

Chapter 1

Chemical Reactions and Equations

In-text Questions (Page 6)

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

Answer: Magnesium ribbon should be cleaned to remove the dust particles present at the upper surface and so that the surface comes directly in contact with air.

Question 2. Write the balanced equation for the following chemical reactions :

1. Hydrogen + chlorine \rightarrow Hydrogen chloride

2. Sodium + water \rightarrow Sodium hydroxide + hydrogen

Answer:

1. $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$

2. $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$

Question 3. Write a balanced chemical equation with state symbols for the following reactions :

1. Solution of barium chloride and sodium sulphate in water to give insoluble barium sulphate and the solution of sodium chloride.
2. Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride solution and water.

Answer:

1. $\text{BaCl}_2(\text{l}) + \text{Na}_2\text{SO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}(\text{l})$

2. $\text{NaOH}(\text{aq}) + \text{HCl}(\text{aq}) \rightarrow \text{NaCl}(\text{l}) + \text{H}_2\text{O}(\text{l})$

Intext Questions (Page 10)

Question 1. Why does the colour of copper sulphate solution change when an iron nail is dipped in it ?

Answer: The colour of copper sulphate solution is changed when an iron nail is dipped in it because iron sulphate is formed by the displacement of copper by iron.



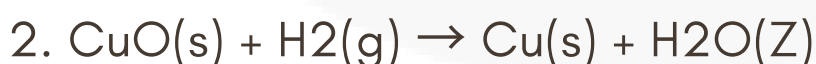
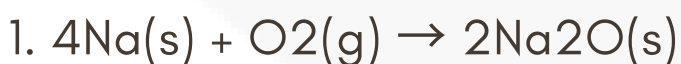
Question 2. Give an example of a double displacement reaction other than the one given in activity 1.10.

Answer:

When lead II nitrate is mixed with potassium iodide, potassium nitrate and lead iodide are formed.



Question 3. Identify the substance that are oxidised and the substances that are reduced in the following reactions :



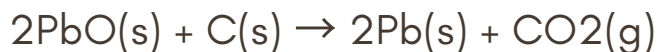
Answer:

1. Sodium (Na) is oxidised into Na_2O .

2. CuO (copper oxide) is reduced into Cu, while H_2 (Hydrogen) is oxidised into water (H_2O).

Textbook Exercise Questions and Answers

Question 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.
- (i) a and b
- (ii) a and c
- (iii) a, b and c
- (iv) all

Answer: (i) a and b. $\text{CuSO}_4(\text{aq}) + \text{Fe} \rightarrow \text{FeSO}_4 + \text{Cu}$

Question 2. $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$

The above reaction is an example of a

- (a) combination reaction.
- (b) double displacement reaction.
- (c) decomposition reaction.
- (d) displacement reaction.

Answer: (d) Displacement reaction.

Question 3. What happens when dilute hydrochloric acid is added to iron filings ? Tick the correct

- (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: (d) Hydrogen gas and iron chloride are produced.

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

Answer: When the number of atoms of different elements on both sides of a chemical equation are equal, it is called a balanced equation., Chemical equations should be balanced because a balanced chemical equation tells us the actual information about the equation and actual number of reactants and products.

Question 5. Translate the following statements into balanced chemical equations.

(a) Hydrogen gas combines with nitrogen to form ammonia.

(b) Hydrogen sulphide burns in air to give water and sulphur dioxide.

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

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

Answer: (a) $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$

(b) $2\text{H}_2\text{S}(\text{g}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + 2\text{SO}_2(\text{g})$

(c) $3\text{BaCl}_2 + \text{Al}_2(\text{SO}_4)_3 \rightarrow 3\text{BaSO}_4 + 2\text{AlCl}_3$

(d) $2\text{K} + 2\text{H}_2\text{O} \rightarrow 2\text{KOH} + \text{H}_2(\text{g})$

Question 6. Balance the following chemical equations :

(a) $\text{HNO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{NO}_3)_2 + \text{H}_2\text{O}$

(b) $\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$

(c) $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{NaNO}_3$

(d) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_2 + \text{HCl}$

Answer:

(a) $2\text{HNO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{NO}_3)_2 + 2\text{H}_2\text{O}$

(b) $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$

(c) $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{NaNO}_3$

(d) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{HCl}$

Question 7. Write balanced chemical equations for the following reactions:

(a) Calcium hydroxide + carbon dioxide \rightarrow calcium carbonate + water

(b) Zinc + silver nitrate \rightarrow zinc nitrate + silver

(c) Aluminium + copper chloride \rightarrow aluminium chloride + copper

(d) Barium chloride + potassium sulphate \rightarrow barium sulphate + potassium chloride

Answer: (a) $\text{Ca(OH)}_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$

(b) $\text{Zn} + 2\text{AgNO}_3 \rightarrow \text{Zn(NO}_3)_2 + 2\text{Ag}$

(c) $2\text{Al} + 3\text{CuCl}_2 \rightarrow 2\text{AlCl}_3 + 3\text{Cu}$

(d) $\text{BaCl}_2 + \text{K}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{KCl}$

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

(a) Potassium bromide(aq) + barium iodide(aq) \rightarrow potassium iodide(aq) + barium bromide(aq)

(b) Zinc carbonate(s) + zinc oxide(s) \rightarrow carbon dioxide(g)

(c) Hydrogen(g) + chlorine(g) \rightarrow hydrogen chloride(g)

(d) Magnesium(s) + hydrochloric acid(aq) \rightarrow magnesium chloride(aq) + hydrogen(g)

Answer: (a) $2\text{KBr(aq)} + \text{BaI}_2(\text{aq}) \rightarrow 2\text{KI(aq)} + \text{BaBr}_2(\text{aq})$

(b) $\text{ZnCO}_3(\text{s}) \rightarrow \text{ZnO}(\text{s}) + \text{CO}_2(\text{g})$

(c) $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightarrow 2\text{HCl}(\text{g})$

(d) $\text{Mg}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{MgCl}_2(\text{aq}) + \text{H}_2(\text{g})$

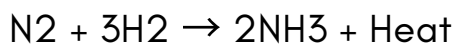
Question 9. What does one mean by exothermic and endothermic reactions ? Give examples.

Answer: Exothermic reactions:

Reactions in which energy is evolved are called exothermic reactions.

Chemical reactions may release energy in the form of heat, light or sound.

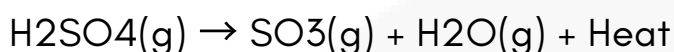
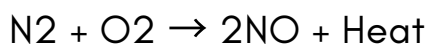
Examples: Decomposition of glucose, the formation of hydroxides:



Reactions in which energy is absorbed are known as endothermic reactions.

These kinds of reactions require energy in order to proceed.

For example: In photosynthesis, plants take photo-energy from the sun to convert carbon dioxide and water into glucose and oxygen,



Question 10. Why is respiration considered an exothermic reaction? Explain.

Answer: During respiration at the cellular level, food is decomposed to simpler substances releasing carbon dioxide (that we exhale) and water with a release of huge amount of energy. Hence, it is called exothermic reaction. Glucose combines with oxygen in the cells and provides energy.

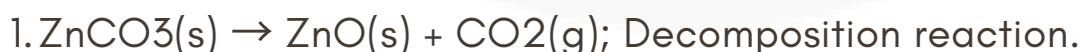


Since a large amount of energy is released, it is an exothermic reaction.

Question 11. Why are decomposition reactions called the opposite of combination reactions? Write equations for these reactions.

Answer: Decomposition reactions involve breaking down of compounds to form two or more substances. These reactions require energy to proceed. Thus, they are the exact opposite of combination reactions in which two or more substances combine to give a new substance.

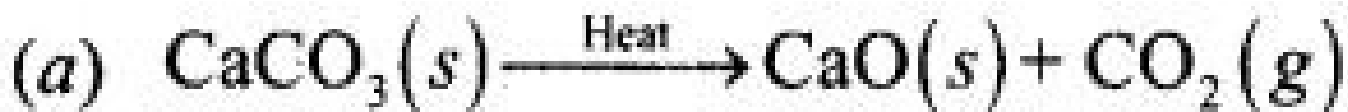
Examples:



In the first equation, since ZnCO_3 is broken down into ZnO and CO_2 it is a decomposition reaction. In the second equation, H_2 and Cl_2 combine to give a new substance HCl . Therefore, it is a combination reaction.

Question 12. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.

Answer:

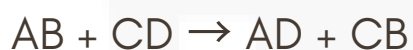


Question 13. What is the difference between displacement and double displacement reactions? Write equations for these reactions.

Answer: In a displacement reaction, a more reactive element displaces a less reactive element from a compound.

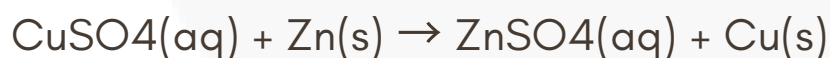
$A + BX \rightarrow AX + B$; where A is more reactive than B.

In a double displacement reaction, two atoms or a group of atoms switch places to form new compounds.

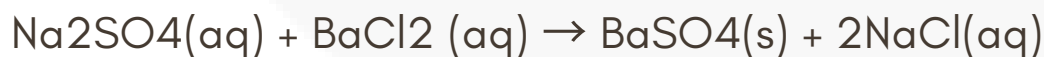


For example:

Displacement reaction:



Double displacement reaction:



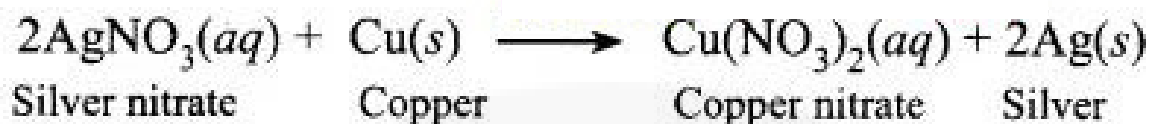
Question 14. In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal. Write down the reaction involved.

Answer:



Question 15. What do you mean by a precipitation reaction? Explain by giving examples.

Answer: When a compound of product settles down as precipitate at the end of the reaction, it is called a precipitation reaction. In this type of reaction, an 'insoluble solid called precipitate is formed.



In this reaction, silver is obtained as a precipitate. Hence, it is a precipitation reaction.

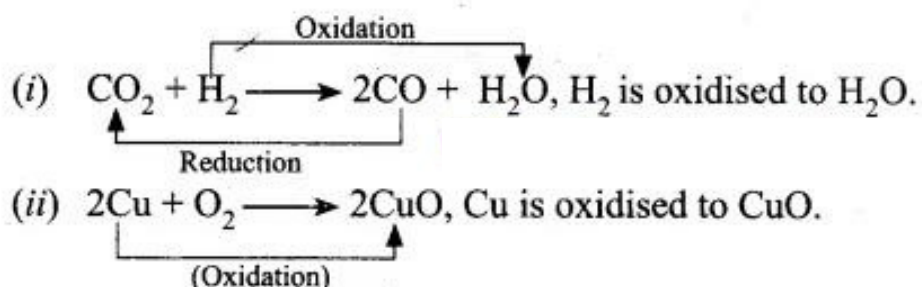
Question 16. Explain the following in terms of gain or loss of oxygen with two examples each?

(a) Oxidation

(b) Reduction

Answer: (a) A reaction which involves gain of oxygen is called oxidation reaction.

For example:



(b) A reaction which involves loss of oxygen is called a reduction reaction.

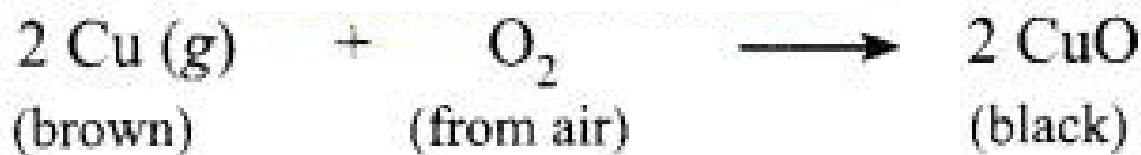
For example:

(i) $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$, CuO is reduced to Cu .

(ii) $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$, ZnO is reduced to Zn .

Question 17. A shiny brown coloured element 'X' on heating in the air becomes black in colour. Name the element 'X' and the black coloured compound formed.

Answer: 'X' is copper (Cu) and the black coloured compound is a copper oxide (CuO). The equation of the reaction involved in heating copper is given below:



Question 18. Why do we apply paint on iron articles?

Answer: Iron articles are painted to prevent them from rusting. When painted, the contact of iron articles with atmospheric moisture and the air is cut off. Hence, rusting is prevented.

Question 19. Oil and fat containing food items are flushed with nitrogen. Why?

Answer: Oil and fat containing food items are flushed with nitrogen to prevent the items from getting oxidised which may result in rancidity of such products. When fats and oils are oxidised, they become rancid and their smell and taste change. Nitrogen provides an inert atmosphere for them.

Question 20. Explain the following terms with one example each.

1. Corrosion
2. Rancidity.

Answer:

1. **Corrosion:** When a metal is attacked by substances around it such as moisture, acids etc. it gets corroded and the process is called corrosion. For example, rusting of iron products.
2. **Rancidity:** The Process in which fats and oils or food products made from fats or oils get oxidised resulting in a change of smell and the taste is called rancidity. For example, food items made from oil like chips becomes rancid if kept open for some time.

MP Board Class 10th Science Chapter 1

Additional Questions

Multiple Choice Questions

Question 1. The burning of magnesium in air results in weight gain of products, it shows:

- (a) Physical change in magnesium
- (b) A chemical reaction between magnesium and oxygen of air shift
- (c) No change
- (d) Both (a) and (b) are correct.

Answer: (b) A chemical reaction between magnesium and oxygen of air shift.

Question 2. Which one of the following is not a chemical reaction?

- (a) Rusting of iron materials
- (b) Cooking food
- (c) Melting of ice
- (d) Burning paper

Answer: (c) Melting of ice

Question 3. Which one of the following is not a characteristic of a chemical change?

- (a) Change in colour
- (b) Evolution of gas
- (c) Change in temperature
- (d) Change in size

Answer:

(d) Change in size

Question 4. The balanced chemical reaction is represented with:

- (a) The exact amount of material used.
- (b) Correct formulation and their ratio being used.
- (c) Products only.
- (d) Reactants only.

Answer: (b) Correct formulation and their ratio being used.

Question 5. Which one of the following is not mentioned in a balanced chemical reaction?

- (a) Temperature and pressure
- (b) State of reactants and products
- (c) Mass of reactants and products
- (d) Formulae of reactants and products

Answer: (b) State of reactants and products

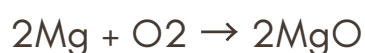
Question 6. The breaking down of food to CO₂ and H₂O is a type of:

- (a) Exothermic reaction
- (b) Endothermic reaction
- (c) Reactions without temperature change
- (d) Reactions without energy change

Answer:

(a) Exothermic reaction

Question 7. The burning of magnesium in the air is represented by the following equation:



It is a type of:

- (a) Displacement reaction
- (b) Double displacement
- (c) Combination reaction
- (d) Corrosion

Answer: (c) Combination reaction

Question 8. Which one of the following is a kind of combination reaction?

- (a) $4\text{Na(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{Na}_2\text{O(s)}$
- (b) $\text{CuO(s)} + \text{H}_2\text{(g)} \rightarrow \text{Cu(s)} + \text{H}_2\text{O}$
- (c) $\text{ZnO(s)} + \text{C(s)} \rightarrow \text{Zn(s)} + \text{CO(g)}$
- (d) None of above.

Answer: (a) $4\text{Na(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{Na}_2\text{O(s)}$

Question 9. Photosynthesis is a:

- (i) Endothermic reaction
- (ii) Exothermic reaction
- (iii) Catalytic reaction

Choose correct combination:

- (a) (i) and (ii)
- (b) (i) and (iii)
- (c) (ii) and (iii)
- (d) (ii) only

Answer: (c) (ii) and (iii)

Question 10. Dry fruits if not consumed for a long time get rotten because of:

- (a) Temperature change
- (b) Rusting
- (c) Rancidity
- (d) None of the above

Answer: (c) Rancidity

Question 11. A chemical reaction involves:

- (a) breaking of bonds
- (b) formation of bonds
- (c) no change
- (d) both breaking and formation of bonds

Answer: (d) both breaking and formation of bonds

Question 12. A balanced chemical equation has:

- (a) Equality of mass at both side of reaction.
- (b) Equality of atoms at both side of reaction.
- (c) Equality of numbers of elements at both side of reaction.
- (d) All of the above.

Answer: (d) All of the above.

Question 13. Combustion of food at the cellular level of our body is:

- (a) Oxidation
- (b) Reduction
- (c) Redox
- (d) Heating

Answer: (a) Oxidation

Question 14. Lemon contains:

- (a) Formic acid
- (b) Citric acid
- (c) Succinic acid
- (d) Ascorbic acid.

Answer: (b) Citric acid

Question 15. Food gives a bad taste and a bad smell sometimes, because of:

- (a) Rancidity
- (b) Displacement
- (c) Heating
- (d) None

Answer: (a) Rancidity

Question 16. The formation of water from its components gases is an example of:

- (a) Combination reaction
- (b) Oxidation reaction
- (c) Decomposition reaction
- (d) Reduction reaction

Answer: (a) Rancidity

Question 17. The sign in a reaction indicates:

- (a) release of gas
- (b) equilibrium
- (c) formation of a precipitate
- (d) lowering of temperature

Answer: (b) equilibrium

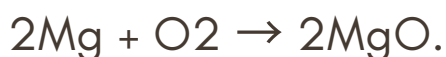
Question 18. Silver develops a black colour layering after some time in the open air, because of:

- (a) Rancidity
- (b) Displacement
- (c) Heating
- (d) Corrosion

Answer: (b) Corrosion

MP Board Class 10th Science Chapter 1 Very Short Answer Type Questions

Question 1. Is given reaction a balanced reaction?



Answer: Yes, it is.

Question 2. Why gold and silver do not corrode?

Answer: It is because they are not very reactive.

Question 3. Why does copper vessel acquire green coating in the open atmosphere?

Answer: It reacts with CO_2 in the atmosphere and forms a layer of basic copper carbonate.

Question 4. What type of reaction is the reaction between an acid and a base?

Answer: Neutralization reaction.

Question 5. What type of reaction is rusting of iron?

Answer: Oxidation reaction.

Question 6. What is the name of the gas which burns with a pop sound?

Answer: Hydrogen gas.

Question 7. Why is hydrogen peroxide stored in coloured bottles?

Answer: To prevent photolytic decomposition of hydrogen peroxide, it is stored in coloured bottles.

Question 8. Give two examples from everyday life situations where redox reactions are taking place.

Answer: Corrosion and rancidity.

Question 9. In electrolysis of water, what is the volume of gas collected over electrode?

Answer: In water (H₂O), hydrogen and oxygen are present in the ratio of 2:1 by volume.

Question 10. What is the nature of change during a chemical reaction?

Answer: It is a permanent change.

Question 11. What kind of change occurs during the dissolution of sugar in the water?

Answer: Physical change.

Question 12. Give two examples of exothermic reactions.

Answer: Formation of ammonia and digestion of food.

Question 13. Write three forms of energy evolution during the exothermic reaction.

Answer: Heat, sound and light evolution

Question 14. Where do we write or indicate the value of temperature used during a chemical reaction in a chemical equation?

Answer: Over the arrow or with the arrow.

Question 15. Why is hydrogen peroxide stored in coloured bottles?

Answer: Combination reaction.

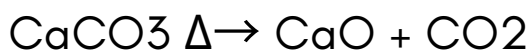
Question 16. Which catalyst is used in a given reaction?

Answer:

$$4\text{NH}_3 + 5\text{O}_2 \xrightarrow[600^\circ\text{C}]{\text{Pt}} 4\text{NO} + 6\text{H}_2\text{O}$$

Question 17. Give an example of a decomposition reaction.

Answer: Formation of calcium oxide from the decomposition of calcium carbonate,



Question 18. What kind of chemical reaction occurs while rusting of silver?

Answer: Oxidation reaction.

MP Board Class 10th Science Chapter 1 Short Answer Type Questions

Question 1. Write two important uses of the balancing equation.

Answer:

1. It gives an idea of the ratio of reactants and products formed.
2. It verifies the law of conservation of mass.

Question 2. Write two important checklists to analyse whether the equation is balanced or not.

Answer:

1. Equal number of atoms on both sides.
2. Correct formulae of atoms and molecules on both sides.

Question 3. Write two examples of each for physical and chemical change.

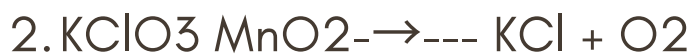
Answer: Physical change:

1. Melting of ice.
2. Evaporation.

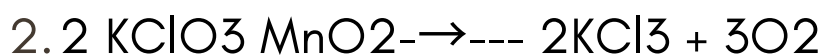
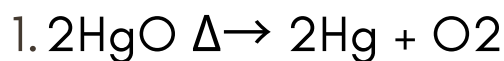
Chemical change:

1. Cooking food.
2. Photosynthesis.

Question 4. Balance the following equations:



Answer: Balanced equations are as follows:



Question 5. Name at least three types of chemical reactions with examples.

Answer:

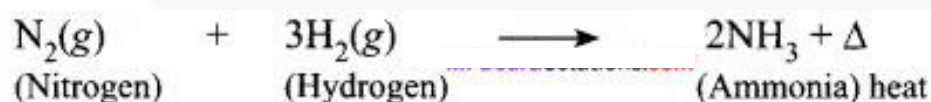
1. Combination reaction - Formation of water from gases.
2. Decomposition reaction - Digestion.
3. Oxidation reaction - Rusting.

Question 6. What do you know about reversible reactions? Give an example of it.

Answer: Reactions in which products reform the reactant under suitable conditions are called reversible reaction.

Example:

1. Formation of ammonia:



Question 7. Why gold plated articles over silver are available?

Answer: Gold is more reactive than silver, hence during electrodeposition, it replaces silver and gets deposited as a coating. During electroplating, displacement reaction occurs.

Question 8. What do you mean by balanced chemical equation?

Answer: An equation that has an equal number of atoms of each element on both the sides of the equation is called the balanced chemical equation, i.e., the mass of the reactants is equal to the mass of the products.

e.g., $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$

Question 9. Define rancidity.

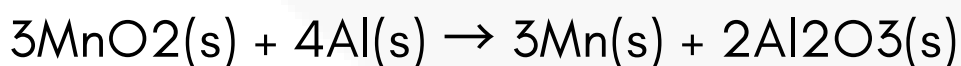
Answer: When fats and oils are oxidized, they become rancid and their smell and taste change. This process is known as rancidity.

Question 10. Give an example of a decomposition reaction where energy is supplied in the form of light.

Answer:



Question 11. Name the oxidizing agent and reducing agent in the following equation:

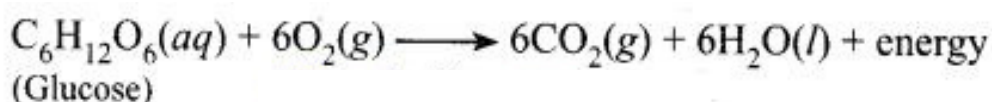


Answer:

1. Reducing agent: Al
2. Oxidizing agent: MnO_2 .

Question 12. Explain how respiration is an exothermic reaction.

Answer: During digestion, food is broken down into simpler substances. For example, rice, potatoes and bread contain carbohydrates. These carbohydrates are broken down to form glucose. This glucose combines with oxygen in the cells of our body and provides energy. Hence, respiration is an exothermic process,



Question 13. Write factors influencing the rate of a chemical reaction.

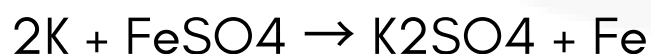
Answer: Following are the factors that can influence the rate of reaction:

1. Nature of reactants (i.e., fast or slow).
2. The concentration of reactants.
3. Surface Area.
4. Temperature.
5. Catalyst.

Question 14. Name one metal that when placed in ferrous sulphate solution will discharge its green colour.

Answer: Potassium (K):

'K' is more reactive than iron and will replace it. The green colour is due to the formation of a new compound.



Question 15. What is being added to the first reactant in reaction given below? (HOTS)



Answer:

1. Cl_2 is added.

2. OH is added.

Question 16. Which reactant is being oxidized in the following reactions? (HOTS)



Answer:

1. 'Cu' is being oxidized.

2. 'H' is being oxidised.

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MP Board Class 10th Science Chapter 1 Long Answer Type Questions

Question 1. Write balanced chemical equations for the following reactions:

- (i) $\text{Cl}_2 + \text{H}_2\text{S} \longrightarrow \text{HCl} + \text{S}$
- (ii) $2\text{KI} + \text{H}_2\text{O}_2 \longrightarrow 2\text{KOH} + \text{I}_2$
- (iii) $\text{H}_2\text{O}_2 \longrightarrow \text{H}_2\text{O} + \text{O}_2$
- (iv) $\text{Fe} + \text{H}_2\text{O} \rightleftharpoons \text{Fe}_3\text{O}_4 + \text{H}_2 \uparrow$
- (v) $\text{N}_2\text{O}_4 \xrightleftharpoons{\Delta} \text{NO}_2$

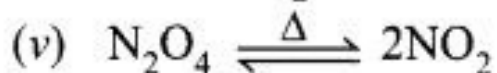
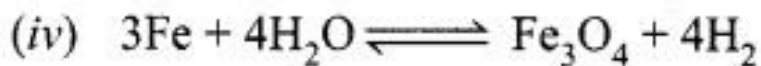
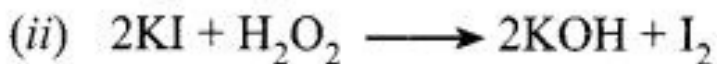
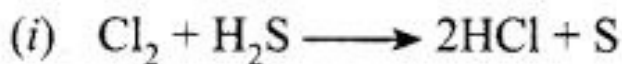
Answer: Balanced chemical equations are:

- (i) $\text{Cl}_2 + \text{H}_2\text{S} \longrightarrow 2\text{HCl} + \text{S}$
- (ii) $2\text{KI} + \text{H}_2\text{O}_2 \longrightarrow 2\text{KOH} + \text{I}_2$
- (iii) $2\text{H}_2\text{O}_2 \longrightarrow 2\text{H}_2\text{O} + \text{O}_2$
- (iv) $3\text{Fe} + 4\text{H}_2\text{O} \rightleftharpoons \text{Fe}_3\text{O}_4 + 4\text{H}_2$
- (v) $\text{N}_2\text{O}_4 \xrightleftharpoons{\Delta} 2\text{NO}_2$

Question 2. Write balanced chemical equations for the following reactions and write the name of reactions and ratio of products formed for each of them.

- (i) $\text{Cl}_2 + \text{H}_2\text{S} \longrightarrow \text{HCl} + \text{S}$
- (ii) $2\text{KI} + \text{H}_2\text{O}_2 \longrightarrow 2\text{KOH} + \text{I}_2$
- (iii) $\text{H}_2\text{O}_2 \longrightarrow \text{H}_2\text{O} + \text{O}_2$
- (iv) $\text{Fe} + \text{H}_2\text{O} \rightleftharpoons \text{Fe}_3\text{O}_4 + \text{H}_2 \uparrow$
- (v) $\text{N}_2\text{O}_4 \xrightleftharpoons{\Delta} \text{NO}_2$

Answer: Balanced chemical equations are:



Reactions and ratio of products:

(i) Redox or oxidation reaction ratio 2:1.

(ii) Oxidation reaction ratio 2:1.

(iii) Decomposition ratio 2:1.

(iv) Reversible and redox ratio 1 : 4.

(v) Decomposition ratio 2:1.

Question 3. Rama bought a new set of an iron chair for her open garden space. After some months she found a dirty, brown coating over it. She painted the iron surface with colour to make it better for use. (Value-Based)

1. Why the chair gets brown, dirty?

2. Why did she use the paint?

3. What value does Rama show?

Answer:

1. The outer surface which is made of iron reacts with weather's moisture and gets rusted. Hence, gets the brown dirty coating.

2. Paint protects the outer surface of iron from getting rusted.

3. She protected the garden chair and showed her sense of awareness.

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Conclusion

Hope you are get help with this Solution pdf .

if you have any issue so just drop a comment we will reply shortly.

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