

A. Displacement reaction

B. Combination reaction

C. Neutralisation reaction

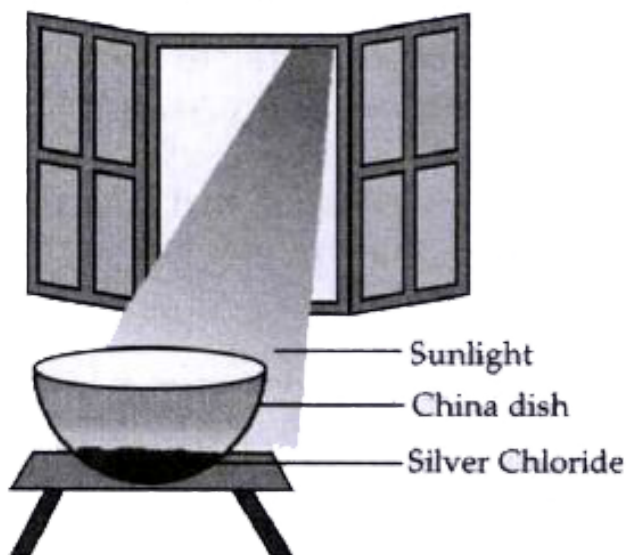
D. Exothermic reaction

**Answer:**



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1. The following diagram displays a chemical reaction. Observe carefully and answer the following questions :



The type of chemical reaction that will take place is :

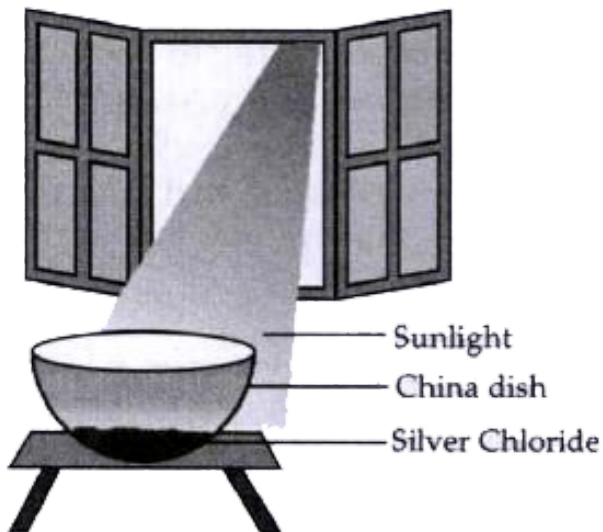
- A. Photochemical decomposition
- B. Displacement reaction
- C. Reduction reaction
- D. Combination reaction

**Answer:**



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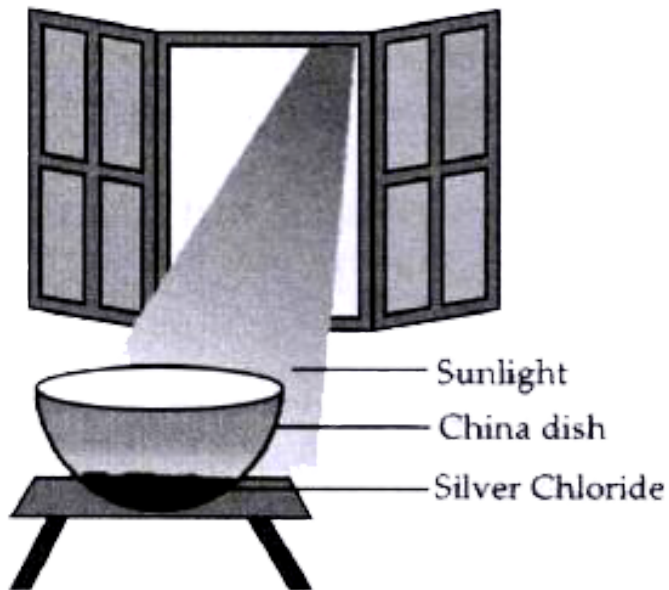
2. The following diagram displays a chemical reaction. Observe carefully and answer the following questions :



What happens to the silver chloride?

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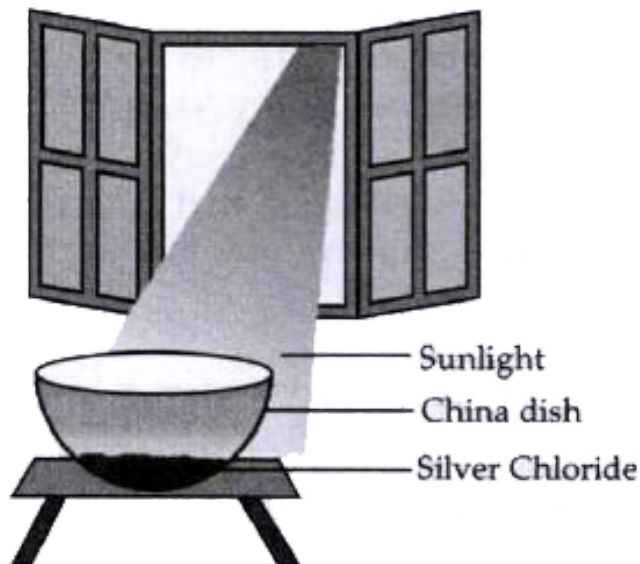
3. The following diagram displays a chemical reaction. Observe carefully and answer the following questions :



Write the chemical equation of the reaction involved.

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4. The following diagram displays a chemical reaction. Observe carefully and answer the following questions :



Mention one commercial use of this salt.

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## Self Assessment 2 Assertion And Reason Type Questions

1. Assertion : In the reaction :



HCl is getting oxidized while  $MnO_2$  is getting reduced.

Reason : The process in which oxygen is added to a substance is called

oxidation whereas the process in which oxygen is removed from a substance is called reduction.

- A. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C. Assertion (A) is true but reason (R) is false.
- D. Assertion (A) is false but reason (R) is true.

**Answer:**



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2. Assertion : Chips manufacturers usually flush bags of chips with gas such as nitrogen.

Reason : Nitrogen gas prevents the oil and fats of the chips from being oxidized.

- A. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- B. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- C. Assertion (A) is true but reason (R) is false.
- D. Assertion (A) is false but reason (R) is true.

**Answer:**

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## Self Assessment 2 Very Short Answer Type Questions

1. Why corrosion of iron is a serious problem?

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2. Write one equation each for decomposition reaction when energy is supplied in the form of heat.

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3. What type of material is formed when aqueous solutions of sodium sulphate and barium chloride are mixed. Give the balanced chemical equation involved. Name the type of reaction it is ?

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## Self Assessment 2 Short Answer Type Questions

1. When lead nitrate is heated , it gives

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1. Why should a magnesium ribbon be cleaned before burning in air?

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2. Write the balanced equations for the following chemical reactions.

Hydrogen + chlorine  $\rightarrow$  hydrogen chloride

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3. Write the balanced equations for the following chemical reactions.

Barium chloride + aluminium sulphate  $\rightarrow$  barium sulphate + aluminium chloride

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4. Write the balanced equations for the following chemical reactions.

Sodium + water  $\rightarrow$  sodium hydroxide + hydrogen



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5. Write a balanced chemical equation with state symbols for the following reactions :

Solutions of barium chloride and sodium sulphate in water react to give insoluble barium sulphate and the solution of sodium chloride.



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6. Write a balanced chemical equation with state symbols for the following reactions :

Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride solution and water.



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7. A solution of the substance 'X' is used for white washing.

(i) Name the substance 'X' and write its formula.

(ii) Write the reaction of the substance 'X' with water.

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8. A solution of the substance X is used for whitewashing.

Write the reaction of the substance X with water.

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9. Why is the amount of gas collected in one of the test tubes in Activity 1.7 double of the amount collected in the other? Name this gas.

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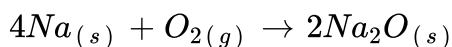
10. Why does the colour of copper sulphate solution change when an iron nail is dipped in it?

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11. Give an example of a double displacement reaction other than formation of barium sulphate and sodium chloride.

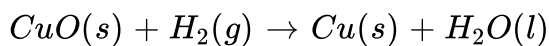
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12. Identify the substances that are oxidized and the substances that are reduced in the following reactions :



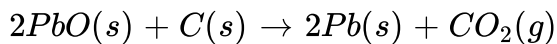
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13. Identify the substances that are oxidised and the substances that are reduced in the following reactions.



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1. Which of the statements about the reaction below are incorrect?



- (a) Lead is getting reduced.
- (b) Carbon dioxide is getting oxidised.
- (c) Carbon is getting oxidised.
- (d) Lead oxide is getting reduced.

A. (i) and (ii)

B. (i) and (iii)

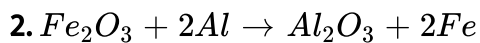
C. (i), (ii) and (iii)

D. All

**Answer: a**



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The above reaction is an example of a

- A. combination reaction.
- B. double displacement reaction.
- C. decomposition reaction.
- D. displacement reaction

**Answer: d**



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**3.** What happens when dilute hydrochloric acid is added to iron fillings?

Tick the correct answer.

- A. Hydrogen gas and iron chloride are produced.
- B. Chlorine gas and iron hydroxide are produced.
- C. No reaction takes place.

D. Iron salt and water are produced.

**Answer: a**

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4. What is a balanced chemical equation? Why should chemical equations be balanced?

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5. Translate the following statement into chemical equation and then balance the equation:

Hydrogen gas combines with nitrogen to form ammonia.

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6. Translate the following statements into chemical equations and then balance them.

Hydrogen sulphide gas burns in air to give water and sulphur dioxide.

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7. Translate the following statements into chemical equations and then balance them.

Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of barium sulphate.

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8. Translate the following statements into chemical equations and then balance them.

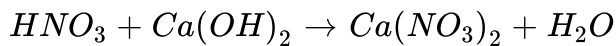
Potassium metal reacts with water to give potassium hydroxide and hydrogen gas.

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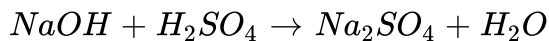
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9. Balance the following chemical equations :



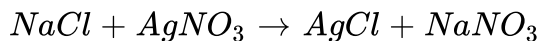
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10. Balance the following chemical equations :



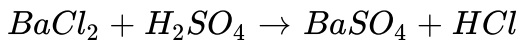
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11. Balance the following chemical equations :



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12. Balance the following chemical equations :



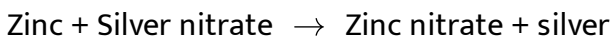
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13. Write the balanced chemical equations for the following reactions :



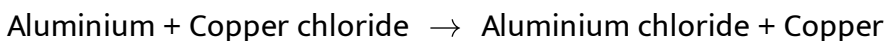
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14. Write the balanced chemical equation for the following reaction:



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15. Write the balanced chemical equations for the following reactions :



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16. Write the balanced chemical equations for the following reactions :

Barium chloride + Potassium sulphate  $\rightarrow$  Barium sulphate + Potassium chloride

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17. Write the balanced chemical equation for the following and identify the type of reaction in each case.

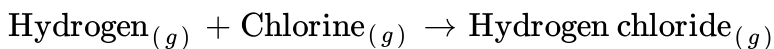
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18. Write the balanced chemical equations for the following and identify the type of reaction in each case.

Zinc carbonate<sub>(s)</sub>  $\rightarrow$  Zinc oxide<sub>(s)</sub> + Carbon dioxide<sub>(g)</sub>

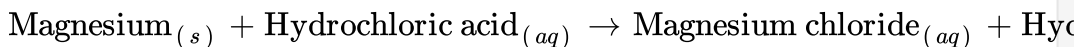
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19. Write the balanced chemical equations for the following and identify the type of reaction in each case.



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20. Write the balanced chemical equations for the following and identify the type of reaction in each case.



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21. What does one mean by exothermic and endothermic reactions? Give examples

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22. Why is respiration considered an exothermic reaction? Explain.

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23. Why are decomposition reactions called the opposite of combination reactions? Write equations for these reactions.

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24. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.

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

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**26.** In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal. Write down the reaction involved.

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**27.** What do you mean by a precipitation reaction? Explain by giving examples.

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**28.** Explain the following in terms of gain or loss of oxygen with two examples each.

Oxidation

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29. Explain the following in terms of gain or loss of oxygen with two examples each.

Reduction

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30. A shiny brown coloured element 'X' on heating in air becomes black in colour. Name the element 'X' and the black coloured compound formed

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31. Why do we apply paint on iron articles?

 [Watch Video Solution](#)

32. Oil and fat containing food items are flushed with nitrogen. Why?

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33. Explain the following terms with one example.

Corrosion



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34. Explain the following terms with one example.

Rancidity



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## Ncert Exemplar Multiple Choice Questions

1. Which of the following is not a physical change?

- A. Boiling of water to give water vapour
- B. Melting of ice to give water
- C. Dissolution of salt in water



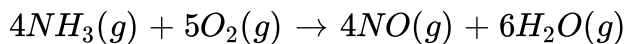
## D. Combustion of liquefied petroleum gas (LPG)

**Answer: d**



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2. The following reaction is an example of a



- (i) Displacement reaction
- (ii) Combination reaction
- (iii) Redox reaction
- (iv) Neutralisation reaction

A. (i) and (iv)

B. (ii) and (iii)

C. (i) and (iii)

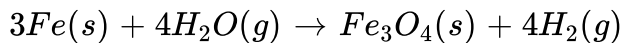
D. (iii) and (iv)

**Answer: c**



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3. Which of the following statements about the given reaction are correct?



1. Iron metal is getting oxidised.
2. Water is getting reduced.
3. Water is acting as reducing agent.
4. Water is acting as oxidising agent.

A. (i), (ii) and (iii)

B. (iii) and (iv)

C. (i) and (iv)

D. (ii) and (iv)

**Answer: c**



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4. Which of the following are exothermic processes?

1. Reaction of water with quick lime
2. Dilution of an acid
3. Evaporation of water
4. Sublimation of camphor (crystals)

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iv)

D. (iii) and (iv)

**Answer: a**



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5. Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous  $CuSO_4$  and NaCl were added to the beakers A, B and C respectively. It was observed that there

was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls. Which one of the following statement (s) is (are) correct?

1. In beakers A and B, exothermic process has occurred.
2. In beakers A and B, endothermic process has occurred.
3. In beaker C, exothermic process has occurred.
4. In beaker C, endothermic process has occurred.

A. (i) only

B. (ii) only

C. (i) and (iv)

D. (ii) and (iii)

**Answer: c**



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**6.** A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of

the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

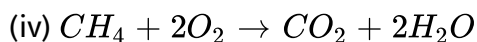
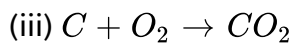
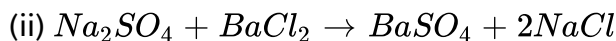
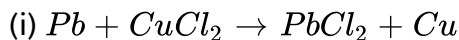
- A.  $KMnO_4$  is an oxidising agent, it oxidises  $FeSO_4$
- B.  $FeSO_4$  acts as an oxidising agent and oxidises  $KMnO_4$
- C. The colour disappears due to dilution, no reaction is involved
- D.  $KMnO_4$  is an unstable compound and decomposes in presence of  $FeSO_4$  to a colourless compound.

**Answer: a**



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7. Which among the following is (are) double displacement reaction (s)?



A. (i) and (iv)

B. (ii) only

C. (i) and (ii)

D. (iii) and (iv)

**Answer: b**



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8. Which among the following statement (s) is /are true? Exposure of silver chloride to sunlight for a long duration turns grey due to

(i) the formation of silver by decomposition of silver chloride.

(ii) sublimation of silver chloride.

(iii) decomposition of chlorine gas from silver chloride.

(iv) oxidation of silver chloride.

A. (i) only

B. (i) and (iii)

C. (ii) and (iii)

D. (iv) only

**Answer: a**



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9. Solid calcium oxide reacts vigorously with water to form calcium hydroxide accompanied by liberation of heat. This process is called slaking of lime. Calcium hydroxide dissolves in water to form its solution called lime water. Which among the following is are true about slaking of lime and the solution formed?

(i) It is an endothermic reaction.

(ii) It is exothermic reaction.

(iii) The pH of the resulting solution will be more than seven.

(iv) The pH of the resulting solution will be less than seven.

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iv)

D. (iii) and (iv)

**Answer: b**



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**10.** Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?

(i) Displacement reaction

(ii) Precipitation reaction

(iii) Combination reaction

(iv) Double displacement reaction

A. (i) only

B. (ii) only

C. (iv) only



D. (ii) and (iv)

**Answer: d**

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**11.** Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is

A. 1 : 1

B. 2 : 1

C. 4 : 1

D. 1 : 2

**Answer: b**

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12. Which of the following is (are) an endothermic process(es)?

- (i) Dilution of sulphuric acid
- (ii) Sublimation of dry ice
- (iii) Condensation of water vapours
- (iv) Evaporation of water

A. (i) and (iii)

B. (ii) only

C. (iii) only

D. (ii) and (iv)

**Answer: d**



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13. In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is

formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate?

A. Lead sulphate (insoluble)

B. Lead acetate

C. Ammonium nitrate

D. Potassium sulphate

**Answer: b**



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**14.** Which of the following gases can be used for storage of fresh sample of an oil for a long time?

A. Carbon dioxide or oxygen

B. Nitrogen or oxygen

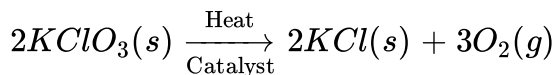
C. Carbon dioxide or helium

D. Helium or nitrogen

**Answer: d**

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15. The following reaction is used for the preparation of oxygen gas in the laboratory



Which of the following statement(s) is/are not correct about the reaction?

- A. It is a decomposition reaction and endothermic in nature.
- B. It is a combination reaction.
- C. It is a decomposition reaction and accompanied by release of heat.
- D. It is a photochemical decomposition reaction and exothermic in nature.

**Answer: a**



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16. Which one of the following processes involve chemical reactions?

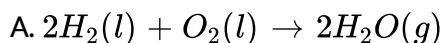
- A. Storing of oxygen gas under pressure in a gas cylinder
- B. Liquification of air
- C. Keeping petrol in a china dish in the open
- D. Heating copper wire in presence of air at high temperature

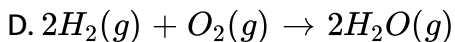
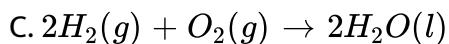
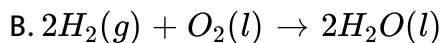
**Answer: d**



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17. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?



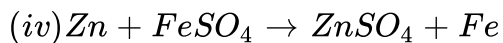
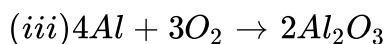
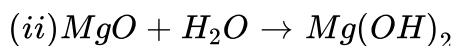
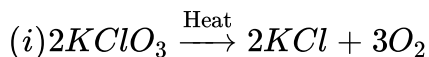


**Answer: c**



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**18. Which of the following are combination reactions?**



A. (i) and (iii)

B. (iii) and (iv)

C. (ii) and (iv)

D. (ii) and (iii)

**Answer: d**

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## Ncert Exemplar Short Answer Type Questions

1. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case.

(a) Nitrogen gas is treated with hydrogen gas in the presence of a catalyst at 773 K to form ammonia gas.

(b) Sodium hydroxide solution is treated with acetic acid to form sodium acetate and water.

(c) Ethanol is warmed with ethanoic acid to form ethyl acetate in the presence of concentrated  $H_2SO_4$ .

(d) Ethane is burnt in the presence of oxygen to form carbon dioxide, water and releases heat and light.

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2. Write the balanced chemical equations for the following reactions and identify the type of reaction in each case.

(a) Nitrogen gas is treated with hydrogen gas in the presence of a catalyst at 773 K to form ammonia gas.

(b) Sodium hydroxide solution is treated with acetic acid to form sodium acetate and water.

(c) Ethanol is warmed with ethanoic acid to form ethyl acetate in the presence of concentrated  $H_2SO_4$ .

(d) Ethane is burnt in the presence of oxygen to form carbon dioxide, water and releases heat and light.

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

Ethanol is warmed with ethanoic acid to form ethyl acetate in the presence of concentrated  $H_2SO_4$ .

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4. Write the balanced chemical equations for the following reactions and identify the type of reaction in case.

Ethene is burnt in the presence of oxygen to form carbon dioxide, water and releases heat and light.

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5. Write the balanced chemical equations for the following reactions and identify the type of reaction in case.

Thermite reaction, iron(II) oxide reacts with aluminium and gives molten iron and aluminium oxide.

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6. Write the balanced chemical equations for the following reactions and identify the type of reaction in case.

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

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7. Write the balanced chemical equations for the following reactions and identify the type of reaction in case.

Chlorine gas is passed in an aqueous potassium iodide solution to form potassium chloride solution and solid iodine.

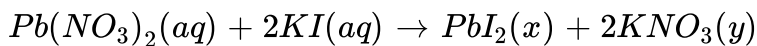
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8. Write the balanced chemical equations for the following reactions and identify the type of reaction in case.

Ethanol is burnt in air to form carbon dioxide, water and releases heat.

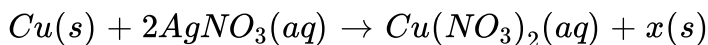
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9. Complete the missing components/variables given as x and y in the following reactions



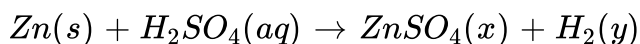
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10. Complete the missing components/variables given as x and y in the following reactions



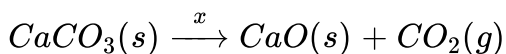
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11. Complete the missing components/variables given as x and y in the following reactions



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12. Complete the missing components/variables given as x and y in the following reactions



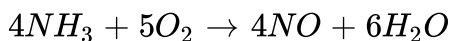
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13. Which among the following changes are exothermic or endothermic in nature?

- (a) Decomposition of ferrous sulphate
- (b) Dilution of sulphuric acid
- (c) Dissolution of sodium hydroxide in water
- (d) Dissolution of ammonium chloride in water

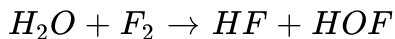
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14. Identify the reducing agent in the following reactions



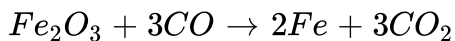
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15. Identify the reducing agent in the following reaction :



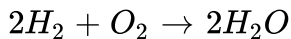
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16. Identify the reducing agent in the following reactions



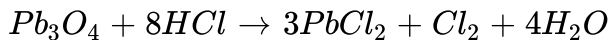
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17. Identify the reducing agent in the following reactions



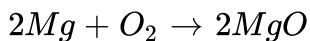
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18. Identify the oxidising agent (oxidant) in the following reactions



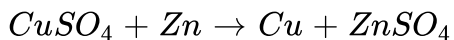
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19. Identify the oxidising agent (oxidant) in the following reactions



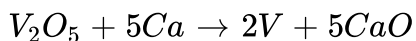
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20. Identify the oxidising agent (oxidant) in the following reactions



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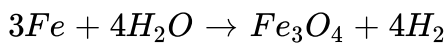
21. Identify the oxidising agent (oxidant) in the following reactions





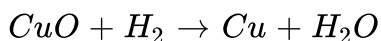
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22. Identify oxidizing agent in the following reactions:



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23. Identify the oxidising agent (oxidant) in the following reactions



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24. Write the balanced chemical equations for the following reactions :

Sodium carbonate on reaction with hydrochloric acid in equal molar concentrations gives sodium chloride and sodium hydrogencarbonate.



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25. Write the balanced chemical equations for the following reactions :

Sodium hydrogencarbonate on reaction with hydrochloric acid gives sodium chloride, water and liberates carbon dioxide.

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26. Write the balanced chemical equations for the following reactions :

Copper sulphate on treatment with potassium iodide precipitates cuprous iodide ( $Cu_2I_2$ ), liberates iodine gas and also forms potassium sulphate.

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27. A solution of potassium chloride when mixed with silver nitrate solution, an insoluble white substance is formed. Write the chemical reaction involved and also mention the type of the chemical reaction.

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**28.** Ferrous sulphate decomposes with the evolution of a gas having a characteristic odour of burning sulphur. Write the chemical reaction involved and identify the type of reaction.

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**29.** Why do fire flies glow at night?

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**30.** Grapes hanging on the plant do not ferment but after being plucked from the plant can be fermented. Under what conditions do these grapes ferment? Is it a chemical or a physical change?

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**31.** Which among the following are physical or chemical changes?

(a) Evaporation of petrol

(b) Burning of Liquefied Petroleum Gas (LPG)

(c) Heating of an iron rod to red hot

(d) Curdling of milk

(e) Sublimation of solid ammonium chloride



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**32.** During the reaction of some metals with dilute hydrochloric acid, following observations were made.

Silver metal does not show any change.

Explain these observations giving suitable reasons.



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**33.** During the reaction of some metals with dilute hydrochloric acid, following observation was made.

The temperature of the reaction mixture rises when aluminium (Al) is added.

Explain these observations giving suitable reasons.



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**34.** During the reaction of some metals with dilute hydrochloric acid, following observations were made.

The reaction of sodium metal is found to be highly explosive.

Explain these observations giving suitable reasons.



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**35.** During the reaction of some metals with dilute hydrochloric acid, following observations were made.

Some bubbles of a gas are seen when lead (Pb) is reacted with the acid.

Explain these observations giving suitable reasons.



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**36.** A substance X, which is an oxide of a group 2 element, is used intensively in the cement industry. This element is present in bones also.

On treatment with water it forms a solution which turns red litmus blue.

Identify X and also write the chemical reactions involved.

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**37.** Write a balanced chemical equation of the following reactions and also classify them.

Lead acetate solution is treated with dilute hydrochloric acid to form lead chloride and acetic acid solution.

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**38.** Write a balanced chemical equation of the following reactions and also classify them.

A piece of sodium metal is added to absolute ethanol to form sodium ethoxide and hydrogen gas.

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**39.** Write a balanced chemical equation of the following reactions and also classify them.

Iron (II) oxide on heating with carbon monoxide gas reacts to form solid iron and liberates carbon dioxide gas.

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**40.** Write a balanced chemical equation of the following reactions and also classify them.

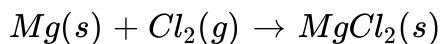
Hydrogen sulphide gas reacts with oxygen gas to form solid sulphur and liquid water.

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**41.** Why do we store silver chloride in dark coloured bottles?

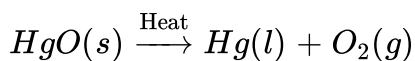
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42. Balance the following chemical equations and identify the type of chemical reaction.



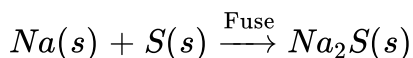
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43. Balance the following chemical equations and identify the type of chemical reaction.



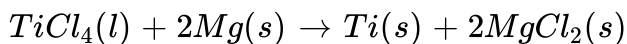
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44. Balance the following chemical equations and identify the type of chemical reaction.



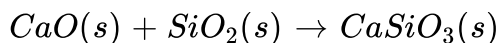
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45. Balance the following chemical equations and identify the type of chemical reaction.



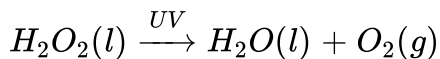
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46. Balance the following chemical equations and identify the type of chemical reaction.



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47. Balance the following chemical equations and identify the type of chemical reaction.



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**48.** A magnesium ribbon is burnt in oxygen to give a white compound X accompanied by emission of light. If the burning ribbon is now placed in an atmosphere of nitrogen, it continues to burn and forms a compound Y.

(a) Write the chemical formulae of X and Y.

(b) Write a balanced chemical equation, when X is dissolved in water.

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**49.** Zinc liberates hydrogen gas when reacted with dilute hydrochloric acid, whereas copper does not. Explain, why?

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**50.** A silver article generally in sunlight turns black when kept in the open for a few days. The article when rubbed with toothpaste again starts shining.



Why do silver articles turn black when kept in the open for a few days?

Name the phenomenon involved.

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51. A silver article generally sunlight turns black when kept in the open for a few days. The article when rubbed with toothpaste again starts shining.

Name the black substance formed and give its chemical formula.

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### Ncert Exemplar Long Answer Type Questions

1. On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (black), oxygen gas and a brown gas X is formed.

Write a balanced chemical equation of the reaction.

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2. On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (black), oxygen gas and a brown gas X is formed.

Identify the brown gas X evolved.

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3. On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (black), oxygen gas and a brown gas X is formed.

Identify the type of reaction.

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4. On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (black), oxygen gas and a brown gas X is formed.

What could be the pH range of aqueous solution of the gas X?

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5. Give the characteristic tests for the following gases



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6. Give the characteristic tests for the following gases



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7. Give the characteristic tests for the following gases



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8. Give the characteristic tests for the following gases



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9. What happens when a piece of :

Zinc metal is added to copper sulphate solution?

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10. What happens when a piece of :

Aluminium metal is added to dilute hydrochloric acid?

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11. What happens when a piece of :

Silver metal is added to copper sulphate solution? Also, write the balanced chemical equation if the reaction occurs.

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12. What happens when zinc granules are treated with dilute solution of  $H_2SO_4$ ,  $HCl$ ,  $HNO_3$ ,  $NaCl$  and  $NaOH$  ? Also write the chemical equations if reaction occurs.

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13. On adding a drop of barium chloride solution to an aqueous solution of sodium sulphite, white precipitate is obtained.

Write a balanced chemical equation of the reaction involved.

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14. On adding a drop of barium chloride solution to an aqueous solution of sodium sulphite, white precipitate is obtained.

What other name can be given to this precipitation reaction?

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15. On adding a drop of barium chloride solution to an aqueous solution of sodium sulphite, white precipitate is obtained.

On adding dilute hydrochloric acid to the reaction mixture, white precipitate disappears. Why?

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16. You are provided with two containers made up of copper and aluminium.

You are also provided with solutions of dilute HCl, dilute  $HNO_3$ ,  $ZnCl_2$  and  $H_2O$ . In which of the containers these solutions can be kept?

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1. 2 g of silver chloride is taken in a china dish and the china dish is placed in sunlight for sometime. What will be your observation in this case? Write the chemical reaction involved in the form of a balanced chemical equation. Identify the type of chemical reaction.



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2. Identify the type of reactions taking place in each of the following cases and write the balanced chemical equation for the reactions.

(a) Zinc reacts with silver nitrate to produce zinc nitrate and silver.

(b) Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide.



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3. Decomposition reactions require energy either in the form of the heat or light or electricity for breaking down the reactants. Write one equations each for decomposition reactions where energy is supplied in the form of heat, light and electricity .



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