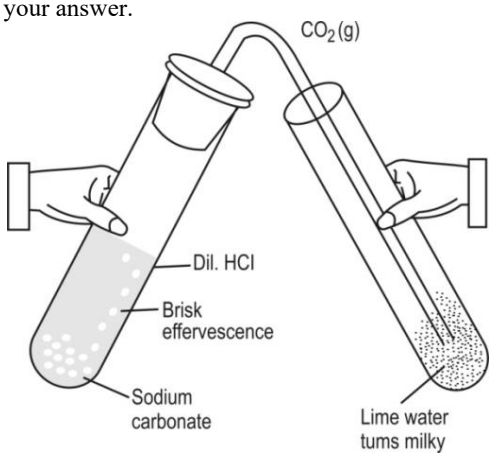
AB's PATHS KOLHAPUR

Topic Name: Chemical reactions and equations subjective

Date : 00/00/2025 **Total Marks:** **No Of Questions:**

1. What happens chemically when quick lime is added or water ?
2. What is an oxidation reaction ? Identity in the following reactions ;
   (i) the substance oxidised (ii) the substance reduced.

   $ZnO + C \longrightarrow Zn + CO$
3. Which gas is evolved when dilute hydrochloric acid reacts with zinc? Write the molecular formula of the gas.
4. State any two observation in an activity which may suggest that a chemical reaction has taken place. Give example in support of your answer.



5. Identify the type of reaction in the following examples ;
   (i) $Na_2SO_4(aq) + BaCl_2(aq) \longrightarrow BaSO_4(s) + 2NaCl(aq)$
   (ii) $Fe(s) + CuSO_4(aq) \longrightarrow FeSO_4(aq) + Cu(s)$
   iii) $2H_2(g) + O_2(g) \longrightarrow 2H_2O(\ell)$
6. Solid calcium oxide was taken in a container and water was added slowly to it
   (i) State two observations made in the experiment.
   (ii) Write the name of the chemical formula of the product.

7. A house wife wanted hear house to be white washed. She bought 10 kg of quick lime from the market and dissolved in 30 litres of water. On adding lime to water, she noticed that the water started boiling even when it was not being heated. Give reason for her observation. Write the corresponding equation and name the product formed.
8. What is the basis of a balanced chemical equation ?

   Or

   State the law on which a balanced chemical equation is based.

   Or

   State the law of conservation of mass.

   Or

   On what basis is a chemical equation balanced ?
9. Would you call digestion of food in our body a chemical change?
10. Balance the following chemical equation:
    $FeSO_4 \xrightarrow{Heat} Fe_2O_3 + SO_2 + SO_{3b}$
11. Balance the following chemical equation :

$MnO_2 + HCl \longrightarrow MnCl_2 + Cl_2 + H_2O$

12. Write a combination reaction in which two gases combine.

13. What change in colour is observed when white silver chloride is left exposed to sunlight? What type of chemical reaction is this ?

14. Why do we apply paint on iron articles ?

15. How can you help your mother in keeping the fried items so that they do not develop a bad smell and their shelf life is increased?

16. A sol ution of a substance 'X' is used for white washing.

(i) Name the substance 'X' and write its formula.

(ii) Write the reaction of the substance 'X' named in (i) above with water.

17. Write any two limitations of a chemical equation.

18. Balance the following equation :

(i) $FeCl_3 + NH_4OH \longrightarrow Fe(OH)_3 + NH_4Cl$

(ii) $Na_2S_2O_3 + l_2 \longrightarrow Na_2S_4O_6 + 2NaI$

19. Distinguish between an exothermic and an endothermic reaction. Amongst the following reactions, identify the exothermic reaction and the endothermic reaction :

(i) Heating coal in air to form carbon dioxide.

(ii) Heating limestone in alime kiln to form quick lime.

20. What is an oxidation reaction? Give an example of oxidation reaction. Is oxidation an exothermic or an endothermic reaction?

21. What is a redox reaction ? When a magnesium ribbon burnsin air with a dazzling flame and forms a white ahs, is magnesium oxidised or reduced ? Why ?

22. In the reaction :

$MnO_2(s) + 4HCl(aq) \longrightarrow MnCl_2(aq) + Cl_2(g) + 2H_2O(l)$

Identity the oxidising and reducing agents.

23. Give an example of a decomposition reaction. Describe an activity to illustrate such a reaction by heating.

24. Define a combination reaction. Give one example of a combination reaction which is also exothermic.

25. Dilute solution of ammonium hydroxide is added to aqueous solution of ferrous sulphate. Ferrous hydroxide is formed. What is the type of this reaction? Write chemical equation.

26. (i) What is observed when a solution of potassium iodide is added to a solution of lead nitrate taken in a test tube ?

(ii) What type of reactions is this ?

(iii) Write a balanced chemical equation to represent the above reaction.

27. Why does the blue colour of copper sulphate solution changes to green colour when an iron nairl is dipped? Write chemical equation.

28. Balance the following equations –

(i) $HgO \longrightarrow Hg + O_2$

(ii) $C_4H_{10}(g) + O_2(g) \longrightarrow CO_2(g) + H_2O(\ell)$

29. What are chemical equations? Give significance and limitations of chemical equations ?

30. What information do we get from a chemical equation ? Explain with the help of examples.

31. Write the balanced chemical equations for the following chemical reactions –

(i) Aqueous solution of sulphuric acid and sodium hydroxide reacts to from aqueous sodium sulphate and water.

(ii) Phosphorus burns in chlorine gas to from phosphorus pentachloride.

32. Write the balance chemical equations for the following reactions –

(i) Zinc carbonate (s) $\longrightarrow$ Zinc oxide (s) + Carbon dioxide (g)

(ii) Potassium bromide (aq) + Barium iodide (aq) $\longrightarrow$ Potassium iodide (aq) + Barium bromide (aq)

33. What happens when electric current is passed through slightly acidic water ?

34. What happens when silver nitrate is mixed with a solution of sodium chloride ?

35. What do you mean by exothermic reactions ? Explain with an example.

36. What do you mean by endothermic reactions ? Explain with an example .

37. What do you mean by a precipitation reaction?

38. Why should a magnesium ribbon be cleaned before burning in air ?

39. Write a balanced chemical equation with symbols for the following reactions –

(i) Solution of barium chloride and sodium sulphate in water react to give insoluble barium sulphate and the solution of sodium chloride.

(ii) Sodium hydroxide solution (in water) reacts with hydrochloric acid solution (in water) to produce sodium chloride solution and water.

40. Write the balanced equation for the following chemical reactions.

(i) Hydrogen + chlorine $\longrightarrow$ Hydrogen chloride.

(ii) Barium chloride + Aluminium Sulphate $\longrightarrow$ Barium Sodium + Aluminium chloride.

(iii) Sodium + Water $\longrightarrow$ Sodium hydroxide + Hydrogen.

41. How can you say that respiration is an exothermic process ? Name two biochemical reaction which are exothermic.

42. Why blue colour of copper sulphate solution becomes faded when iron fillings are added to it?
43. What happens when copper turnings are added to silver nitrate solution?
44. Why the solution of silver nitrate becomes blue in colour after some time when copper turnings are added to it ?
45. A solution of a substance 'X' is used for white washing –
(i) Name the substance 'X' and write the formula.
(ii) Write the reaction of the above substance 'X' with water.
46. Why is the amount of gas double in one of the test tube during the electrolytic decomposition of water? Name the gas ?
47. When a green iron salt is heated strongly, its colour finally changes to black and odour of burning sulphur is given out.
(i) Name the iron salt
(ii) Name the type of reaction that takes place during the heating of iron salt.
(iii) Write the chemical equation for the reaction involved.
48. Write one equation each for decomposition reactions where energy is supplied by heat, light and electricity.
49. What is the difference between displacement and double displacement reactions? Write equation for these reactions.
50. Classify each of the following reactions as combination, decomposition, displacement of double displacement reaction.

(i) $H_2 + Cl_2 \longrightarrow 2HCl$

(ii) $2KClO_3 \xrightarrow{Heat} 2KCl + 3O_2$

(iii) $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$
Blue Colour less

(iv) $2Pb(NO_3)_2 \xrightarrow{Heat} 2PbO_{(s)} + 4NO_2(g) + O_2(g)$

(v) $NaOH + HCl \longrightarrow NaCl + H_2O$

(vi) $BaCl_2 + H_2SO_4 \longrightarrow BaSO_4 + 2HCl$

(vii) $CaO + CO_2 \longrightarrow CaCO_3$

(viii) $CaCO_3 \longrightarrow CaO + CO_2$

(ix) $2Kl + Cl_2 \longrightarrow 2KCl + l_2$

(x) $2H_2O \xrightarrow{Electricity} 2H_2 + O_2$

51. Is it possible to have combustion without oxygen?
52. Can a double displacement reaction be a redox reaction?
53. What happens when a strip of zinc is dipped in a copper sulphate solution?
54. Is copper more reactive than iron? Give a reaction in support of your answer-
55. In which type of reaction does an exchange of partner takes place?
56. (Based on activities) Why a dilute acid is added to water during electrolysis of water?
57. Name the product obtained on cathode during electrolysis of water
58. Is the volume of gases produced during electrolysis of water is same? If not than what is the ratio in between then?
59. What will happen if silver bromide is kept for some time in sunlight?
60. Write name of three metals which do not corrode?
61. Name two antioxidants which are usually added to fat and oil containing foods to prevent rancidity.
62. Classify the following reactions –

(i) $N_2 + O_2 \longrightarrow 2NO$ - Heat

(ii) $2HgO \longrightarrow 2Hg + O_2$

(iii) $Na_2SO_4 + BaCI_2 \longrightarrow 2NaCI + BaSO_4$

(iv) $CuSO_4$ (aq.) + $Zn \longrightarrow ZnSO_4$ (aq.) + Cu

(v) $NH_3 + HCI \longrightarrow NH_4CI$

63. Differentiate between combination and synthesis reaction with example.
64. What is an analysis reaction? Give an example.
65. When a white compound 'X' is placed under sunlight, it turns grey, Give the name of reaction and write the balanced chemical equation.
66. What is the difference between displacement and double displacement reaction ? Write equations for these reactions.
67. What happens when copper metal is dipped in silver nitrate solution ? Give the balanced chemical equation for the change.
68. What happens when ferrous sulphate is heated ? Write the name and balanced chemical equation for the change.
69. What happens when the iron nail is kept into copper sulphate solution ?
70. Oxidation reactions have some harmful effects. Comment on the sentence.
71. Can oxidation occur without reduction ? Explain
72. Explain the terms oxidation and reduction with examples.
73. What is rancidity? Explain with example.
74. What do you mean by corrosion ?

75. Identify the substances that are oxidized and the substances that are reduced in the following reactions -(a) $ZnO + C \longrightarrow Zn + CO$

(b) $MnO_2 + 4HCI \longrightarrow MnCI_2 + 2H_2O + CI_2$

(c) $2FeCI_3 + H_2S \longrightarrow 2FeCI_2 + S + 2HCI$

(d) $3Mg + N_2 \longrightarrow Mg_3N_2$

76. Translate the following statement into chemical equation and then balance dioxide.

(A) Hydrogen gas combines with nitrogen to form ammonia

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

(C) Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of b arium sulphate.

(D) Potassium metal reacts with water to give Potassium hydroxide and hydrogen gas]

77. Balance the following chemical equations.

(A) $HNO_3 + Ca(OH)2 \longrightarrow Ca(NO_3) + H_2O$

(B) $NaOH + H_2SO_4 \longrightarrow Na_2SO_4 + H_2O$

78. Write the balanced chemical equations for the following reactions.

(A) Calcium hydroxide + Carbon dioxide $\longrightarrow$ Calcium carbonate + water

(B) Zinc + Silver nitrate $\longrightarrow$ Zinc nitrate + Silver

(C) Aluminium + copper chloride $\longrightarrow$ Aluminium chloride + copper

(D) Barium chloride + Potassium sulphate $\longrightarrow$ Barium sulphate + Potassium chloride.

79. Write the balanced chemical equation for the following and identify the type of reaction in each case –

(A) Potassium bromide(aq) + Barium iodide(aq) $\longrightarrow$ Potassium iodide(aq) + Barium bromide(s)

(B) Zinc carbonate (s) $\longrightarrow$ Zinc oxide (s) + Carbon dioxide (g)

(C) Hydrogen(g) + Chloride(g) $\longrightarrow$ hydrogen chloride(g)

(D) Magenesium(s) + Hydrochloride acid(aq) $\longrightarrow$ Magnesium chloride(aq) + Hydrogen(g)

80. Why should a magnesium ribbon be cleaned before burning in air?

81. In the refining of silver, the recovery of silver from silver nitrate solution involved displacement by copper metal.

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