CHEMISTRY

BOOKS - TARGET CHEMISTRY (HINGLISH)

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. When two or more reactants combine in a reaction to form a single product, it is called _____ racation

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: A

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4. When is passed through fresh lime water, it turns milky.

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 (are) double displacement reaction (s)?

(i) $Pb + CuCl_2 \rightarrow PbCl_2 + Cu$

(ii) $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

(iii) $C + O_2 \rightarrow CO_2$

(iv) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

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

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

A. $KMnO_4$ oxidises ferrous sulphate.

B. $KMnO_4$ reduces ferrous sulphate.

C. Ferrous sulphate oxidises $KMnO_4$

D. $KMnO_4$ is unstable compound and undergoes decomposition to form a colourless compound.

Answer: A

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11. Rusting of an iron nail is a reaction.

A. combination

B. displacement

C. decomposition

D. double displacemen

Answer: A

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12. Write the chemical formula of rust.

A. $Fe_2O_3.\ xH_2O$

B. $FeO.\ xH_2O$

C. Fe_2O_3

D. FeO

Answer: A

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13. 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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14. The reaction between iron and copper sulphate solution represents which type of reaction ?

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: C

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15. 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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16. 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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17. .....is a chemical change.

A. Ice changing to water

B. Condensation of steam

C. Sublimation of camphor

D. Ripening of fruits

Answer: D

Watch Video Solution

18. 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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19. When two or more reactants combine in a reaction to form a single product, it is called _____ racation

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: A

Watch Video Solution

20. When is passed through fresh lime water, it turns milky.

A. H_2

B. CO_2

C. CO

D. SO_2

Answer: B

Watch Video Solution

21. 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

Watch Video Solution

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

(i) $Pb + CuCl_2 \rightarrow PbCl_2 + Cu$

(ii) $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$

(iii) $C + O_2 \rightarrow CO_2$

(iv) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

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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23. 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

View Text Solution

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

Watch Video Solution

25. 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

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

A. $KMnO_4$ oxidises ferrous sulphate.

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Answer: A

Watch Video Solution

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D. double displacemen

Answer: A

Watch Video Solution

28. The chemical formula of rust is . . . . . .

A. $Fe_2O_3 . xH_2O$

B. $FeO.xH_2O$

C. Fe_2O_3

D. FeO

Answer: A

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29. 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

Watch Video Solution

30. The reactions of iron nail with copper sulphate solution is ..... reaction.

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: C

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31. 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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32. 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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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.

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2. 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.

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Name The Following

1. Name the reaction which is commonly used in the conversion of vegetable oil to fats. Explain the reaction involved in detail.

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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

Watch Video Solution

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

Watch Video Solution

5. Name the compound of silver which is used in the voters ink.

Watch Video Solution

6. Ammonia gas reacts with hydrogen chloride gas. Give balanced reaction.

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7. Name one physical change which is exothermic

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8. Write the formula of potassium chlorate

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9. POTASSIUM DICHROMATE

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

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11. Name the reaction which is commonly used in the conversion of vegetable oil to fats. Explain the reaction involved in detail.

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

15. Name the compound of silver which is used in the voters ink.

Watch Video Solution

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

View Text Solution

17. Name one physical change which is exothermic

View Text Solution

18. Write the formula of potassium chlorate

Watch Video Solution

19. Write the formula of potassium dichromate

View Text Solution

20. 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.

View Text Solution

2. Combustion of coal in air is a _____ reaction.

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

View Text Solution

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

View Text Solution

5. On adding zinc dust to copper sulphate solution, a displacement reaction takes place.

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6. Rate of a chemical reaction is proportional to the concentration of reactants.

View Text Solution

View Text Solution

7. In our body ,enzymes increase the rate of physiological reactions.

View Text Solution

8. The ozone layer in the earth's atmosphere protects the life on earth from the harmful ultraviolet radiations of the sun.

View Text Solution

9. Hydrogen peroxide undergoes slow decomposition into water and oxygen.

View Text Solution

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

View Text Solution

11. Nascent ocygen is represented [O].

View Text Solution

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

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

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15. A redox reaction takes place during cellular respiration

View Text Solution

16. The rust on iron surface is formed by an electrochemical reaction.

View Text Solution

17. When we use old, left over cooking oil for making food stuff, it is found to have foul odor called rancidity.

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

View Text Solution

19. Combustion of coal in air is a _____ reaction.

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Odd One Out

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

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

Watch Video Solution

3. Displacement reactions, Combination reactions, Decomposition reactions,Double displacement reactions

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

8. Displacement reactions, Combination reactions, Decomposition reactions,Double displacement reactions

Watch Video Solution

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

Watch Video Solution

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:

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

10. 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

Watch Video Solution

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.

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

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10. Balance the following equation stepwise.

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

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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.

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

Watch Video Solution

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

View Text Solution

14. Explain the following terms with examples .

Balanced equation

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15. Explain the following terms with examples .

Combination reation

Watch Video Solution

16. Explain the following terms with examples .

Decomposition reaction

Watch Video Solution

17. Explain the following terms with examples .

Displacement reaction

Watch Video Solution

18. What is double displacement reaction ? Give one example.

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19. Give an example of endothermic reaction.

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20. Give an example of exothermic reaction.

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21. How is biogas produced ?

Watch Video Solution

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

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

Identify and write the type of chemical reaction.

Watch Video Solution

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

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

Write the definition of above type of chemical reaction.

Watch Video Solution

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

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

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

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

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

$Mg_{(s)} + CuSO_{4(aq)} \rightarrow MgSO_{4(sq)} + Cu_{(S)}$

Watch Video Solution

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

$2AgNO_{3(aq)} + Cu_{(s)} \rightarrow 2Ag_{(s)} + Cu(NO_3)_{2(aq)}$

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

reaction)

$PCl_{3(l)} + Cl_{(s)} \rightarrow PCl_{5(s)}$

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

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

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31. Identity the endothermic and exothermic reaction.

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

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

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

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37. Use your brain power

What is the difference in the process of dissolution and a chemical reaction?

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38. Use your brain power

Does a new substance form when a solute dissolves in a solvent?

View Text Solution

39. Explain the similarity and difference in two events, namely adding NaOH to water and adding CaO to water.

View Text Solution

40. Mention the factors that affect the rate of a chemical reaction.

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41. Write short note on: Concentration or the reactants and the rate' of a chemical reaction

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42. Define catalyst.

View Text Solution

43. * How can the rate of chemical reaction, namely , decomposition of hydrogen perioxide be increased ?

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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

View Text Solution

48. Give examples of chemical oxidants

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

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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 simultancously ? 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 ip 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. $BeSO_4 + 4C \rightarrow BaS + 4CO$

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. How is rancidity of edible oils prevented?

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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.

View Text Solution

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.

View Text Solution

67. 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.

View Text Solution

68. 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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69. What is meant by the term physical change?

Give an example.

Watch Video Solution

70. Give four examples of physical change.

Watch Video Solution

71. Give four examples of chemical change.

Watch Video Solution

72. Define the term Chemical reaction

Watch Video Solution

73. Explain the term reactant and product giving examples.

Watch Video Solution

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

View Text Solution

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

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

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

Watch Video Solution

78. Balance the following equation stepwise.

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

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79. Balance the following equation stepwise.

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

Watch Video Solution

80. Balance the following equation stepwise.

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

Watch Video Solution

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

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82. Explain the following terms with examples .

Balanced equation

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83. Explain the following terms with examples .

Combination reation

Watch Video Solution

84. Explain the following terms with examples .

Decomposition reaction

Watch Video Solution

85. Explain the following terms with examples .

Displacement reaction

Watch Video Solution

86. Explain the following terms with examples .

Double displacement reaction

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87. Explain the terms with examples :

* Endothermic reaction

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88. Explain the terms with examples :

Exothermic reaction

Watch Video Solution

89. How is biogas produced ?

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

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

Identify and write the type of chemical reaction.

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

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

Write the definition of above type of chemical reaction.

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Watch Video Solution

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

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

Write the names of reactants and products of above reaction.

Watch Video Solution

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

reaction)

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

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

$Mg_{(s)} + CuSO_{4(aq)} \rightarrow MgSO_{4(sq)} + Cu_{(S)}$

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

$2AgNO_{3(aq)} + Cu_{(s)} \rightarrow 2Ag_{(s)} + Cu(NO_3)_{2(aq)}$

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

$PCl_{3(l)} + Cl_{(s)} \rightarrow PCl_{5(s)}$

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

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

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99. Identity the endothermic and exothermic reaction.

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

Watch Video Solution

100. Identity the endothermic and exothermic reaction.

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

Watch Video Solution

101. Identity the endothermic and exothermic reaction.

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

Watch Video Solution

102. Identity the endothermic and exothermic reaction.

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

Watch Video Solution

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

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

View Text Solution

105. Use your brain power

What is the difference in the process of dissolution and a chemical reaction?

View Text Solution

106. Use your brain power

Does a new substance form when a solute dissolves in a solvent?

View Text Solution

107. Explain the similarity and difference in two events, namely adding NaOH to water and adding CaO to water.

View Text Solution

108. Mention the factors that affect the rate of a chemical reaction.

Watch Video Solution

109. Write short note on: Concentration or the reactants and the rate' of a chemical reaction

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110. A catalyst

Watch Video Solution

111. * How can the rate of chemical reaction, namely , decomposition of hydrogen perioxide be increased ?

Watch Video Solution

112. 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.

Watch Video Solution

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

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

i. Identify the type of chemical reaction.

Watch Video Solution

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

View Text Solution

115. Define oxidants or oxidizing agents

View Text Solution

116. Give examples of chemical oxidants

Watch Video Solution

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

Watch Video Solution

118. Define reducing agent.

Watch Video Solution

119. What is the reaction called when oxidation and reduction take place simultancously ? 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 ip this reaction'? And which reactant has undergone reduction?

View Text Solution

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.

$NiO + H_2 \rightarrow Ni + H_2O$

Watch Video Solution

125. $BeSO_4 + 4C \rightarrow BaS + 4CO$

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:

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

Watch Video Solution

128. Identify oxidizing agent in the following reactions:

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

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

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

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131. How is rancidity of edible oils prevented?

Watch Video Solution

132. To prevent rusting a , layer of ..... metal is applied on irons sheets.

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) The conversion of ferrous sulphate to ferric sulphate is ___ reaction.

View Text Solution

134. 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.

View Text Solution

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

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2. 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

3. It takes . time for pieces of Shahabad tile to· disappear in HCI, but its powder disappears rapidly.

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

Watch Video Solution

5. Perishable foodstuffs get preserved longer in refrigerator

View Text Solution

6. Vegetables cook quickly on oil rather than on boiling water

View Text Solution

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

Watch Video Solution

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View Text Solution

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

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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

Watch Video Solution

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:

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

Watch Video Solution

4. Balance the following chemical equations:

$Mg(OH)_{2(s)} + 2HCl_{(aq)} \rightarrow 2H_2O_l + MgCl_{2(aq)}$

Watch Video Solution

5. Balance the following chemical equations:

$P_{4(s)} + 6Cl_{2(g)} \rightarrow 4PCl_{3(l)}$

Watch Video Solution

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

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

Watch Video Solution

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

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

Watch Video Solution

8. When zinc granules are added to copper sulphate solution, the blue coloured solution-turns colourless.

Give reason

Watch Video Solution

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

Copper added to concentrated nitric acid.

Watch Video Solution

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

Copper to dilute nitric acid.

Watch Video Solution

11. Sodium chloride solution is mixed with silver nitrate solution.Give balanced reaction.

Watch Video Solution

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

Sugar is heated (charred.)

Watch Video Solution

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

Copper to dilute nitric acid.

Watch Video Solution

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

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

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

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

Watch Video Solution

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$Mg(OH)_{2(s)} + 2HCl_{(aq)} \rightarrow 2H_2O_l + MgCl_{2(aq)}$

Watch Video Solution

18. Balance the following chemical equations:

$P_{4(s)} + 6Cl_{2(g)} \rightarrow 4PCl_{3(l)}$

Watch Video Solution

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

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

Watch Video Solution

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

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

Watch Video Solution

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

Zinc granules are added to copper sulphate solution

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

Copper added to concentrated nitric acid.

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

Copper to dilute nitric acid.

Watch Video Solution

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

Silver nitrate is added to sodium chloride.

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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. Physical change and chemical change

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2. Oxidation and Reduction Reactions

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3. Physical change and chemical change

View Text Solution

4. Oxidation and Reduction Reactions

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.

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

Watch Video Solution

4. Complete the following table.

View Text Solution

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

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View Text Solution

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View Text Solution

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View Text Solution

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.

View Text Solution

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.

Watch Video Solution

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.

Watch Video 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?

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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

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

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View Text Solution

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View Text Solution

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View Text Solution

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?

View Text Solution

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?

View Text Solution

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.

View Text Solution

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?

View Text Solution

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its surface. Based on the above paragraph, answer the following question.

Give the chemical formula of rust.

View Text Solution

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What happens to silver ornaments if they are exposed to air containing H_2S gas?

View Text Solution

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View Text Solution

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Why do we apply paint on iron articles?

View Text Solution

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View Text Solution

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View Text Solution

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Give the chemical formula of rust.

View Text Solution

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What happens to silver ornaments if they are exposed to air containing H_2S gas?

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View Text 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. An element has $Z = 7$. What is the valency of the element ? Also name the element.

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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.

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?

View Text Solution

8. 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.

Was there any change in the weight?

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

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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. $N_{2(g)} + H_{2(g)} \Leftrightarrow NH_{3(g)}$

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12. Write down a balanced chemical equation for the following reaction: Calcium chloride + Sulphuric acid $\rightarrow$ Calcium sulphate + 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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17. What is the number of- molecules of reactants taking part in the reactions described in the activities given on textbook page no. 36?

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18. How many products are formed in each of the reactions described in the activities given on textbook page no. 36?

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19. Apparatus: Evaporating dish, Bunsen burner, etc.

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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20. 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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21. In it possible to produce hydrogen by decomposition of water by mean of heat , electricity or light ?

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22. Add potassium chromate (K_2CrO_4) into the solution of barium sulphate $(BaSO_4)$. What was the colour of the precipitate formed ?

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23. Add potassium chromate (K_2CrO_4) into the solution of barium sulphate $(BaSO_4)$

Write the name of the precipitate.

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24. Potassium chromate solution is added to barium sulphate solution. Give balanced reaction.

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25. Potassium chromate solution is added to barium sulphate solution. Give balanced reaction.

Watch Video Solution

26. Apparatus: Two plastic bottles, measuring cylinder, thermometer, etc

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.

In the first bottle, the process of dissolution of potassium nitrate took place while in the second bottle, the process of dissolution of sodium hydroxide took place

As per your observation which one is exothermic process and which is an endothermic process?

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27. Take into account the time required .for the following processes. Classify them into two groups and give titles to the groups.

Cooking gas starts burning on ignition.

Iron article undergoes rusting

Erosion of rocks takes place to form soil.

Alcohol is formed on mixing yeast in glucose solution under proper condition.

Effervescence is formed on adding baking soda into a test tube containing dilute acid

A white precipitate is formed on adding dilute sulphuric acid to barium chloride solution.

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28. Apparatus: Two test tubes, balance, measuring cylinder, etc.

Chemicals: Pieces of Shahabad tile, powder of Shahabad tile, dilute HCl, etc.

Procedure: Take pieces and powder of Shahabad tile in equal weights in two test tubes. Add 10 mL dilute HCl in each of the test tubes.

Observe whether effervescence of CO_2 is formed at a faster or slower speed

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29. Which is the oxidant used for purification of drinking water?

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30. Why is potassium permanganate used during cleaning water tanks?

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31. Which compound is oxidized by $KMnO_4$ in presence of acid in the following reaction?

$$2KMnO_4 + 10FeSO_4 + 8H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + 5Fe(SO_4)_3 +$$

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32. 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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33. Some more examples of redox reaction are as follows. Identify the reductants and. oxidants from them.

$2H_2S + SO_2 \rightarrow 3s \downarrow + 2H_2O$

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34. Some more examples of redox reaction are as follows. Identify the reductants and. oxidants from them.

$MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2 \uparrow$

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36. Write the ractions of formation of Fe^{2+} by reduction of Fe^{3+} by making use of the symbol $\left(e^{-}\right)$

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37. The luster of the surface of the aluminium utensils in the house is lost after a few days . Why does this happen?

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38. Apparatus: Four test tubes, four small iron nails, rubber cork, etc.

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.

Let all the four test tubes remain unattended for a few days.Observe all the four test tubes after a few days.

What did you find ?

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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 rubber cork.

Let all the four test tubes remain unattended for a few days.Observe all the four test tubes after a few days.

Which test tubes had the nails as before ?

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40. Have you seen the effect of redox reaction in your everyday life?

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41. How are the blackened silver utensils and patinated (greenish) brass utensils cleaned?

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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.

Which changes did you find?

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49. 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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50. 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.

Was there any change in the weight?

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

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

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59. What is the number of- molecules of reactants taking part in the reactions described in the activities given on textbook page no. 36?

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61. Apparatus: Evaporating dish, Bunsen burner, etc.

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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62. 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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63. In it possible to produce hydrogen by decomposition of water by mean of heat , electricity or light ?

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64. Add potassium chromate (K_2CrO_4) into the solution of barium sulphate $(BaSO_4)$. What was the colour of the precipitate formed ?

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65. Add potassium chromate (K_2CrO_4) into the solution of barium sulphate $(BaSO_4)$

Write the name of the precipitate.

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66. Add potassium chromate (K_2CrO_4) into the solution of barium sulphate $(BaSO_4)$

Write down the balanced equationfor this reaction.

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67. Add potassium chromate (K_2CrO_4) into the solution of barium sulphate $(BaSO_4)$

Will you call this reaction a displacement reaction or a double displacement reaction?

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68. Apparatus: Two plastic bottles, measuring cylinder, thermometer, etc

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.

In the first bottle, the process of dissolution of potassium nitrate took place while in the second bottle, the process of dissolution of sodium hydroxide took place

As per your observation which one is exothermic process and which is an endothermic process?

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69. Take into account the time required .for the following processes. Classify them into two groups and give titles to the groups.

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Erosion of rocks takes place to form soil.

Alcohol is formed on mixing yeast in glucose solution under proper condition.

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Chemicals: Pieces of Shahabad tile, powder of Shahabad tile, dilute HCl, etc.

Procedure: Take pieces and powder of Shahabad tile in equal weights in

two test tubes. Add 10 mL dilute HCl in each of the test tubes.

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73. Which compound is oxidized by $KMnO_4$ in presence of acid in the following reaction?

$2KMnO_4 + 10FeSO_4 + 8H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + 5Fe(SO_4)_3 +$

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74. Look at chemical equation:

$$\text{Vegatable oil}_{(l)} + H_{2(g)} \xrightarrow[Ni\text{Catalyst}]{60^\circ} \text{Vanaspathi ghee}_{(s)}$$

What is the type of this reaction.in which vanaspathi ghee is formed from vagetable oil?

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75. Some more examples of redox reaction are as follows. Identify the reductants and. oxidants from them.

$$2H_2S + SO_2 \rightarrow 3s \downarrow + 2H_2O$$

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76. Some more examples of redox reaction are as follows. Identify the reductants and. oxidants from them.

$$MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2 \uparrow$$

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80. Apparatus: Four test tubes, four small iron nails, rubber cork, etc.

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.

Let all the four test tubes remain unattended for a few days.Observe all the four test tubes after a few days.

What did you find ?

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81. Apparatus: Four test tubes, four small iron nails, rubber cork, etc.

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 rubber cork.

Let all the four test tubes remain unattended for a few days.Observe all the four test tubes after a few days.

Which test tubes had the nails as before ?

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82. Have you seen the effect of redox reaction in your everyday life?

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83. How are the blackened silver utensils and patinated (greenish) brass utensils cleaned?

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84. 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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Chapter Assessment

1. The chemical formula of rust is . . . . . .

A. $Fe_2O_3.xH_2O$

B. $FeO.xH_2O$

C. Fe_2O_3

D. FeO

Answer:

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

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

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5. 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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6. 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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7. A student was studying combination reaction by adding few pieces of calcium oxide to water taken in a beaker.

a. Number the product formed.

b. Write the balanced chemical equation for the reaction.

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8. The chemical formula of 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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