

# PYQs of Chemical Reactions and Equations Class 10 PDF download:

**PYQs of Chemical Reactions and Equations Class 10 with solution:  
MCQs:**

**1. The shiny finish of wall after white wash is because of.**

- a) Calcium oxide b) Calcium hydroxide  
c) Calcium Carbonate d) Calcium phosphate

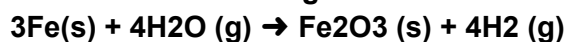
**Solution: c) Calcium Carbonate**

**2. Electrolysis of water is 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

**Solution: b) 2:1**

**3. Which the following statements about the given reaction are correct:**



- i) Iron metal is getting oxidized  
ii) Water is getting reduced  
iii) Water is acting as reducing agent  
iv) Water is acting as oxidizing agent

- a) (i), (ii) and (iii) b) (iii) and (iv)  
c) (i), (ii) and (iv) d) (ii) and (iv)

**Solution: c) (i),(ii) and (iv)**

**4. In order to prevent the spoilage of potato chips, they are packed in plastic bags containing the gas**

- a) Cl<sub>2</sub> b) O<sub>2</sub> c) N<sub>2</sub> d) H<sub>2</sub>

**Solution: c) N<sub>2</sub>**

**5. Burning of Methane is an example of**

- I. Exothermic reaction II. Combustion reaction  
III. Decomposition reaction

- a. I only b. II only c. I and II d. I and III

**Solution: c) I and II**

6. When iron nails are dipped into Copper Sulphate solution. The colour of Copper Sulphate solution changes from

- a. Green to blue
- b. Blue to green
- c. Green to colourless
- d. Blue to colourless

Solution: b) Blue to green

7. The process of respiration is -

- a) an oxidation reaction which is endo thermic
- b) a reduction reaction which is exothermic
- c) a combination reaction which is endo thermic
- d) an oxidation reaction which is exothermic

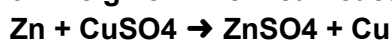
Solution: d) an oxidation reaction which is exothermic

8. The balanced equation for the given chemical reaction is  
Hydrogen + Chlorine → Hydrogen Chloride

- a.  $H_2 + Cl_2 \rightarrow 2HCl$
- b.  $H + Cl \rightarrow HCl$
- c.  $H_2 + Cl_2 \rightarrow HCl$
- d. none of the above

Solution: a)  $H_2 + Cl_2 \rightarrow 2HCl$

9. The given Chemical reaction is an example of



- a. Combination reaction
- b. Displacement reactions
- c. Decomposition reaction
- d. Double displacement reaction

Solution: b) Displacement Reaction

10. A solution of substance X is used for white washing. The substance X is

- a. Calcium oxide
- b. Calcium hydroxide
- c. Calcium carbonate
- d. Calcium chloride

Solution: a) Calcium Oxide

**PYQs of Chemical Reactions and Equations Class 10 with solution: Very Short Answer Questions:**

11. Give an example of double displacement reaction? (CBSE 2010, 2011)



12. Name the brown coloured gas evolved when lead nitrate crystal are heated in dry test-tube.

Solution: When lead nitrate crystals  $[Pb(NO_3)_2]$  are heated in a dry test tube, the evolution of brown coloured nitrogen dioxide and oxygen gas takes place.

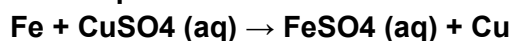


13. Name the reducing agent in given chemical reaction  
 $3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$  (CBSE-2016)

Solution: The reducing agent in the given reaction  $3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$  is Aluminium (Al)

14. What changes do you observe in iron nails and colour of copper sulphate solution, if iron nails are dipped in  $\text{CuSO}_4$  solution for some time?

Solution: Iron nails get covered with a red-brown coating of copper metal. The blue colour of copper sulphate solution fades gradually because of the formation of iron sulphate. Reaction is as follows:



15. Identify the chemical change:  
Melting of ice or conversion of milk into curd.

Solution: Melting of ice is a physical change. Conversion of milk to curd is a chemical change as the reaction is irreversible and the curd formed once cannot be converted to milk again.

16. Why do copper vessels lose shine when exposed to air?

Solution: When copper vessels are exposed to air, they develop a green coating on their surface. Copper corrodes by oxidation in which it reacts with oxygen to form copper oxide, which further reacts with carbon dioxide and forms copper carbonate, which is the green colour that forms on the surface of copper which is known as verdigris. Thus copper loses its lustre.

17. Potato chip manufacturers fill the packet of chips with nitrogen gas. Why?

Solution: The potato chip manufacturer uses nitrogen gas to flush the chip bags to prevent the chips from getting oxidized in the presence of oxygen from the atmosphere. When fats and oils are oxidized they become rancid and their smell and taste change.

18. Why do we store silver chloride in dark coloured bottles in labs?

Solution: Compounds like silver chloride are light sensitive. And they may react to light very fast and lose their properties. That's why they are to be stored in dark bottles to prevent the entry of light.

19. Why is respiration considered an exothermic reaction?

Solution: Respiration is considered as an exothermic reaction because heat is produced during the process of respiration. The carbon dioxide in the food breaks down to create glucose during the process. This glucose reacts with oxygen in our cells, releasing a large amount of energy.

20. What happens when quick lime is added to water?

**Solution:** When water is added to quicklime, calcium hydroxide is obtained with the evolution of heat. There is a rise in temperature.



**21. What happens when milk is left open at room temperature during summers ?**

**Solution:** When milk is left at room temperature during the summer, it undergoes an oxidation reaction and microbe development, causing it to become sour. It also begins to break, which can be seen on the top of the vessel.

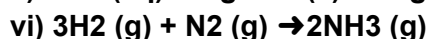
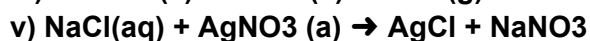
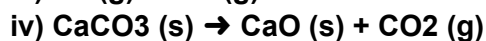
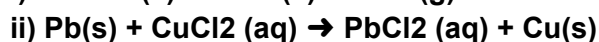
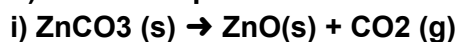
**22. Identify the following reactions as**

a) combination

b) decomposition

c) displacement reactions

d) double displacement reaction.



**Solution:** i)  $\text{ZnCO}_3 \text{ (s)} \rightarrow \text{ZnO(s)} + \text{CO}_2\text{(g)}$  - This is a decomposition reaction.

ii)  $\text{Pb(s)} + \text{CuCl}_2 \text{ (aq)} \rightarrow \text{PbCl}_2 \text{ (aq)} + \text{Cu(s)}$  - This is a displacement reaction.

iii)  $\text{H}_2\text{(g)} + \text{Cl}_2\text{(g)} \rightarrow 2\text{HCl}$  - This is a combination reaction.

iv)  $\text{CaCO}_3\text{(s)} \rightarrow \text{CaO (s)} + \text{CO}_2\text{(g)}$  - This is also a decomposition reaction.

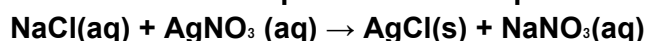
v)  $\text{NaCl(aq)} + \text{AgNO}_3 \text{ (aq)} \rightarrow \text{AgCl(s)} + \text{NaNO}_3\text{(aq)}$  - This is a double displacement reaction.

vi)  $3\text{H}_2\text{(g)} + \text{N}_2\text{(g)} \rightarrow 2\text{NH}_3\text{(g)}$  - This is a combination reaction.

vii)  $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$  - This is a displacement reaction.

**23. Write a chemical equation of double displacement reaction.**

**Solution:** The example of double displacement reaction is



**24. Give reasons**

a) Silver chloride is stored in dark coloured bottles.

b) Copper vessel loses shine when exposed to air

c) Iron displaces copper from copper sulphate solution.

**Solution:** a) Compounds Like Silver Chloride are light sensitive. And they may react to light very fast and lose its properties. That's why they are to be stored in dark bottles to prevent the entry of Light

b) When copper vessels are exposed to air, it develops a green coating on their surface. Copper corrodes by oxidation in which it reacts with oxygen to

form copper oxide, which further reacts with carbon dioxide and forms copper carbonate, which is the green colour that forms on the surface of copper which is known as verdigris. Thus copper loses its lustre.

c) Iron displaces copper from copper sulphate solution but copper cannot displace iron from iron sulphate solution because copper is less reactive than iron. In such type of reaction the more reactive element displaced the less reactive element. It's an example of displacement reaction. Also the color of copper sulphate solution is of blue color and iron sulphate of green color.

25.  $N_2 + 3H_2 \rightarrow 2NH_3$  name the type of reaction.

Solution:  $N_2 + 3H_2 \rightarrow 2NH_3$  is a combination reaction

### **PYQs of Chemical Reactions and Equations Class 10 with solution: Assertions and Reasons Question:**

**Instructions:** In the following questions a statement of Assertion is followed by a statement of Reason.

Mark the correct choice as two statements are given one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- (a) Both A and R are true, and R is correct explanation of the assertion.
- (b) Both A and R true, but R is not the correct explanation of the assertion.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

26. Assertion (A): When calcium carbonate is heated, it decomposes to give calcium oxide and carbon dioxide.

Reason (R): The decomposition reaction takes place on application of heat, therefore it's an endothermic reaction.

Solution: (a) Both A and R are true, and R is correct explanation of the assertion

27. Assertion (A): Chips manufacturers usually flush bags of chips with gas such as nitrogen to prevent the chips from getting oxidized.

Reason (R): This increases the taste of the chips and helps in their digestion.

Solution: (c) A is true, but R is false.

28. Assertion (A): In a balanced chemical equation, total mass of each element towards reactant side is equal to the total mass of the same element towards product side.

Reason (R): Mass can neither be created nor destroyed during a chemical change.

**Solution: (a) Both A and R are true, and R is correct explanation of the assertion**

**29. Assertion (A): Rusting of iron metal is the most common form of corrosion.**

**Reason (R): The effect of rusting of iron can be reversed if they are left open in sunlight.**

**Solution: (b) Both A and R are true, but R is not the correct explanation of the assertion.**

**30. Assertion (A): Chemical reaction changes the physical and chemical state of substance.**

**Reason (R): When electric current is passed through water (liquid), it decomposes to produce hydrogen and oxygen gases.**

**Solution: (a) Both A and R are true, and R is correct explanation of the assertion.**

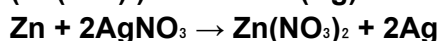
### **PYQs of Chemical Reactions and Equations Class 10 with solution: Short Answer Type Questions:**

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

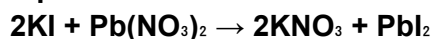
**a) Zn reacts with silver nitrate to produce zinc nitrate and silver.**

**b) Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide (CBSE-2019)**

**Solution: (a) The reaction between zinc (Zn) and silver nitrate (AgNO<sub>3</sub>) is a displacement reaction. Zinc replaces silver in the compound to form zinc nitrate (Zn(NO<sub>3</sub>)<sub>2</sub>) and silver (Ag). The balanced chemical equation is:**



**(b) The reaction between potassium iodide (KI) and lead nitrate (Pb(NO<sub>3</sub>)<sub>2</sub>) is a double displacement reaction. Potassium iodide and lead nitrate exchange ions to form potassium nitrate (KNO<sub>3</sub>) and lead iodide (PbI<sub>2</sub>). The balanced chemical equation is:**

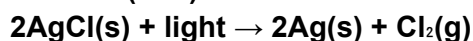
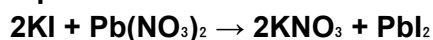


**32. 2 gm of silver chloride is taken in china dish, and china dish is placed in sunlight for sometime. What will be your observation. Write the balanced chemical equation for above reaction and identify the type of reaction. (CBSE2019)**

**Solution: Observation: The silver chloride (AgCl) will gradually turn gray as it decomposes into silver (Ag) and chlorine gas (Cl<sub>2</sub>) upon exposure to sunlight.  
Balanced chemical equation:**

**Type of reaction: This is a photodecomposition reaction, where the compound decomposes upon exposure to light.**  
**(a) The reaction between zinc (Zn) and silver nitrate (AgNO<sub>3</sub>) is a single displacement reaction. Zinc replaces silver in the compound to form zinc nitrate (Zn(NO<sub>3</sub>)<sub>2</sub>) and silver (Ag). The balanced chemical equation is:**  
$$\text{Zn} + 2\text{AgNO}_3 \rightarrow \text{Zn(NO}_3)_2 + 2\text{Ag}$$

(b) The reaction between potassium iodide (KI) and lead nitrate ( $\text{Pb}(\text{NO}_3)_2$ ) is a double displacement reaction. Potassium iodide and lead nitrate exchange ions to form potassium nitrate ( $\text{KNO}_3$ ) and lead iodide ( $\text{PbI}_2$ ). The balanced chemical equation is:



33. Decomposition reactions require energy either in the form of heat or light or electricity for breaking down of reactions. Write one equation for each type of decomposition reaction where heat, light or electricity is used as form of energy

Solution: The following decomposition reactions are

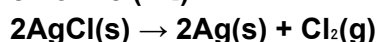
Thermal Decomposition (heat):

Calcium carbonate ( $\text{CaCO}_3$ ) decomposes upon heating to form calcium oxide ( $\text{CaO}$ ) and carbon dioxide ( $\text{CO}_2$ )



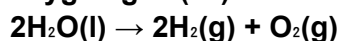
•Photodecomposition (light):

Silver chloride ( $\text{AgCl}$ ) decomposes upon exposure to light to form silver ( $\text{Ag}$ ) and chlorine ( $\text{Cl}_2$ )



•Electrolytic Decomposition (electricity):

Water ( $\text{H}_2\text{O}$ ) can be electrolyzed using electricity to form hydrogen gas ( $\text{H}_2$ ) and oxygen gas ( $\text{O}_2$ )



34. When potassium iodide solution is added to a solution of lead nitrate in test tube, a precipitate is formed.

(a) State the colour of precipitate

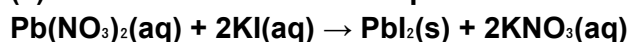
(b) Name the compound which is precipitated

(c) Write balanced equation for chemical reaction. (CBSE-2015 Comptt)

Solution: (a) The precipitate formed when potassium iodide solution is added to a solution of lead nitrate is yellow in color.

(b) The compound that is precipitated is lead iodide, which is insoluble in water and forms a yellow precipitate.

(c) The balanced chemical equation for this reaction is:



In words, this equation reads as: Lead nitrate (aq) + Potassium iodide (aq)  $\rightarrow$  Lead iodide (s) + Potassium nitrate (aq)

35. A metal strip X is dipped in blue coloured salt solution  $\text{YSO}_4$ . After some time a layer of metal 'Y' is formed on metal strip X. Metal X is used in galvanization whereas metal Y is used for making electric wires.

(a) What could be metal 'X' and 'Y'?

(b) Name the metal salt  $\text{YSO}_4$

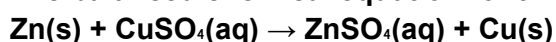
(c) What type of chemical reaction takes place between X and  $\text{YSO}_4$ , Write the balanced chemical equation.

**Solution:** . (a) Metal X is likely zinc (Zn) because zinc is commonly used in galvanization, which is the process of applying a protective zinc coating to iron or steel to prevent rusting. Metal Y is likely copper (Cu) because copper is commonly used for making electric wires due to its excellent electrical conductivity.

(b) The metal salt  $YSO_4$  could be copper sulfate ( $CuSO_4$ ). Copper sulfate is often used in industrial applications and is known for its blue color when dissolved in water.

(c) The type of chemical reaction that takes place between metal X (likely zinc) and the salt solution  $YSO_4$  (likely copper sulfate) is a single displacement reaction, also known as a displacement reaction or a substitution reaction. In this reaction, the more reactive metal (zinc) displaces the less reactive metal (copper) from its salt solution.

The balanced chemical equation for this reaction is:



In words, this equation reads as: Zinc (s) + Copper sulfate (aq)  $\rightarrow$  Zinc sulfate (aq) + Copper (s)

In this reaction, zinc replaces copper in the copper sulfate solution, leading to the formation of zinc sulfate and copper metal.

**36.** A metal salt MX when exposed to light splits up to form metal M and gas X<sub>2</sub>. Metal M is used to make ornaments whereas gas X<sub>2</sub> is used in making bleaching powder. The salt MX is used in black & white photography

(a) Identify the metal M and gas X<sub>2</sub> .

(b) Identify MX.

(c) Write down the chemical reaction when salt MX is exposed to sunlight.

**Solution:** a) Metal M is Silver (Ag) and Gas X<sub>2</sub> is Chlorine gas (Cl<sub>2</sub>)

(b) The metal salt MX is Silver chloride (AgCl).

(c) The chemical reaction when silver chloride (AgCl) is exposed to sunlight is:



In this reaction, silver chloride decomposes into silver metal (Ag) and chlorine gas (Cl<sub>2</sub>) due to the energy from sunlight breaking the chemical bonds in the silver chloride.

**37.** Compound 'X' decomposes to form compound 'Y' and CO gas.

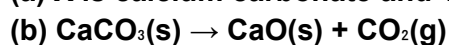
Compound Y is used in manufacturing of cement.

(a) Name the compounds 'X' and 'Y'.

(b) Write the Chemical equation for this reaction.

**Solution:** Calcium carbonate (limestone) decomposes on heating to give calcium oxide and carbon dioxide.

(a) X is calcium carbonate and Y is Calcium Oxide



**38.** Give reasons :

(a) White Silver chloride turns grey in sunlight.

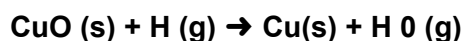


(b) Brown coloured copper powder on heating in air turns into black coloured substance.

Solution: (a) White coloured silver chloride undergoes decomposition in the presence of sunlight and forms silver (grey in colour) and chlorine.

(b) Brown coloured copper powder on heating in air gets oxidised to copper oxide which is black in colour

39. In the reaction



(a) Name the oxidized substance.

(b) Name the reduced substance.

(c) Name the oxidizing agent.

Solution: a)  $\text{H}_2$  is the substance oxidised.

b) CuO is the substance reduced.

c) CuO is the oxidising agent.

40. In electrolysis of water :

(a) Name the gas collected at cathode and anode respectively.

(b) Why is volume of one gas collected at one electrode is double of another?

(c) Why is it necessary to add few drops of dil.  $\text{H}_2\text{SO}_4$  to water before electrolysis?

Solution: (a) a. The gas formed at anode and cathode:

• The process of using electricity to split water into hydrogen and oxygen is known as electrolysis.



Water

Hydrogen Oxygen

• Hydrogen gas released at the cathode

• Oxygen gas is released at anode

(b). The volume of gas collected:

• Two moles of water undergo electrolysis and produce two moles hydrogen and one mole of oxygen gas.

• Because the water molecule contains two hydrogens and one oxygen in its molecular formula.

(c). If dilute  $\text{H}_2\text{SO}_4$  is not added:

• Water is a bad conductor of electricity.

• So, when a direct current is passed through the water it won't conduct.

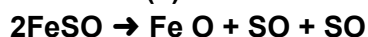
• Therefore to make the electrolysis happen, a few drops of sulphuric acid  $\text{H}_2\text{SO}_4$  to the water in the electrolysis of water.

41. A small amount of Ferrous sulphate is heated in hard glass tube.

(a) Write the chemical equation.

(b) What type of reaction is taking place or Name the type of reaction.

Solution: (a) The Chemical Equation is

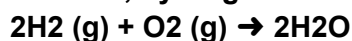


(b) Decomposition reaction is taking place. Since heat is used it is also known as thermal decomposition reaction.

42. What is redox reaction ? Write down a chemical reaction representing it.

**Solution:** Redox reactions are reactions in which both the oxidation and reduction processes take place simultaneously.

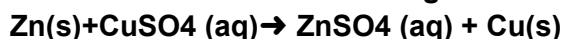
**Example of redox reaction:**An example of a redox reaction is:In the above reaction, hydrogen is oxidized to water



43. What happens when Zn strip is dipped in CuSO<sub>4</sub> solution ?

Give equation and identify the type of reaction.

**Solution:** . Zinc displaces copper from copper sulphate and generates zinc sulphate solution when added to CuSO<sub>4</sub> solution because zinc is a more reactive metal that displaces less reactive metal from its solution for this reason displacement reaction occurs. A color change from blue to colorless indicates this.



44. What are two conditions which promote corrosion?

**Solution:** The circumstances that leads to corrosion are as follows:

- i. Corrosion occurs when there is an abundance of oxygen.
- ii. Corrosion is also caused by the presence of contaminants such as Carbon dioxide and Chloride.

45. What is rancidity? Write two ways by which it can be prevented.

**Solution:** The oxidation of oils or fats in a food resulting into bad smell and bad taste is

called rancidity.

It can be prevented byi adding anti- oxidants.

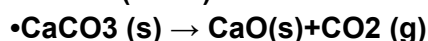
ii flushing with nitrogen gas.

46. What is decomposition reaction? Explain with the help of an example.

**Solution:** Those reaction in which a compound splits up into two or more than two simpler substance are known as decomposition reaction. This can be represented by the general equation:  $\text{AB} \rightarrow \text{A} + \text{B}$ .

**Example Of Decomposition Reactions is**

•Calcium carbonate (CaCO<sub>3</sub> ) decomposes into calcium oxide (CaO) and carbon dioxide ( Co<sub>2</sub> )when heated



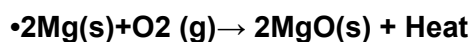
47. Define combination reaction. Give two examples of combination reaction which is exothermic in nature.

**Solution:** When two or more substances (elements or compounds) combine to form a single product, the

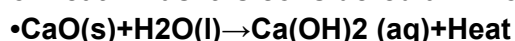
reactions are called combination reactions. This can be represented by the general equation:  $A+B \rightarrow AB$

The Two Examples of Combination Reactions Which Are Exothermic In Nature Are -

•Combustion of magnesium (Mg) in air, where magnesium (Mg) combines with oxygen ( $O_2$ ) to form magnesium oxide( $MgO$ ), along with the liberation of heat. Thus it is considered an Exothermic Reaction



•When quicklime (CaO) reacts with water ( $H_2O$ ), Calcium hydroxide ( $Ca(OH)_2$ ) is formed along with the liberation of heat. Thus it is considered an Exothermic reaction.



48. Give one example of each :

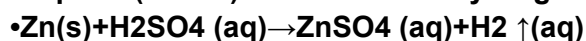
(a) Chemical reaction showing evolution of gas.

(b) Change in colour of a substance during a chemical reaction.

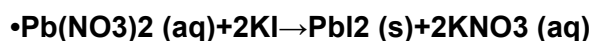
(c) Chemical reaction showing change in temp.

Solution: a) The chemical reaction between zinc(Zn) and dilute sulphuric acid( $H_2SO_4$ ) in this reaction Zinc

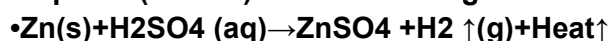
Sulphate( $ZnSO_4$ ) is formed and Hydrogen gas is evolved (H)



b) The reaction between lead nitrate( $Pb(NO_3)_2$ ) solution and potassium iodide (2KI) solution. Before reaction the solution is colourless and after reaction the yellow colour lead iodide ( $PbI_2$ ) is formed And Also Potassium Nitrate( $2KNO_3$ ) is formed.



c) When dilute sulphuric acid ( $H_2SO_4$ ) is added to zinc (Zn) granules, hydrogen ( $H_2$ ) gas is evolved and zinc sulphate ( $ZnSO_4$ ) is formed along with the release of heat.



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

Solution: It is the law of conservation of mass which states that mass can neither be created nor destroyed. So both the sides of the chemical reactions have to be balanced to ensure that this law is followed.

**PYQs of Chemical Reactions and Equations Class 10 with solution: Long Questions:**

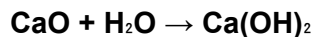
50. White wash was being done at Mukesh's house. Mukesh saw that the painter added quick lime to drum having water. Mukesh touched outer surface of drum, it is unbelievably hot.

(a) Write the chemical equation for above reaction.

(b) What type of reaction is it?

(c) This reaction is exothermic or endothermic. Justify your answer.

**Solution:** (a) The chemical equation for the reaction when quicklime (calcium oxide, CaO) is added to water (H<sub>2</sub>O) to form slaked lime (calcium hydroxide, Ca(OH)<sub>2</sub>) is:



(b) This reaction is a combination reaction, also known as a synthesis reaction, where two or more substances combine to form a single product.

(c) The reaction is highly exothermic. This is because when water is added to quicklime, it undergoes a strong exothermic reaction, releasing a large amount of heat. This heat causes the drum to become very hot, as observed by Mukesh when he touched the outer surface of the drum.

**51. Write down the balanced chemical equation for the following :**

(a) Silver chloride is decomposed in presence of sunlight to give silver and chlorine gas.

[b] Calcium oxide reacts with water to give lime water.

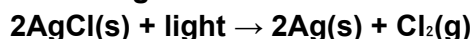
(c) Sodium hydroxide reacts with hydrochloric acid to give sodium chloride and water.

(d) Dilute hydrochloric acid is added to copper oxide to give green coloured copper chloride and water.

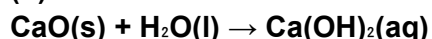
(e) Solution of barium chloride and sodium sulphate in water reacts to give insoluble Barium sulphate and solution of Sodium chloride.

**Solution:** (a) Silver chloride is decomposed in the presence of sunlight to give silver and

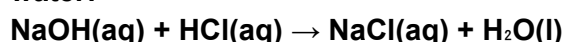
chlorine gas:



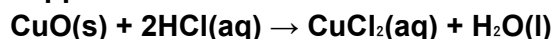
(b) Calcium oxide reacts with water to give lime water:



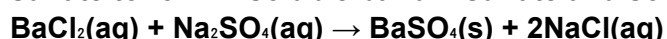
(c) Sodium hydroxide reacts with hydrochloric acid to give sodium chloride and water:



(d) Dilute hydrochloric acid is added to copper oxide to give green coloured copper chloride and water:



(e) This equation represents the reaction between barium chloride and sodium sulfate to form insoluble barium sulfate and soluble sodium chloride.



### **PYQs of Chemical Reactions and Equations Class 10 with solution: Case Based Questions:**

**52. In most pollution control applications, lime is used as calcium hydroxide. To manufacture calcium hydroxide, limestone must be converted to calcium oxide and then hydrated to form calcium hydroxide. The following is a brief chemical**

reaction of this process:

**Limestone + Heat → Calcium oxide + Carbon dioxide**

However, calcium oxide is unstable in the presence of moisture and carbon dioxide. A more stable form of lime is calcium hydroxide.

**Calcium oxide + Water → Calcium hydroxide + Heat**

The process of adding water to calcium oxide to produce calcium hydroxide is referred to as hydration process or lime slaking. The hydration of Calcium oxide; commercially referred to as quick lime, is an exothermic process releasing a great quantity of heat. The hydration takes place quickly, releasing a lot of heat energy. This heat will boil of the water and generate steam, which makes the particles burst, exposing the inner surfaces to water for further slaking. This process will continue until hydration is complete.

(i) Lime is used as calcium hydroxide. The formula of lime is calcium hydroxide that absorb CO<sub>2</sub> from air and become white, the compound formed is

(a) CaO (b) CaCO<sub>3</sub> (c) CaCo<sub>2</sub> (d) CaO.2H<sub>2</sub>O

Solution: (b) CaCO<sub>3</sub>

(ii) The chemical reaction of the given word equation:

(a)  $2\text{CaO} + \text{Heat} \rightarrow 2\text{Ca} + \text{O}_2$

(b)  $\text{CaCO}_3 + \text{Heat} \rightarrow \text{CaO} + \text{CO}_2$

(c)  $\text{Ca}(\text{OH})_2 + \text{Heat} \rightarrow \text{CaO} + \text{H}_2\text{O}$

(d)  $2\text{CaCO}_3 + \text{Heat} \rightarrow 2\text{CaO} + \text{CO}_2$

Solution:  $2\text{CaCO}_3 + \text{Heat} \rightarrow 2\text{CaO} + 2\text{CO}_2$

iii) The stable form of lime is

(a) Calcium hydroxide

(b) Calcium oxide

(c) Calcium carbonate

(d) Calcium oxide. Dehydrate

Solution: (a) Calcium hydroxide

(iv) The hydration of Calcium oxide is an

(a) Exothermic reaction

(b) Endothermic reaction

(c) Combination and exothermic reaction

(d) Decomposition and exothermic reaction

Solution: (a) Exothermic reaction

(v) In a beaker take small amount of calcium oxide. When water is added to it.

The temperature of the breaker will increase because:

(a) A suspension of calcium hydroxide is formed

(b) The beaker will be hot when touched

- (c) Clear solution appears when suspension of calcium hydroxide settles down to the bottom of the beaker.
- (d) All of the above

**Solution: (d) All of the above**