

1. Explain the significance of photosynthesis. Write the balanced chemical equation involved in the process.
2. Write balanced chemical equations for the following chemical reactions: (a) Hydrogen + Chlorine \rightarrow Hydrogen chloride. (b) Lead + Copper chloride \rightarrow Lead chloride + Copper. (c) Zinc oxide + Carbon \rightarrow Zinc + Carbon monoxide
3. A compound 'A' is used in the manufacture of cement. When dissolved in water, it evolves a large amount of heat and forms compound 'B'. (i) Identify A and B. (ii) Write chemical equation for the reaction of A with water. (iii) List two types of reaction in which this reaction may be classified. (iv) Write uses of A and B. (v) How B reacts with CO₂.
4. Mention with reason the colour changes observe when: (i) silver chloride is exposed to sunlight. (ii) copper powder is strongly heated in the presence of oxygen. (iii) a piece of zinc is dropped in copper sulphate solution.
5. Lead nitrate solution is added to a test tube containing potassium iodide solution. (a) Write the name and colour of the compound precipitated. (b) Write the balanced chemical equation for the reaction involved. (c) Name the type of this reaction justifying your answer. (d) What is a precipitation reaction? Give other example.
6. What is a reduction reaction? Differentiate between oxidation and reduction reaction with the help of equations.
7. Identify the substances that are oxidised and the substances that are reduced in the following reactions.
(a) $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$. (b) $2\text{PbO} + \text{C} \rightarrow 2\text{Pb} + \text{CO}_2$. (c) $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$. (d) $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
8. What is rancidity? Mention any two ways by which rancidity can be prevented. Can we eat rancid food?
9. A zinc plate was put into a solution of copper sulphate kept in a glass container. It was found that blue colour of the solution gets fader and fader with the passage of time. After few days, when zinc plate was taken out of the solution, a number of holes were observed on it. (i) State the reason for changes observed on the zinc plate. (ii) Write the chemical equation for the reaction involved. (iii) What do you understand by displacement reaction.
10. Distinguish between a displacement reaction and a double displacement reaction giving examples of each.
11. With the help of an example explain what happens when a base reacts with a non-metallic oxide. What do you infer about the nature of non-metal oxide? How can you prove that non metal oxides are acidic? Give suitable example.
12. What is observed when carbon dioxide gas is passed through lime water (i) for a short duration? (ii) for a long duration? Also write the chemical equations. (iii) Write the reaction of slaked lime with chlorine gas.
13. 2 mL of sodium hydroxide solution is added to a few pieces of granulated zinc metal taken in a test tube. When the content are warmed, a gas evolves which is bubbled through a soap solution before testing. Write the equation of the chemical reaction involved and the test to detect the gas. Name the gas which will be evolved when the same metal reacts with dilute solution of a strong acid. What are strong and weak electrolytes give explanation with e.g.
14. A Cloth's strip dipped in onion juice is used for testing a liquid 'X'. The liquid 'X' changes its Odour Which type of an indicator is onion juice? The liquid 'X' turns blue litmus red. List the observations the liquid 'X' will show on reacting with the following : (a) Zinc granules (b) Solid sodium carbonate. Write the chemical equations for the reactions.
15. Sugandha prepares HCl gas in her school laboratory using certain chemicals. She puts both dry and wet blue litmus papers in contact with the gas. (i) Name the reagents used by Sugandha to prepare HCl gas. (ii) State the colour changes observed with the dry and wet blue litmus papers. (iii) Show the formation of ions when HCl gas combines with water. (iv) Why acids need water to show their acidic behaviour? Explain giving an example for the statement.
16. An aqueous solution 'A' turns phenolphthalein solution pink. On addition of an aqueous solution 'B' to 'A' the pink colour disappears. The following statement is true for solution 'A' and 'B': (a) A is strongly basic and B is a weak base. (b) A is strongly acidic and B is a weak acid. (c) A has pH greater than 7 and B has pH less than 7. (d) A has pH less than 7 and B has pH greater than 7 (d) What do you understand by pH value of a substance.
17. of HCl and CH₃COOH, which one is a weak acid and why? Explain with the help of an example.
18. List the important products of the Chlor-alkali process. Write one important use of each. Also, write reaction.
19. Give reasons for the following: (i) Only one half of water molecule is shown in the formula of plaster of Paris. (ii) Sodium hydrogen carbonate is used as an antacid. (iii) On strong heating, blue coloured copper sulphate crystals turn white. (iv) What when a salt containing water of crystallization is heated and what do we called that salt?
20. The pH of a salt used to make tasty and crispy pakoras is 14. Identify the salt and write a chemical equation for its formation. List its two uses. What happens when we use baking soda instead of baking powder to make pakoras?

21. An iron nail is dipped in the solution of copper sulphate for about 30 minutes. State the change in colour observed. Give reason for the change. What do you understand by displacement reaction.
22. What is a balanced chemical equation ? Why should chemical equations be balanced ? Give some examples.
23. Why are decomposition reactions called the opposite of combination reactions? Write equations for these reactions.
24. Write one equation each for the decomposition reactions where energy is in the form of heat, light or electricity.
25. (i) What is meant by exothermic and endothermic reactions? Give examples. (ii) What is rancidity an corrosion.
26. A shiny brown colored element 'X' on heating in the air becomes black in color. Name the element 'X' and the black coloured compound formed. Also, write the chemical equation of corrosion of element 'X' in presence of moist air.
27. Mention with reason the colour changes observe when: (i) silver chloride is exposed to sunlight. (ii) copper powder is strongly heated in the presence of oxygen. (iii) a piece of zinc is dropped in copper sulphate solution.
28. Lead nitrate solution is added to a test tube containing potassium iodide solution. (a) Write the name and colour of the compound precipitated. (b) Write the balanced chemical equation for the reaction involved, type of reaction?
29. Identify the type of reactions taking place in each of the following cases and write the balanced chemical equation for the reactions. (a) Zinc reacts with silver nitrate to produce zinc nitrate and silver. (b) Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide. Also, write the balanced chemical equations in each case.
30. 2 g of ferrous sulphate crystals are heated in a dry boiling tube. (a) List any two observations. (b) Name the type of chemical reaction taking place. (c) Write balanced equation for the reaction and name the products formed.
31. Take 3 g of barium hydroxide in a test tube, now add about 2 g of ammonium chloride and mix the contents with the help of a glass rod. Now touch the test tube from outside. (i) What do you feel on touching the test tube? (ii) State the inference about the type of reaction occurred. (iii) Write the balanced chemical equation of the reaction involved. (iv) Define double displacement reaction
32. (a) Can a displacement reaction be a redox reaction? Explain with the help of an example.
(b) Write the type of chemical reaction in the following: (i) Reaction between an acid and a base. (ii) Rusting of iron.
33. You are given three solutions – HCl, HNO₃, and CH₃COOH. How will you arrange them in order of increasing acidic strength? Give reasons for your answer.
34. Why does dry HCl gas not change the colour of dry litmus paper whereas moist HCl does? Explain with reason.
35. What is meant by a neutralisation reaction? Write one example each of: (i) acid + base (ii) acid + metal carbonate
36. Blue litmus solution is added to two test tubes A and B. Test tube A shows no colour change and B turns red. Identify the nature of solutions A and B. Name one substance in each case.
37. How is bleaching powder prepared? Write its chemical equation. Mention two uses of bleaching powder in everyday life.
38. Write the chemical name, formula, and one major use of: (i) Baking soda (ii) Washing soda (iii) Plaster of Paris
39. What is water of crystallisation? Give two examples of salts that contain water of crystallisation. What happens when such salts are heated strongly?
40. What is the difference between baking soda and baking powder? Write chemical equations involved in their decomposition.
41. Why does a solution of an acid conduct electricity? Explain the role of water in the ionisation of acids.
42. Explain why aqueous solutions of glucose and alcohol do not conduct electricity, while HCl does.
43. What happens when a base reacts with an ammonium salt? Write a balanced chemical equation and name the gas evolved.
44. Give reasons: (i) Tooth enamel gets corroded when the pH in the mouth falls below 5.5 (ii) The pH of soil is checked before growing crops. (iii) Antacids provide relief from indigestion.
45. (a) Why do acids not show acidic behavior in the absence of water?
(b) Explain with an example the importance of pH in our digestive system.
46. A student adds dilute sulphuric acid to solid sodium carbonate. List the observations he will note. Write the balanced chemical equation for the reaction. What is the nature of the gas evolved?
47. Describe the test for carbon dioxide using lime water. Why does lime water turn milky and then become clear again on passing excess CO₂?
48. Explain how common salt is obtained from seawater. What makes this salt impure? How is it purified for commercial use?
49. Name the acid present in: (i) Vinegar (ii) Lemon juice (iii) Curd (iv) Tomato Write their chemical names and formulas.