



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.

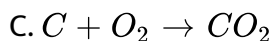
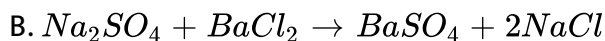
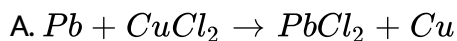
- A. decomposition
- B. combination
- C. displacement
- D. double displacement

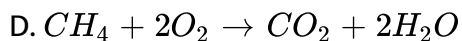
Answer: D



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6. Which among the following is double displacement reaction?





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. $Fe_2O_3 \cdot xH_2O$

B. $FeO \cdot xH_2O$

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
- B. Condensation of steam
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- D. Ripening of fruits

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

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- C. Copper sulphate solution is not affected at all

D. Hydrogen sulphate gas is evolved.

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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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B. decomposition

C. displacement

D. double displacement

Answer: A



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

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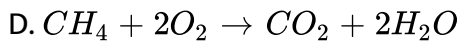
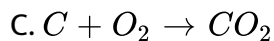
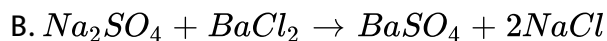
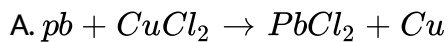
D. double displacement

Answer: D



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20. Which among the following is double displacement reaction?



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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23. 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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24. Rusting of an iron nail is a ____ reaction.

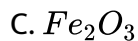
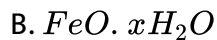
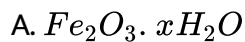
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- B. displacement
- C. decomposition
- D. double displacemen

Answer: A



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25. The chemical formula of the rust is



Answer: A



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B. Colorless solution turns red

C. black

D. red

Answer: A



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

A. combination

B. decomposition

C. displacement

D. double displacement

Answer: C

28. 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

29. 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 Paragraph

1. Select the appropriate options and complete the following paragraph.
(oxygen, hydrogen, reduction, oxidation, never, always, redox, decomposition)_____ is the process in which a substance 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 substance 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 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



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9. Write the formula of 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 two catalysts used in hydrogenation of vegetable oils



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18. Write the formula of potassium chlorate



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19. Write the formula of potassium dichromate



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20. The process due to which greenish coloured coating is formed on brass utensil.



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



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2. In a chemical 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 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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6. Find the odd one out:

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



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7. Find the odd one out:

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



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



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



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



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



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



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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.



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3. Give four examples of chemical change.



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4. Define the term Chemical reaction



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5. Explain the term reactant and product giving examples.

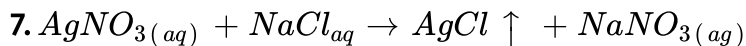


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6. What are the important conventions followed while writing a chemical equation?



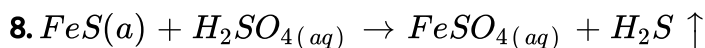
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Consider the above mentioned two chemical equations with two different kinds of arrows (\downarrow and \uparrow) along with product. What do these two different arrows indicate ?



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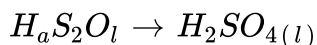


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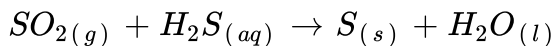
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9. Balance the following equation stepwise.



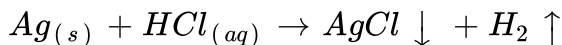
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10. Balance the following equation stepwise.



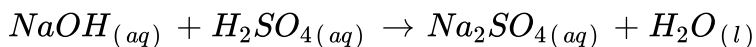
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11. Balance the following equation stepwise.



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12. Balance the following equation stepwise.



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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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14. Define the following/write notes:

Balanced Equation



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15. Define the following/write notes:

Combination Reaction



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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



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20. Define the following/write notes:

Exothermic Reaction



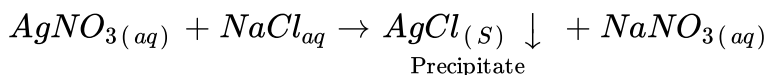
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21. How is biogas formed? State its use.



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

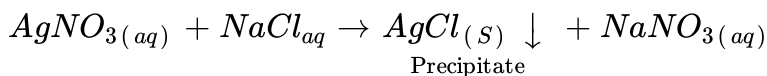


Identify and write the type of chemical reaction.



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

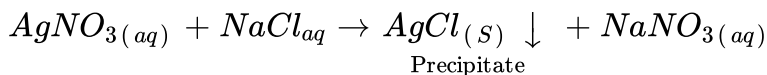


Write the definition of above type of chemical reaction.



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



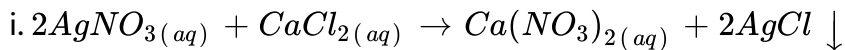
Write the names of reactants and products of above reaction.



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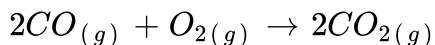
25. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement

reaction)



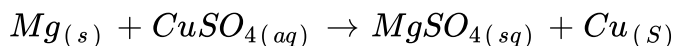
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26. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement reaction)



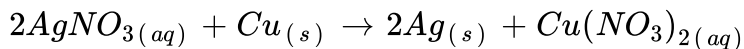
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27. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement reaction)



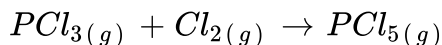
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28. Identify the type of chemical reaction (combination,decomposition,displacement or double displacement reaction)



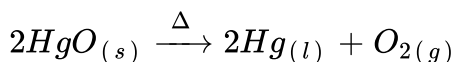
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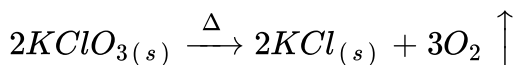


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31. Identify the endothermic and exothermic reaction.

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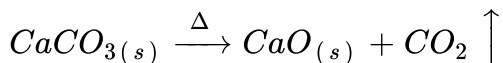
32. Identify the endothermic and exothermic reaction.

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33. Identify the endothermic and exothermic reaction.

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34. Identify the endothermic and exothermic reaction.



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



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



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



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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. What is a catalyst? Write any one reaction which is brought about by use of a catalyst.



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



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



i. Identify the type of chemical reaction.



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



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



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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



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



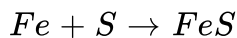
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52. When hydrogen gas is passed over black copper oxide, a reddish coloured layer of copper is formed. $CuO + H_2 \rightarrow Cu + H_2O$ Which is the reductant in this reaction? And which reactant has undergone reduction?



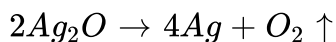
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53. Identify from the following reactions the reactants that undergo oxidation and reduction.



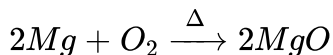
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54. Identify from the following reactions the reactants that undergo oxidation and reduction.



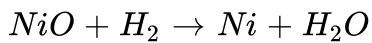
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55. Identify from the following reactions the reactants that undergo oxidation and reduction.

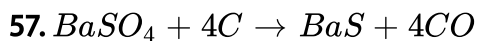


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56. Identify from the following reactions the reactants that undergo oxidation and reduction.



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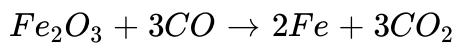


In the above reaction, write for each reactant that undergoes oxidation or reduction and identify the type of reaction.



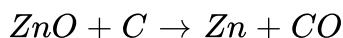
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58. Identify oxidizing agent in the following reactions:



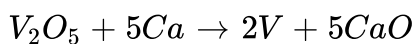
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59. Identify oxidizing agent in the following reactions:



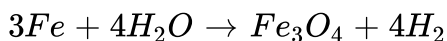
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60. Identify oxidizing agent in the following reactions:



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61. Identify oxidizing agent in the following reactions:



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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.



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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



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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:

(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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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.



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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

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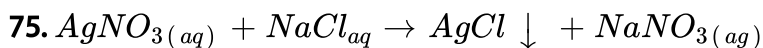
73. Explain the term reactant and product giving examples.

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



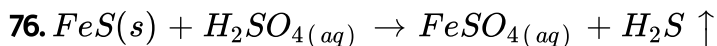
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Consider the above mentioned two chemical equations with two different kinds of arrows (\downarrow and \uparrow) along with product. What do these two different arrows indicate ?



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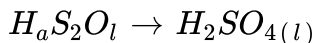


Consider the above mentioned two chemical equations with two different kinds of arrows (\downarrow and \uparrow) along with product. What do these two different arrows indicate ?



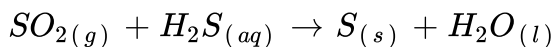
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77. Balance the following equation stepwise.



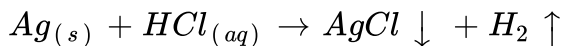
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78. Balance the following equation stepwise.



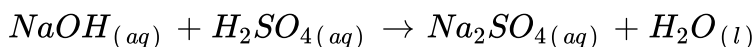
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79. Balance the following equation stepwise.



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80. Balance the following equation stepwise.





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81. 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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82. Define the following/write notes:

Balanced Equation



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83. Define the following/write notes:

Combination Reaction



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84. Define the following/write notes:

Decomposition Reaction.



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85. Define the following/write notes:

Displacement Reaction



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86. Explain the following terms with examples .

Double displacement reaction



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87. Define the following/write notes:

Endothermic Reaction

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88. Define the following/write notes:

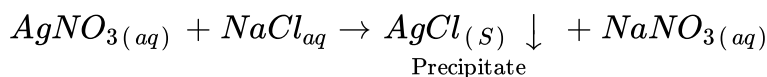
Exothermic Reaction

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89. How is biogas formed? State its use.

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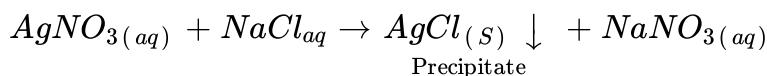
90. Study the following chemical reaction and answer the questions given below:



Identify and write the type of chemical reaction.

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

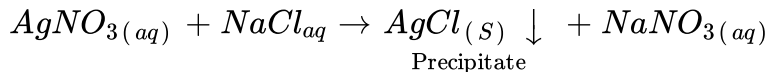


Write the definition of above type of chemical reaction.



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

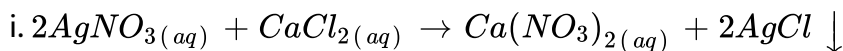


Write the names of reactants and products of above reaction.



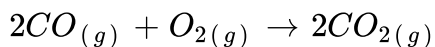
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93. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement reaction)

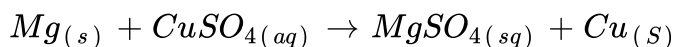


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94. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement reaction)

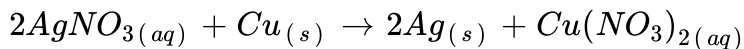
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95. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement reaction)

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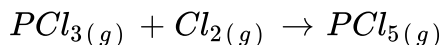
96. Identify the type of chemical reaction (combination, decomposition, displacement or double displacement

reaction)



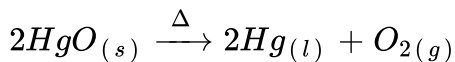
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97. Identify the type of chemical reaction (combination,decomposition,displacement or double displacement reaction)



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



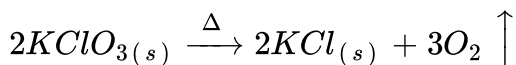
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99. Identify the endothermic and exothermic reaction.



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100. Identify the endothermic and exothermic reaction.



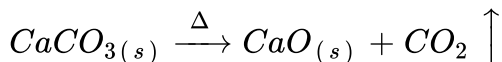
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101. Identify the endothermic and exothermic reaction.



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102. Identify the endothermic and exothermic reaction.



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103. Arnab 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' is added to water, based on temperature change?



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104. Arnab 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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105. What is the difference in the process of dissolution and a chemical reaction?



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



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



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



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



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110. What is a catalyst? Write any one reaction which is brought about by use of a catalyst.



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



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

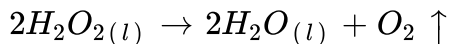


i. Identify the type of chemical reaction.



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



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



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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



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



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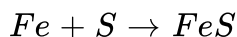
120. When hydrogen gas is passed over black copper oxide, a reddish coloured layer of copper is formed. $CuO + H_2 \rightarrow Cu + H_2O$ Which is

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



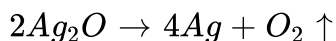
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121. Identify from the following reactions the reactants that undergo oxidation and reduction.



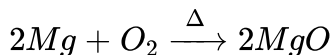
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122. Identify from the following reactions the reactants that undergo oxidation and reduction.



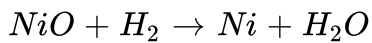
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123. Identify from the following reactions the reactants that undergo oxidation and reduction.



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



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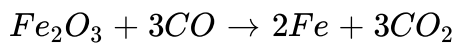


In the above reaction, write for each reactant that undergoes oxidation or reduction and identify the type of reaction.



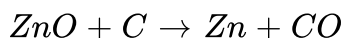
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126. Identify oxidizing agent in the following reactions:



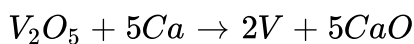
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127. Identify oxidizing agent in the following reactions:



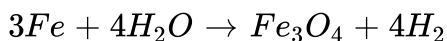
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128. Identify oxidizing agent in the following reactions:



Watch Video Solution

129. Identify oxidizing agent in the following reactions:



Watch Video Solution

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.



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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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(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 scientific reasons

When the gas formed on heating limestone is passed 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 HCl , 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.



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8. Give scientific reasons

When the gas formed on heating limestone is passed 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.



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12. Give scientific reasons:

Perishable foodstuffs get preserved longer in refrigerator



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



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14. Give scientific reasons

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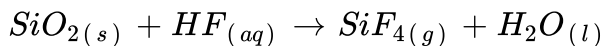
2. Translate the following word equations into balanced chemical equations. .

Ptassium metal + water \rightarrow Potassium hydroxide + Hydrogen gas



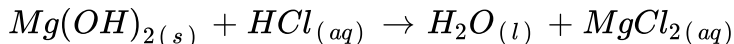
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3. Balance the following chemical equations:



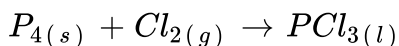
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4. Balance the following chemical equations:



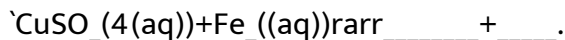
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5. Balance the following chemical equations:



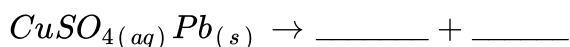
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6. Complete the following reaction and name the products.



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



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



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



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10. Write chemical equation for the following events:

Copper reacts with dilute nitric acid.



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



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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. .

i. Hydrogen gas + Nitrogen gas \rightarrow Ammonia gas



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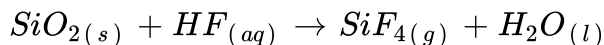
15. Translate the following word equations into balanced chemical equations. .

Potassium metal + water \rightarrow Potassium hydroxide + Hydrogen gas



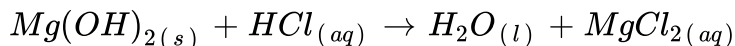
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16. Balance the following chemical equations:



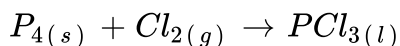
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17. Balance the following chemical equations:



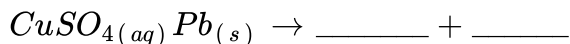
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18. Balance the following chemical equations:

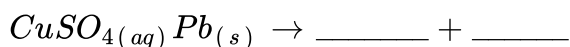


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19. Complete the following reactions and give names of the products.

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

[Watch Video Solution](#)

21. 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](#)

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



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23. Write chemical equation for the following events:

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Watch Video Solution

24. 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

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

Sugar is heated (charred.)



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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



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3. Distinguish between

Physical Change and Chemical Change.



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4. Distinguish between

Oxidation reaction Reduction reaction



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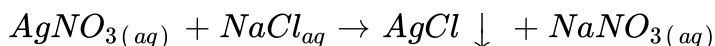
Complete The Given Chart Table

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



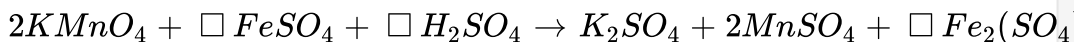
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2. Complete the following table on the basis of the following equation.



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



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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?



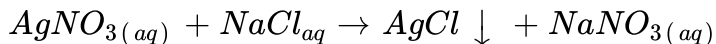
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6. Identify physical and chemical changes from the phenomena given in the following table.



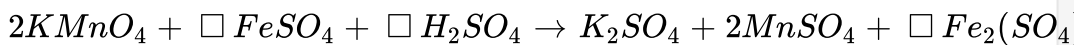
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7. Complete the following table on the basis of the following equation.



[View Text Solution](#)

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



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9. Complete the following table.



[View Text Solution](#)

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.



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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.



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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.



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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.



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14. 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.



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15. 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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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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7. 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.

Give the chemical formula of rust.



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

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9. 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.

Do gold ornaments corrode? Justify.

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10. 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.

Why do we apply paint on iron articles?



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11. 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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12. 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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13. 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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14. 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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15. 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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16. 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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17. 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. Give the chemical formula of rust.



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



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19. 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.

Do gold ornaments corrode? Justify.



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20. 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.

Why do we apply paint on iron articles?



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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.



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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?



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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?



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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?



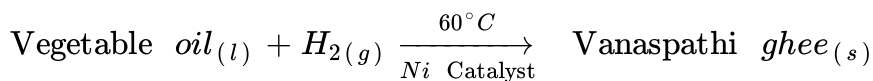
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9. What are the other uses of silver nitrate in everyday life?



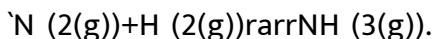
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10. Identify the reactants and products of the equation:



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11. Write down the steps in balancing the equation



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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. Is it possible to produce hydrogen by decomposition of water by means of heat, electricity or light?



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

Write the name of the precipitate.



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

Write down the balanced equation for this reaction.



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25. Add potassium chromate (K_2CrO_4) solution 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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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 100 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?



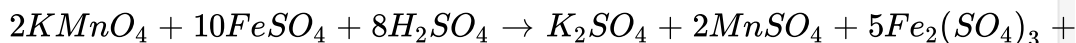
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30. Why is potassium permanganate used for cleaning of water tanks?



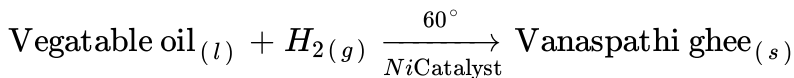
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31. Which compound is oxidized by $KMnO_4$ in presence of acid in the following reaction?



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32. Look at chemical equation:



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



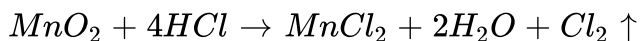
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33. Same exampels of redox reaction are given identify the reductants and oxidants from them. $2H_2S + SO_2 \rightarrow 3S \downarrow + 2H_O$



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



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35. If oxidation means losing electrons, what is meant by reduction?



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36. Write the reaction of formation of Fe^{2+} by the reduction Fe^{3+} by making use of the symbol(e)?



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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 rubber 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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39. 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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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 available in the laboratory. Observe what happens when aqueous 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?



[Watch Video Solution](#)

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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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.

Did any insoluble substance form?

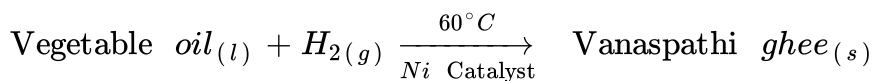


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51. What are the other uses of silver nitrate in everyday life?

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52. Identify the reactants and products of the equation:



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



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



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59. 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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60. 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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61. Is it possible to produce hydrogen by decomposition of water by means of heat, electricity or light?



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

What was the colour of the precipitate formed?



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

Write the name of the precipitate.



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

Write down the balanced equation for this reaction.



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65. Add potassium chromate (K_2CrO_4) solution 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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66. 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 100 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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67. 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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68. 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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69. Which is the oxidant used for purification of drinking water?



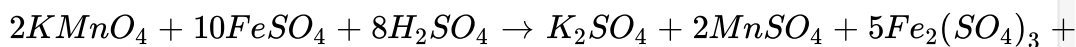
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70. Why is potassium permanganate used for cleaning of water tanks?



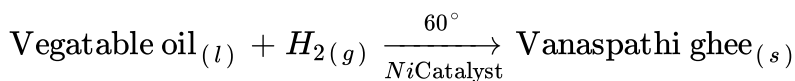
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71. Which compound is oxidized by $KMnO_4$ in presence of acid in the following reaction?



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72. Look at chemical equation:



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



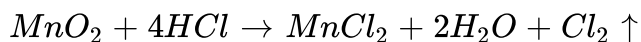
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73. Same examples of redox reaction are given identify the reductants and oxidants from them. $2H_2S + SO_2 \rightarrow 3S \downarrow + 2H_2O$



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



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75. If oxidation means losing electrons, what is meant by reduction?



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76. Write the reaction of formation of Fe^{2+} by the reduction Fe^{3+} by making use of the symbol(e)?



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77. 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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78. 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.

What did you find ?



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



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



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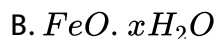
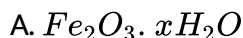
82. Prepare aqueous solutions of various solid salts available in the laboratory. Observe what happens when aqueous solution of sodium hydroxide is added to these. Prepare a chart of double displacement reactions based on these observations.

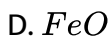
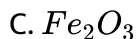


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Chapter Assessment

1. The chemical formula of the rust is





Answer:



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2. 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?

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

B. White smoke emanating from the tip of the glass rod

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

D. A burnt 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 HCl , 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



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



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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 scientific reasons

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

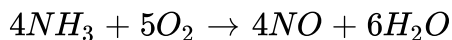
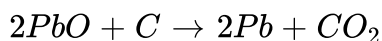
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8. Give scientific reasons

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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9. Identify reductants and oxidants in the following reactions.

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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?
- b. Name the precipitate.
- 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

of the resulting solution.

What was the initial colour of the solution?



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13. 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 of the resulting solution.

What is the final colour of the solution in Activity 1



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14. 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 of the resulting solution.

What is the final colour of the solution in Activity 2?



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15. 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 of the resulting solution.

What are the products formed in Activity 2?



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

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

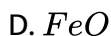
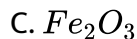
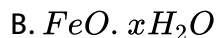
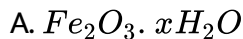
Activity 2: Addition of an iron nail into copper sulphate solution taken in a test tube. He noted down his observations and concluded that chemical reaction occurs in both the cases based on the observed colour change of the resulting solution.

Based on these activities, what can you conclude about the reactivity of elements zinc and iron as compared to that of copper?



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17. The chemical formula of the rust is



Answer:



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18. 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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- C. A pale green solid is formed on the tip of the glass rod
- D. A burnt out black solid is formed on the tip of the glass rod

Answer:





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19. 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



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



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21. 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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22. Give scientific reasons

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



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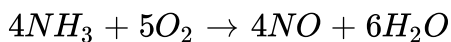
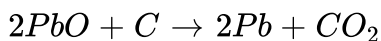
23. Give scientific reasons

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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24. Identify reductants and oxidants in the following reactions.



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25. 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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26. 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?
- b. Name the precipitate.
- c. What is the type of the chemical reaction?



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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 of the resulting solution.

What was the initial colour of the solution?



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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 of the resulting solution.

What is the final colour of the solution in Activity 1



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29. 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 of the resulting solution.

What is the final colour of the solution in Activity 1



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30. 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 of the resulting solution.

What are the products formed in Activity 2?



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31. 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 of the resulting solution.

Based on these activities, what can you conclude about the reactivity of elements zinc and iron as compared to that of copper?



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