CHEMISTRY

BOOKS - TARGET PUBLICATION

CHEMICAL REACTIONS AND EQUATIONS

Choose The Correct Alternative

1. .....is a chemical change.

A. Ice changing to water

B. Condensation of steam

C. Sublimation of camphor

D. Ripening of fruits

Answer: D

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2. What happens when a piece of zinc metal is added to copper sulphate solution?

A. Copper sulphide is formed

B. solution of zinc sulphate is formed.

C. Copper sulphate solution is not affected at all

D. Hydrogen sulphate gas is evolved.

Answer: B

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3. The reaction in which two molecules react to form a single product is known as _____reaction.

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: A

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4. When carbon dioxide is passed through lime water it turns milky.Why?

A. H_2

B. CO_2

C. CO

D. SO_2

Answer: B

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5. On mixing aqueous solutions of silver nitrate and sodium chloride, a white precipitate is obtained. This reaction can be categorized as _____ reaction.

A. decomposition

B. combination

C. displacement

D. double displacement

Answer: D

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6. Which among the following is double displacement reaction?

A. $Pb + CuCl_2 \rightarrow PbCl_2 + Cu$

B. $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

C. $C + O_2 \rightarrow CO_2$

D. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

Answer: B

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7. When aluminium metal reacts with dilute hydrochloric acid,_____ gas is liberated.

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8. Which of the following is formed when ethyl alcohol is treated with acidic potassium dichromate?

A. Methyl alcohol

B. Acetic acid

C. Methane

D. Ethene

Answer: B

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9. Rusting of an iron nail is a ____ reaction.

A. combination

B. displacement

C. decomposition

D. double displacemen

Answer: A

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10. The chemical formula of the rust is

A. $Fe_2O_3 . xH_2O$

B. $FeO.xH_2O$

C. Fe_2O_3

D. FeO

Answer: A

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11. What is the color of a solution on dipping a piece of zinc in dilute sulphuric acid?

A. Colorless

B. Colorless solution turns red

C. black

D. red

Answer: A

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12. The reaction of iron nail with copper sulphate solution is _____ reaction

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: C

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13. A student adds aqueous solution of NaOH to aqueous solution of copper sulphate. A pale blue precipitate of copper hydroxide is formed along with sodium sulphate. The type of chemical reaction is _____.

A. decomposition

B. displacement

C. double displacement

D. combination

Answer: C

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14. A double displacement reaction occurs when aqueous NaOH is added to ferric chloride solution. The products formed are _____.

A. ferrous chloride and sodium

B. ferric hydroxide and sodium chloride

C. ferric hydroxide and water

D.

Answer: B

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15. .....is a chemical change.

A. Ice changing to water

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17. The reaction in which two molecules react to form a single product is known as _____reaction.

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Answer: A

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18. When carbon dioxide is passed through lime water it turns milky.Why?

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19. On mixing aqueous solutions of silver nitrate and sodium chloride, a white precipitate is obtained. This reaction can be categorized as _____ reaction.

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A. $pb + CuCl_2 \rightarrow PbCl_2 + Cu$

B. $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

C. $C + O_2 \rightarrow CO_2$

D. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

Answer: B

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21. A student takes 1 g of sodium hydroxide. He adds it to 50 mL of water taken in a plastic bottle and shakes the content well. Which of the following observation is correct?

A. Sodium does not dissolve in water.

B. A white precipitate is formed

C. The temperature of the reaction solution increases

D. The resulting solution is acidic

Answer: C

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22. When aluminium metal reacts with dilute hydrochloric acid,_____ gas is liberated.

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B. ferric hydroxide and sodium chloride

C. ferric hydroxide and water

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Complete The Pragraph

1. Select the appropriate options and complete the following paragraph. (oxygen, hydrogen, reduction, oxidation, never, always, redox, decomposition)_____ is the process in which a su bstance gains _____or loses hydrogen._____ is the process in which a substance gains _____ or loses oxygen. The reaction in which one reactant gets oxidised and the other reactant gets reduced is called as oxidation-reduction reaction or

reaction_____ Oxidation and reduction reactions _____ occur simultaneously.

Watch Video Solution

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Name The Following

1. Name the metal used as catalyst in the conversion of vegetable oil to vanaspathi ghee

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2. Name the product formed in reaction between coal (carbon) and oxygen (from air)

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3. Name the reddish coloured poisonous gas evolved during the reaction of copper with concentrated nitric acid

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4. Name the gas formed when copper reacts with dilute nitric acid

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5. Which solution is used in voters ink?

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6. Write the formula of the product formed due to reaction of ammonia gas with hydrogen chloride gas

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7. Name one physical change which is exothermic

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8. Write the formula of potassium chlorate

Watch Video Solution

9. Write the formula of potassium dichromate

Watch Video Solution

10. The process due to which greenish coloured conating is formed on brass utensil.

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True Or False

1. The composition of matter reamains the same in a chemical change.

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2. In a chamical equation, the formula of a compound can be changed.

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3. While balancing a chemical equation, the formula of compound can be changed.

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4. The chemical formula of potassium chromate is $K_2Cr_2O_7$

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5. When ferric ion is formed from ferrous ion, the positive charge is increased by two units.

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6. The chemical process in which the positive charge on an atom or an ion increases or the negative charge on them decreases is called reduction.

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7. The conversion of $FeO \text{ to } Fe_2O_3$ is reduction reaction.

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Odd One Out

1. Find the odd one out:

Melting of ice , corrosion of iron, photosynthesis in plants, conversion of milk to curd

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2. Find the odd one out:

Melting of wax, Baking a cake, Buring of wax, Ripening of a banana

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3. Find the odd one out:

Displacement reactions, Combination reactions, Decomposition reactions, Double displacement reactions

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4. Find the odd one out:

Reaction of NH_3 with HCl, reaction of Mg with O_2 reaction of CaO with water, reaction of Mg with $CuSO_4$ solution

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5. Find the odd one out:

Dissolution of KNO_3 in water, dissolution of CaO in water, dissolution of NaOH in water reaction of HCl, with NaOH

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Melting of ice , corrosion of iron, photosynthesis in plants, conversion of milk to curd

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10. Dissolution of KNO_3 in water, dissolution of CaO in water, dissolution of NaOH in water reaction of HCl, with NaOH

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Complete The Analogy

1. Formation of gas: $\uparrow$ :: Formation of precipitate:

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2. $AgNO_3 + NaCl$: Precipitate of AgCl :: $BaCl_2 + H_2SO_4$:_____

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3. Reaction of zinc with solution of copper sulphate, Displacement reaction : : Reation of potassium chromate with solution of barium sulphate: _____

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4. Heat is released : Exothermic process , Heat is absorbed : _____

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5. Dilution of concentrated sulphuric acid with water: _____: : Decomposition of calcium carbonate: Endothermic process

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Answer The Following

1. What is meant by the term physical change?

Give an example.

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2. Give four examples of physical change.

Watch Video Solution

3. Give four examples of chemical change.

Watch Video Solution

4. Define the term Chemical reaction

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5. Explain the term reactant and product giving examples.

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6. What are the important conventions followed while writing a chemical equation?

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7. $AgNO_{3(aq)} + NaCl_{aq} \rightarrow AgCl \uparrow + NaNO_{3(ag)}$

Consider the above mentioned two chemical equations with two different kinds of arrows ($\downarrow$ and $\uparrow$) along with product. What do these two different arrows indicate ?

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8. $FeS(a) + H_2SO_{4(aq)} \rightarrow FeSO_{4(aq)} + H_2S \uparrow$

Consider the above mentioned two chemical equations with two different kinds of arrows ($\downarrow$ and $\uparrow$) along with product. What do these two different arrows indicate ?

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9. Balance the following equation stepwise.

$H_aS_2O_l \rightarrow H_2SO_{4(l)}$

View Text Solution

10. Balance the following equation stepwise.

$$SO_{2(g)} + H_2S_{(aq)} \rightarrow S_{(s)} + H_2O_{(l)}$$

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11. Balance the following equation stepwise.

$$Ag_{(s)} + HCl_{(aq)} \rightarrow AgCl \downarrow + H_2 \uparrow$$

Watch Video Solution

12. Balance the following equation stepwise.

$$NaOH_{(aq)} + H_2SO_{4(aq)} \rightarrow Na_2SO_{4(aq)} + H_2O_{(l)}$$

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13. What are the types of chemical reactions in accordance with the nature and the number of the reactants and the products?

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Balanced Equation

Watch Video Solution

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16. Define the following/write notes:

Decomposition Reaction.

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17. Define the following/write notes:

Displacement Reaction

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18. Explain the following terms with examples .

Double displacement reaction

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19. Define the following/write notes:

Endothermic Reaction

Watch Video Solution

20. Define the following/write notes:

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Watch Video Solution

21. How is biogas formed? State its use.

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22. Study the following chemical reaction and answer the questions given below:

$$AgNO_{3\,(aq)} + NaCl_{aq} \rightarrow \underset{\text{Precipitate}}{AgCl_{(S)} \downarrow} + NaNO_{3\,(aq)}$$

Identify and write the type of chemical reaction.

Watch Video Solution

23. Study the following chemical reaction and answer the questions given below:

$$AgNO_{3\,(aq)} + NaCl_{aq} \rightarrow \underset{\text{Precipitate}}{AgCl_{(S)} \downarrow} + NaNO_{3\,(aq)}$$

Write the definition of above type of chemical reaction.

Watch Video Solution

24. Study the following chemical reaction and answer the questions given below:

$$AgNO_{3\,(aq)} + NaCl_{aq} \rightarrow \underset{\text{Precipitate}}{AgCl_{(S)} \downarrow} + NaNO_{3\,(aq)}$$

Write the names of reactants and products of above reaction.

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25. Identify the type of chemical reaction (combination,decomposition,displacement or double displacement

reaction)

i. $2AgNO_{3(aq)} + CaCl_{2(aq)} \rightarrow Ca(NO_3)_{2(aq)} + 2AgCl \downarrow$

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$2CO_{(g)} + O_{2(g)} \rightarrow 2CO_{2(g)}$

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$PCl_{3(g)} + Cl_{2(g)} \rightarrow PCl_{5(g)}$

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30. Identify the type of chemical reaction (combination,decomposition,displacement or double displacement reaction)

$2HgO_{(s)} \xrightarrow{\Delta} 2Hg_{(l)} + O_{2(g)}$

Watch Video Solution

31. Identity the endothermic and exothermic reaction.

$HCl + NaOH \rightarrow NaCl + H_2O + \quad \text{heat}$

Watch Video Solution

32. Identity the endothermic and exothermic reaction.

$2KClO_{3(s)} \xrightarrow{\Delta} 2KCl_{(s)} + 3O_2 \uparrow$

Watch Video Solution

33. Identity the endothermic and exothermic reaction.

$CaO + H_2O \rightarrow Ca(OH)_2 + \quad \text{heat}$

Watch Video Solution

34. Identity the endothermic and exothermic reaction.

$$CaCO_{3(s)} \xrightarrow{\Delta} CaO_{(s)} + CO_2 \uparrow$$

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35. Arnav dissolves small amount of A' to a beaker containing water and observes that the solution temperature increases.

What type of process takes place when 'A' ls added to water, based on temperature change?

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ii. What do you think substance A' is : $NaOH$ or KNO_3? Explain.

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43. How can the rate of the chemical reaction namely decomposition of hydrogen peroxide be increased

Watch Video Solution

44. Study the following reaction and answer the questions given below:

$2H_2O_{2(l)} \rightarrow 2H_2O_{(l)} + O_2 \uparrow$

i. Identify the type of chemical reaction.

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45. Study the following reaction and answer the questions given below:

$2H_2O_{2(l)} \rightarrow 2H_2O_{(l)} + O_2 \uparrow$

Which compound can be used to increase the reate of the above reaction ?

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46. Explain the importance of the rate of chemical reactions in our life

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47. Define oxidants or oxidizing agents

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48. Give examples of chemical oxidants

Watch Video Solution

49. Explain the types of reaction with reference to oxygen and hydrogen.Illustrate with example

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50. Define reductants or reducing agents

Watch Video Solution

51. What is the reaction called when oxidation and reduction take place simultaneously? Explain with one example.

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52. When hydrogen gas is passed over black copper oxide, a reddish coloured layer of copper is formed. $CuO + H_2 \rightarrow Cu + H_2O$ Which is the reductant in this reaction'? And which reactant has undergone reduction?

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53. Identify from the following reactions the reactants that undergo oxidation and reduction.

$Fe + S \rightarrow FeS$

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54. Identify from the following reactions the reactants that undergo oxidation and reduction.

$2Ag_2O \rightarrow 4Ag + O_2 \uparrow$

Watch Video Solution

55. Identify from the following reactions the reactants that undergo oxidation and reduction.

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$

Watch Video Solution

56. Identify from the following reactions the reactants that undergo oxidation and reduction.

$NiO + H_2 \rightarrow Ni + H_2O$

Watch Video Solution

57. $BaSO_4 + 4C \rightarrow BaS + 4CO$

In the above reaction, write for each reactant that undergoes oxidation or reduction and identify the type of reaction.

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58. Identify oxidizing agent in the following reactions:

$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

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59. Identify oxidizing agent in the following reactions:

$ZnO + C \rightarrow Zn + CO$

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60. Identify oxidizing agent in the following reactions:

$V_2O_5 + 5Ca \rightarrow 2V + 5CaO$

Watch Video Solution

61. Identify oxidizing agent in the following reactions:

$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$

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62. Write the reactions for the following conversion using the symbol (e^-).

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63. Why do edible oils show rancidity when stored for long period?

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64. What is rancidity? Mention only two ways by which rancidity can be prevented.

Watch Video Solution

65. Choose the correct option from the bracket and explain the statement giving reason:

(oxidation, displacement, electrolysis, reduction, zinc, copper, double, displacement, decomposition)

To prevent rusting,a layer of ___metal is applied on iron sheets

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66. Choose the correct option from the bracket and explain the statement giving reason:

(oxidation, displacement, electrolysis, reduction, zinc, copper, double, displacement, decomposition)

The conversion of ferrous sulphate to ferric sulphate is _____reaction.

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67. Choose the correct option from the bracket and explain the statement giving reason:

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When electric current is passed through acidulated water _ of water takes place.

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68. Choose the correct option from the bracket and explain the statement giving reason:

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Addition of an aqueous solution of $ZnSO_4$ to an aqueous solution of $BaCl_2$ is an example of __ reaction

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Give an example.

Watch Video Solution

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View Text Solution

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Watch Video Solution

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Watch Video Solution

113. Study the following reaction and answer the questions given below:

$2H_2O_{2(l)} \rightarrow 2H_2O_{(l)} + O_2 \uparrow$

Which compound can be used to increase the reate of the above reaction ?

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114. Explain the importance of the rate of chemical reactions in our life

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115. Define oxidants or oxidizing agents

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116. Give examples of chemical oxidants

Watch Video Solution

117. Explain the types of reaction with reference to oxygen and hydrogen.Illustrate with example

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118. Define reductants or reducing agents

Watch Video Solution

119. What is the reaction called when oxidation and reduction take place simultaneously? Explain with one example.

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120. When hydrogen gas is passed over black copper oxide, a reddish coloured layer of copper is formed. $CuO + H_2 \rightarrow Cu + H_2O$ Which is

the reductant in this reaction'? And which reactant has undergone reduction?

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121. Identify from the following reactions the reactants that undergo oxidation and reduction.

$Fe + S \rightarrow FeS$

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122. Identify from the following reactions the reactants that undergo oxidation and reduction.

$2Ag_2O \rightarrow 4Ag + O_2 \uparrow$

Watch Video Solution

123. Identify from the following reactions the reactants that undergo oxidation and reduction.

$2Mg + O_2 \xrightarrow{\Delta} 2MgO$

Watch Video Solution

124. Identify from the following reactions the reactants that undergo oxidation and reduction.

$NiO + H_2 \rightarrow Ni + H_2O$

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125. $BaSO_4 + 4C \rightarrow BaS + 4CO$

In the above reaction, write for each reactant that undergoes oxidation or reduction and identify the type of reaction.

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126. Identify oxidizing agent in the following reactions:

$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

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127. Identify oxidizing agent in the following reactions:

$ZnO + C \rightarrow Zn + CO$

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128. Identify oxidizing agent in the following reactions:

$V_2O_5 + 5Ca \rightarrow 2V + 5CaO$

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129. Identify oxidizing agent in the following reactions:

$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$

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130. Write the reactions for the following conversion using the symbol (e^-).

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131. Why do edible oils show rancidity when stored for long period?

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132. What is rancidity? Mention only two ways by which rancidity can be prevented.

Watch Video Solution

133. Choose the correct option from the bracket and explain the statement giving reason:

(oxidation, displacement, electrolysis, reduction, zinc, copper, double, displacement, decomposition)

To prevent rusting,a layer of ___metal is applied on iron sheets

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134. Choose the correct option from the bracket and explain the statement giving reason:

(oxidation, displacement, electrolysis, reduction, zinc, copper, double, displacement, decomposition)

The conversion of ferrous sulphate to ferric sulphate is _____reaction.

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135. Choose the correct option from the bracket and explain the statement giving reason:

(oxidation, displacement, electrolysis, reduction, zinc, copper, double, displacement, decomposition)

When electric current is passed through acidulated water _ of water takes place.

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136. Choose the correct option from the bracket and explain the statement giving reason:

(oxidation, displacement, electrolysis, reduction, zinc, copper, double, displacement, decomposition)

Addition of an aqueous solution of $ZnSO_4$ to an aqueous solution of $BaCl_2$ is an example of __ reaction

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Given Reason

1. Give scientifific reasons

When the gas formed on heating limestone is passsed through freshly prepared lime water,the lime water turns milky.

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2. Give scientific reasons

While preparing dilute sulphuric acid from concentrated sulphuric acid in the laboratory, the concentrated sulphuric acid is added slowly to water with constant stirring.

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3. Give scientific reasons

It takes time for pieces of shahabad tiles to disappear in `HCI, but its powder disappears rapidly.

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4. Give scientific reasons:

Zinc powder reacts faster than zinc granules when added to copper sulphate $(CuSO_4)$ solution.

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5. Give scientific reasons:

Perishable foodstuffs get preserved longer in refrigerator

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6. Give scientific reasons:

Vegetables cook quickly on oil rather than on boiling water

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7. Give scientific reasons

It is recommended to use air tight container for storing oil for long time.

Watch Video Solution

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Perishable foodstuffs get preserved longer in refrigerator

Watch Video Solution

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It is recommended to use air tight container for storing oil for long time.

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Give Balanced Chemical Equation

1. Translate the following word equations into balanced chemical equations. .

i. Hydrogen gas + Nitrogen gas $\rightarrow$ Ammonia gas

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2. Translate the following word equations into balaced chemical equations. .

Ptassium metal + water $\rightarrow$ Potassium hydroxide + Hydrogen gas

Watch Video Solution

3. Balance the following chemical equations:

$SiO_{2(s)} + HF_{(aq)} \rightarrow SiF_{4(g)} + H_2O_{(l)}$

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4. Balance the following chemical equations:

$Mg(OH)_{2(s)} + HCl_{(aq)} \rightarrow H_2O_{(l)} + MgCl_{2(aq)}$

Watch Video Solution

5. Balance the following chemical equations:

$P_{4(s)} + Cl_{2(g)} \rightarrow PCl_{3(l)}$

Watch Video Solution

6. Complete the following reaction and name the products. `CuSO_(4(aq))+Fe_((aq))rarr_____+____.

Watch Video Solution

7. Complete the following reactions and give names of the products.

$CuSO_{4(aq)}\, Pb_{(s)} \rightarrow \_\_\_\_\_ + \_\_\_\_\_$

Watch Video Solution

8. Explain what happens when following reactions take place and give the balanced chemical equations. Zinc dust is added to copper sulphate solution.

Watch Video Solution

9. Explain what happens when following reactions take place and give the balanced chemical equations. Copper reacts with concentrated nitric acid.

Watch Video Solution

10. Write chemical equation for the following events:

Copper reacts with dilute nitric acid.

Watch Video Solution

11. Explain what happens when following reactions take place and give the balanced chemical equations. Silver nitrate solution added to solution of sodium chloride.

Watch Video Solution

12. Explain the following chemical reactions and write the balanced chemical equations.

Sugar is heated (charred.)

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13. Explain the following chemical reactions and write the balanced chemical equations.

Electrolysis of acidulated water.

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14. Translate the following word equations into balanced chemical equations. .

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Ptassium metal + water $\rightarrow$ Potassium hydroxide + Hydrogen gas

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$Mg(OH)_{2(s)} + HCl_{(aq)} \rightarrow H_2O_{(l)} + MgCl_{2(aq)}$

Watch Video Solution

18. Balance the following chemical equations:

$P_{4(s)} + Cl_{2(g)} \rightarrow PCl_{3(l)}$

Watch Video Solution

19. Complete the following reactions and give names of the products.

$CuSO_{4(aq)}\, Pb_{(s)} \rightarrow \_\_\_\_\_ + \_\_\_\_\_$

Watch Video Solution

20. Complete the following reactions and give names of the products.

$CuSO_{4(aq)}\, Pb_{(s)} \rightarrow \_\_\_\_\_ + \_\_\_\_\_$

Watch Video Solution

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Watch Video Solution

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Watch Video Solution

23. Write chemical equation for the following events:

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Watch Video Solution

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Watch Video Solution

25. Explain the following chemical reactions and write the balanced chemical equations.

Sugar is heated (charred.)

Watch Video Solution

26. Explain the following chemical reactions and write the balanced chemical equations.

Electrolysis of acidulated water.

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Distinguish Between

1. Distinguish between

Physical Change and Chemical Change.

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2. Distinguish between

Oxidation reaction Reduction reaction

Watch Video Solution

3. Distinguish between

Physical Change and Chemical Change.

Watch Video Solution

4. Distinguish between

Oxidation reaction Reduction reaction

Watch Video Solution

Complete The Given Chart Table

1. Identify physical and chemical changes from the phenomena given in the following table.

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2. Complete the following table on the basis of the following equation.

$$AgNO_{3\,(aq)} + NaCl_{aq} \rightarrow AgCl \downarrow + NaNO_{3\,(aq)}$$

View Text Solution

3. Fill in the correct factors in the boxes provided to balance the chemical equation.

$$2KMnO_4 + \square\, FeSO_4 + \square\, H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + \square\, Fe_2(SO_4$$

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4. Complete the following table.

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5. Complete the following chart by identifying 'A' and ' B'. Then, answer the below given question.

Write the balanced chemical equation for the chemical reaction that occurs when limestone is heated?

View Text Solution

6. Identify physical and chemical changes from the phenomena given in the following table.

View Text Solution

7. Complete the following table on the basis of the following equation.

$AgNO_{3(aq)} + NaCl_{aq} \rightarrow AgCl \downarrow + NaNO_{3(aq)}$

View Text Solution

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9. Complete the following table.

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10. Complete the following chart by identifying 'A' and ' B'. Then, answer the below given question.

Write the balanced chemical equation for the chemical reaction that occurs when limestone is heated?

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Questions Based On Diagram

1. The reaction of sodium chloride solution with silver nitrate solution is shown in the following figure:

Name of the products of the reaction.

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2. The reaction of sodium chloride solution with silver nitrate solution is shown in the following figure:

Write chemical equation involved.

View Text Solution

3. The reaction of sodium chloride solution with silver nitrate solution is shown in the following figure:

Does the reaction follow law of conservation of mass? Justify your answer.

View Text Solution

4. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

Chemicals: Calcium carbonate, freshly prepared lime water.

What will you study using above apparatus and chemicals? Draw neat labelled diagram for the experimental setup.

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5. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

Chemicals: Calcium carbonate, freshly prepared lime water.

Name the gas evolved when calcium carbonate is heated.

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6. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

Chemicals: Calcium carbonate, freshly prepared lime water.

Name the solid product left behind on heating calcium carbonate.

View Text Solution

7. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

Chemicals: Calcium carbonate, freshly prepared lime water.

What are the products formed when evolved gas reacts with freshly prepared lime water?

View Text Solution

8. Observe the following picture and write down the chemical reaction with explanation.

View Text Solution

9. The reaction of sodium chloride solution with silver nitrate solution is shown in the following figure:

Name of the products of the reaction.

View Text Solution

10. The reaction of sodium chloride solution with silver nitrate solution is shown in the following figure:

Write chemical equation involved.

View Text Solution

11. The reaction of sodium chloride solution with silver nitrate solution is shown in the following figure:

Does the reaction follow law of conservation of mass? Justify your answer.

View Text Solution

12. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

Chemicals: Calcium carbonate, freshly prepared lime water.

Procedure: Take some calcium carbonate in a test tube. Fit a bent tube to this test tube with the help of a rubber cork. Insert the other end of the bent tube in the freshly prepared lime water taken in the other test tube. Heat the powdered calcium carbonate in the first test tube strongly.

What will you observe?

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13. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

Chemicals: Calcium carbonate, freshly prepared lime water.

Name the gas evolved when calcium carbonate is heated.

Watch Video Solution

14. Apparatus: Two test tubes, bent tube, rubber cork, burner, etc.

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Name the solid product left behind on heating calcium carbonate.

Watch Video Solution

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What are the products formed when evolved gas reacts with freshly prepared lime water?

Watch Video Solution

16. Observe the following picture and write down the chemical reaction with explanation.

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Questions Based On Paragraph

1. Veena observes that during winter setting of milk into curd takes more time while during summer, the same process happens faster. She asks about this difference in time taken to her elder sister. She also asks her sister about why certain reactions occur rapidly while others occur slowly. Her sister explains her about the various factors that affect the rate of chemical reactions. Based on the above scenario, answer the following questions.

Why do you think setting of curd occur at different rates during different seasons?

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2. Veena observes that during winter setting of milk into curd takes more time while during summer, the same process happens faster. She asks about this difference in time taken to her elder sister. She also asks her sister about why certain reactions occur rapidly while others occur slowly. Her sister explains her about the various factors that affect the rate of chemical reactions. Based on the above scenario, answer the following questions.

The rate of different reactions is different. Justify the statement.

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3. Veena observes that during winter setting of milk into curd takes more time while during summer, the same process happens faster. She asks about this difference in time taken to her elder sister. She also asks her

sister about why certain reactions occur rapidly while others occur slowly. Her sister explains her about the various factors that affect the rate of chemical reactions. Based on the above scenario, answer the following questions.

The reaction of aluminum metal with dilute hydrochloric acid takes place faster as compared to zinc metal. What could be the reason for this difference?

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4. Veena observes that during winter setting of milk into curd takes more time while during summer, the same process happens faster. She asks about this difference in time taken to her elder sister. She also asks her sister about why certain reactions occur rapidly while others occur slowly. Her sister explains her about the various factors that affect the rate of chemical reactions. Based on the above scenario, answer the following questions.

How does the size of particles of reactants affect the rate of reaction?

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5. Veena observes that during winter setting of milk into curd takes more time while during summer, the same process happens faster. She asks about this difference in time taken to her elder sister. She also asks her sister about why certain reactions occur rapidly while others occur slowly. Her sister explains her about the various factors that affect the rate of chemical reactions. Based on the above scenario, answer the following questions.

You come across various chemical changes in your daily life. Mention any two chemical changes that occur slowly under normal conditions.

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6. Metals get attacked by substances around it such as moisture, acids, etc. Metal is said to 'corrode' due to this attack and the process is called corrosion. Many metals like iron, copper, silver, etc. get corroded. When iron is exposed to moist air, it undergoes corrosion and a reddish brown coloured solid layer is formed on its surface. Corrosion of iron, which is

known as rusting, is a serious problem as enormous amount of money is spent every year to replace damaged iron. Similarly, copper reacts with moisture and. CO_2 in air to form a green coloured coating of basic copper carbonate on its surface. Silver acquires a black colour when exposed to air containing H_2S due to the formation of silver sulphide on its surface. Based on the above paragraph, answer the following question.

What is rust?

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exposed to air containing H_2S due to the formation of silver sulphide on its surface. Based on the above paragraph, answer the following question. Give the chemical formula of rust.

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Watch Video Solution

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View Text Solution

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Watch Video Solution

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Do gold ornaments corrode? Justify.

Watch Video Solution

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Why do we apply paint on iron articles?

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Apply Your Knowledge

1. What are the types of molecules of elements and compounds?

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2. What is meant by valency of elements?

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3. What is the requirement for writing molecular formulae of different compounds? How are the molecular formulae of the compounds written?

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4. Apparatus: Thermometer, evaporating dish, tripod stand, funnel, Bunsen burner, etc.

Chemicals: Limestone powder, copper sulphate, calcium chloride,

potassium

chromate, barium sulphate, zinc dust, sodium carbonate, phthalic anhydride, etc.

Procedure: Carry out the activities (i) to (v) given below. Read and record the temperatures in the activities (ii) to (iv).

i. Take a spoonful of limestone powder in an evaporating dish. Heat it strongly on a high blue flame.

ii. Add zinc (Zn) dust into the copper sulphate $(CuSO_4)$ solution.

iii. Add potassium chromate(K_2CrO_4) solution to barium sulphate $(BaSO_4)$ solution.

iv. Add sodium carbonate(Na_2CO_3) solution to the calcium chloride $(CaCl_2)$ solution.

Take phthalic anhydride in the evaporating dish. Close the end of the stem of a funnel with a cotton plug. Keep this funnel inverted on the evaporating dish. Heat the evaporating dish on a tripod stand slowly on a low flame.

What did you observe in the funnel during heating?

Record the observation of all the activities. What did you find?

Complete the following observation table with reference to the activities

(i) to (v).

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5. Observe and keep a record of the physical and chemical changes that you experience in your daily life.

View Text Solution

6. Apparatus: Test tube, conical flask, balance, etc.

Chemicals: Sodium chloride and silver nitrate.

Procedure:

i. Take sodium chloride solution in a conical flask and silver nitrate solution in a test tube.

ii. Tie a thread to the test tube and insert it carefully into the conical flask. Make the conical flask air tight by fitting a rubber cork.

iii. Weigh the conical flask with the help of a balance.

iv. Now tilt the conical flask and mix the solution present in the test tube

with the solution in the conical flask.

v. Weigh the conical flask again.

Which changes did you find?

View Text Solution

7. Apparatus: Test tube, conical flask, balance, etc.

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Procedure:

i. Take sodium chloride solution in a conical flask and silver nitrate solution in a test tube.

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iii. Weigh the conical flask with the help of a balance.

iv. Now tilt the conical flask and mix the solution present in the test tube with the solution in the conical flask.

v. Weigh the conical flask again.

Did any insoluble substance form?

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Procedure:

i. Take sodium chloride solution in a conical flask and silver nitrate solution in a test tube.

ii. Tie a thread to the test tube and insert it carefully into the conical flask. Make the conical flask air tight by fitting a rubber cork.

iii. Weigh the conical flask with the help of a balance.

iv. Now tilt the conical flask and mix the solution present in the test tube with the solution in the conical flask.

v. Weigh the conical flask again.

Was there any change in the weight?

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9. What are the other uses of silver nitrate in everyday life?

View Text Solution

10. Identify the reactants and products of the equation:

$$\text{Vegetable } oil_{(l)} + H_{2(g)} \xrightarrow[Ni \text{ Catalyst}]{60^\circ C} \text{Vanaspathi } ghee_{(s)}$$

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11. Write down the steps in balancing the equation `N_(2(g))+H_(2(g))rarrNH_(3(g)).

Watch Video Solution

12. Write down a balanced chemical equation for the following reaction.Calcium chloride+Sulphuric acid $\rightarrow$ Calciumsulphate+Hydrogen chloride

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13. Apparatus: Test tube, glass rod, beaker, Bunsen burner, etc.

Chemicals: Hydrochloric acid, ammonia solution, magnesium strip, quick lime, etc.

Activity 1: Take a small amount of hydrochloric acid in a test tube. Heat the test tube. Dip a glass rod in the ammonia solution and hold on the top of the test tube. You will observe a white smoke emanating from the tip of the glass rod. What must have happened?

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14. Apparatus: Test tube, glass rod, beaker, Bunsen burner, etc.

Chemicals: Hydrochloric acid, ammonia solution, magnesium strip, quick lime, etc.

Activity 2: Hold a magnesium (Mg) strip in a pair of tongs and ignite. What will you observe?

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15. Apparatus: Test tube, glass rod, beaker, Bunsen burner, etc.

Chemicals: Hydrochloric acid, ammonia solution, magnesium strip, quick lime, etc.

Activity 3: Take water in a beaker up to half of its capacity. Add a few pieces of quick lime (calcium oxide, CaO) to it. What will you observe?

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16. What is the number of reactants in each of the reactions described in the activities given ?

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Chemicals: Sugar

Procedure: Take some sugar in an evaporating dish and heat it with the help of a Bunsen burner. After some time you will see the formation of a burnt out black substance. Exactly what must have happened in this activity?

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Chemicals: Potassium nitrate, sodium hydroxide, water, etc.

(Sodium hydroxide being corrosive, handle it carefully in presence of teacher.)

Procedure: Take I 00 mL water in each of the two plastic bottles. Plastic being insulator of heat, the dissipation of heat can be prevented. Note the temperature of water in the bottles. Put 5 g potassium nitrate (KNO_3) in the bottle and shake well. Note the temperature of the solution formed. Put 5 g sodium hydroxide (NaOH) in the other bottle. Shake the bottle well. Note the temperature.

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Chemicals: Anhydrous calcium chloride oil boiled water, salt solution, etc.

Procedure: Place four test tubes on a test tube stand. Take some boiled

water in one test tube and put an oil layer on it. Take some salt solution in the second test tube. Let there be only air in the third test tube. Take some anhydrous calcium chloride in the fourth test tube. Place a small iron nail in every test tube. Close the fourth test tube with a mbber cork.

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42. Prepare aqueous solutions of various solid salts availble in the laboratory.Observe what happens when aqueos solution of sodium

hydroxide is added to these. Prepare a chart of double displacement reactions based on these observations.

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43. What are the types of molecules of elements and compounds?

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44. What is meant by valency of elements?

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45. What is the requirement for writing molecular formulae of different compounds? How are the molecular formulae of the compounds written?

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46. Apparatus: Thermometer, evaporating dish, tripod stand, funnel, Bunsen burner, etc.

Chemicals: Limestone powder, copper sulphate, calcium chloride, potassium

chromate, barium sulphate, zinc dust, sodium carbonate, phthalic anhydride, etc.

Procedure: Carry out the activities (i) to (v) given below. Read and record the temperatures in the activities (ii) to (iv).

i. Take a spoonful of limestone powder in an evaporating dish. Heat it strongly on a high blue flame.

ii. Add zinc (Zn) dust into the copper sulphate $(CuSO_4)$ solution.

iii. Add potassium chromate(K_2CrO_4) solution to barium sulphate $(BaSO_4)$ solution.

iv. Add sodium carbonate(Na_2CO_3) solution to the calcium chloride $(CaCl_2)$ solution.

Take phthalic anhydride in the evaporating dish. Close the end of the stem of a funnel with a cotton plug. Keep this funnel inverted on the evaporating dish. Heat the evaporating dish on a tripod stand slowly on a

low flame.

What did you observe in the funnel during heating?

Record the observation of all the activities. What did you find?

Complete the following observation table with reference to the activities (i) to (v).

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47. Observe and keep a record of the physical and chemical changes that you experience in your daily life.

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48. Apparatus: Test tube, conical flask, balance, etc.

Chemicals: Sodium chloride and silver nitrate.

Procedure:

i. Take sodium chloride solution in a conical flask and silver nitrate solution in a test tube.

ii. Tie a thread to the test tube and insert it carefully into the conical flask. Make the conical flask air tight by fitting a rubber cork.

iii. Weigh the conical flask with the help of a balance.

iv. Now tilt the conical flask and mix the solution present in the test tube with the solution in the conical flask.

v. Weigh the conical flask again.

Did any insoluble substance form?

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51. What are the other uses of silver nitrate in everyday life?

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52. Identify the reactants and products of the equation:

$$\text{Vegetable } oil_{(l)} + H_{2(g)} \xrightarrow[Ni \text{ Catalyst}]{60^{\circ}C} \text{Vanaspathi } ghee_{(s)}$$

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53. Apparatus: Test tube, glass rod, beaker, Bunsen burner, etc.

Chemicals: Hydrochloric acid, ammonia solution, magnesium strip, quick lime, etc.

Activity 1: Take a small amount of hydrochloric acid in a test tube. Heat the test tube. Dip a glass rod in the ammonia solution and hold on the top of the test tube. You will observe a white smoke emanating from the tip of the glass rod. What must have happened?

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Activity 2: Hold a magnesium (Mg) strip in a pair of tongs and ignite. What will you observe?

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55. Apparatus: Test tube, glass rod, beaker, Bunsen burner, etc.

Chemicals: Hydrochloric acid, ammonia solution, magnesium strip, quick lime, etc.

Activity 3: Take water in a beaker up to half of its capacity. Add a few pieces of quick lime (calcium oxide, CaO) to it. What will you observe?

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Chapter Assessment

1. The chemical formula of the rust is

A. $Fe_2O_3.\ xH_2O$

B. $FeO.\ xH_2O$

C. Fe_2O_3

D. FeO

Answer:

Watch Video Solution

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Activity 1: Take a small amount of hydrochloric acid in a test tube. Heat the test tube. Dip a glass rod in the ammonia solution and hold on the top of the test tube. You will observe a white smoke emanating from the tip of the glass rod. What must have happened?

A. Brown fume emanating from the tip of the glass rod.

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C. A pale green solid is formed on the tip of the glass rod

D. A brunt out black solid is formed on the tip of the glass rod

Answer:

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3. Give scientific reasons

It takes time for pieces of shahabad tiles to disappear in `HCI, but its powder disappears rapidly.

A. Rate of reaction depends on temperature.

B. Rate of reaction depends on the concentration of reactants.

C. Rate of reaction depends on the catalyst used.

D. Rate of reaction depends on the size of the particles of reactants

Answer:

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4. True or false. If false, write the correct sentence.

In a chemical equation, if the product is gaseous, then instead of (g) it can be indicated by an arrow pointing upward

Watch Video Solution

5. Name the gas formed when copper reacts with dilute nitric acid

Watch Video Solution

6. Identify the odd one out and justify. Vaporisation of water, dissolution of KNO_3 in water, dissolution of NaOH in water, Melting of ice

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7. Give scientifific reasons

When the gas formed on heating limestone is passsed through freshly prepared lime water,the lime water turns milky.

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While preparing dilute sulphuric acid from concentrated sulphuric acid in the laboratory, the concentrated sulphuric acid is added slowly to water with constant stirring.

Watch Video Solution

9. Identify reductants and oxidants in the following reactions.

$2PbO + C \rightarrow 2Pb + CO_2$

$4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$

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10. A student was studying combination reaction by adding few pieces of calcium oxide to water taken in a beaker.

a. Name the product formed.

b. Write the balanced chemical equation for the reaction.

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11. When the solution of sodium carbonate is added to the solution of calcium chloride, a precipitate is formed.

a. What is the colour of the precipitate formed?

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c. What is the type of the chemical reaction?

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12. A student performed following two activities in school laboratory:

Activity 1: Addition of zinc dust into copper sulphate solution taken in a test tube.

Activity 2: Addition of an iron nail into copper sulphate solution taken in a test tube. He noted down his observations and concluded that chemical reaction occurs in both the cases based on the observed colour change

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What was the initial colour of the solution?

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