**Chapter 1**

**Chemical reactions and Equations**

1. A solution of substance X is used for white washing
2. Name the substance X and write its formula
3. Write the reaction of substance X named in (a) above with water.
4. What are the characteristics of chemical reactions?
5. Why is respiration considered an exothermic reaction and photosynthesis endothermic reaction?
6. Which one of the following process involves chemical reaction?
7. Storing of oxygen gas under pressure in a gas cylinder.
8. Keeping petrol in a china dish in the open.
9. Heating copper wire in presence of air at high temperature.
10. Write chemical equation for the following reaction. When solid mercury (II) oxide is heated, liquid mercury and oxygen gas are produced.
11. Name the reducing agent in the given reaction

3MnO2+ 4Al -------🡪 3Mn + 2Al2O3

1. Name the type of reactions
2. Ca O + H2O ----🡪 Ca (OH)2
3. BaCl2 + Al2(SO4)3 ----🡪 3BaSO4+2AlCl3
4. 2g of ferrous sulphide crystals are heated in dry boiling tube.
5. List any 2 observations.
6. Name the type of chemical reaction taking place.
7. Write the chemical equation for the reaction.
8. Write a balanced equation
9. Phosphorus burns in presence of chlorine to form phosphorus pentachloride.
10. Burning of natural gas
11. Process of respiration
12. a) Explain 2 ways by which food industry prevents rancidity.

b)Discuss the importance of decomposition reaction in metal industry.

1. What is meant by skeletal type chemical equation? What does it represent? Using the equations of electrolytic decomposition of water, differentiate between skeletal chemical equation and balance chemical equation.
2. Write a balanced equation for reaction between magnesium and hydrochloric acid. Name the product obtained. Identify the type of reaction.
3. Describe an activity to observe what happens when quick lime is added to water in a beaker. State 2 important observations and name the type of reaction taking place.
4. Why does the colour of copper sulphate solution change when an iron nail is dipped in it? Write 2 observations.
5. Why are the decomposition reaction called the opposite of the combination reaction? Write the equation of the reaction.
6. In the diagram a chemical reaction is taking place, carefully observe and answer the questions based on it.

**Silver Chloride**

1. Identify the type of chemical reaction that will take place.
2. Define the type of reaction
3. How will the colour of the salt change?
4. Write the chemical equation of reaction that takes place.
5. Mention the commercial use of this salt.
6. Hydrogen is highly inflammable gas and oxygen is a supporter of combustion, yet water is compound made up of Hydrogen and oxygen is used to extinguish fire, why?
7. A zinc plate was put into solution of copper sulphate kept in a glass container. It was found that blue colour of the solution gets lighter with passage of time. After few days when zinc plate was taken out of the solution number of holes were observed in it.
8. State the reason for changes observed in the zinc plate.
9. Write the chemical equation for the reaction involved.
10. You might have noted when the copper powder is heated in a china dish, the surface of the copper powder gets coated with black colour substance.
11. How has this black coloured substance formed?
12. What is the black substance?
13. Write the chemical equation of the reaction that takes place.
14. Multiple choice questions
15. A reduction reaction involves
16. Supply of oxygen b) removal of oxygen supply of electrons c)addition of hydrogen d) addition of oxygen only
17. Which of the following are exothermic reactions?
18. Reaction of water with quick lime ii) Dilution of acid iii) Evaporation of water iv)Sublimation of camphor
19. i and ii b)ii and iii c) i and iv d) iii and iv
20. Which of the following is not a physical change?
21. Boiling of water to give water vapour b) Melting of ice to water c) dissolution of salt in water d) Combustion of LPG.
22. Which of the following is true for balanced equations?
23. Number of atoms is equal on both sides of equation b) Number of atoms less on the left side c) Number of atoms more on right side d) both b and c
24. Electrolysis of water is decomposition reaction. The mole ratio of hydrogen and oxygen gas liberated during electrolysis of water is
25. 1:1 b) 4:1 c) 2:1 d) 1:2
26. Answer questions on the basis of your understanding of the following paragraph and the related studied concepts.

Oxidation and reduction reactions are based on the addition and removal of oxygen or hydrogen. Those reactions which involve simultaneous oxidation and reduction are called redox reactions. Oxidation may be defined as the addition of oxygen to a substance or removal of hydrogen from a substance in a chemical reaction. The substance which either gives oxygen or removes hydrogen in an oxidation reaction is known as an oxidising agent. Reduction may be defined as the addition of hydrogen to a substance or removal of oxygen from substance. The substance which either gives hydrogen or removes oxygen in reduction reaction is known as reducing agent.

1. Write a reaction in which hydrogen per oxide is acting as reducing agent.
2. Identify the substance that is oxidised and the substance that can be reduced in following reaction:

4Na + O2-----🡪2Na2O

1. Can a displacement reaction be a redox reaction?
2. Why a combustion reaction is an oxidation reaction?
3. Assertion and Reason questions
4. If both assertion and reason are true and reason is the correct explanation of assertion.
5. If both assertion and reason are true and reason is not correct explanation of assertion.
6. If assertion is true but the reason is false
7. If assertion and reason are both false
8. Assertion: Corrosion of iron is commonly known as rusting.

Reason: Corrosion of iron occurs in presence of moist air.

1. Assertion: Food materials are often packed in air- tight container.

Reason: Oxidation resulting in rancidity is prevented.

1. Assertion: When a mixture of hydrogen and chlorine are placed in sunlight, hydrogen chloride is formed

Reason: It is example of combustion reaction.

1. Assertion: Respiration is exothermic reaction.

Reason: The glucose combines with oxygen in the cells of our body and provides energy.

**Chapter 2**

**Acids, Bases and Salts**

1. What will happen if hydrochloric acid is poured over egg shells?
2. NH3 does not contain hydroxyl group, then why is it a base?
3. Which one has higher concentration of H+ions-1M HCl or 1M CH3COOH?
4. Name the salt used in freezing mixture.
5. Complete CaOCl2 + H2SO4----🡪
6. Explain how an ant acid works.
7. Given that pH of three different liquid is 7.0, 14.0, 2.0, which of these could be lemon juice, distilled water and 1M sodium hydroxide solution?
8. On adding dilute hydrochloric acid to copper oxide powder, the solution formed is blue-green. Predict the new compound formed that imparts the colour. Give the reaction involved.
9. 2ml of sodium hydroxide solution is added to a few pieces of granulated zinc metal taken in a test-tube. When the contents are warmed, a gas evolves which is bubbled through soap solution before testing. Write the equation of reaction involved and the test to detect the gas.
10. How is an alkali different from a base?
11. A certain compound is alkaline in nature. On exposure to air it turns into white opaque powder. Identify the compound.
12. A compound P forms the enamel of teeth. It is the hardest substance of the body. It does not dissolve in water but gets corroded when pH is below 5.5.
13. Identify the compound P.
14. How does it undergo damage due to eating chocolate and sweets?
15. Salt A commonly used in bakery products on heating gets converted into another salt B which itself is used for removal of water and a gas C is evolved. The gas C when passed through lime water, turns it milky. Identify A, B and C.
16. How does baking soda help in extinguishing fire?
17. Why is hydrogen carbonate called baking soda and sodium carbonate as washing soda?
18. Which of the main products obtained during the electrolysis of brine are used for preparing sodium hypochlorite?
19. In the given reaction Mg+ HCl -----🡪MgCl2+H2 If the concentration of HCl is doubled how will rate of evolution of hydrogen gas be affected?
20. A dry pellet of common base B, when kept in open absorbs moisture and turns sticky. The compound is also a by-product of chlor-alkali process. Identify B. What type of reaction occurs when treated with acidic oxides.
21. Give one word for the following
22. Water soluble base
23. A substance which dissociates on dissolving in water to produce H+ ions.
24. A reaction between an acid and a base to form salt and water.
25. A substance which dissociates on dissolving in water to produce hydroxyl ions.
26. Answer the questions on the basis of your understanding of the following paragraph and the related studied concepts

Strong acid or a strong base means 100%ionisation. That means, the H+ concentration of a strong acid is equal to concentration of the acid. After all the acid dissociates, there will be no acid molecules. Similarly for a strong base hydroxyl ion concentration is equal to concentration of base. It is possible to reach a pH value of 0 for an acid. For calculating pH of base, pOH value can be calculated first then going to p H. The point kept in mind is the relation p H + p OH =14.

1. Give example of a strong acid and a strong base
2. The hydroxyl ion in the solution is .0001M. What is p OH of the solution?
3. What is pH of .100M of HCl?
4. What is the pH of 1.00M of HBr?
5. Two solutions X and Y are tested with a pH paper. Solution X turns purple and Y turns red. Which of the solution is basic and why?
6. A salt X when dissolved in distilled water gives clear solution which turns red litmus blue. Explain the phenomenon.
7. pH has great importance in our daily life, explain the statement with three examples.
8. Fresh milk has p H value of 6. When it changes into curd, what will happen to its pH and why?
9. The soil of a field is highly acidic. Name two materials which can be added to this soil to reduce its acidity. Give reason for your choice.
10. What are anhydrous and hydrated salts? Explain with suitable example of each.
11. How is plaster of Paris prepared? What reaction takes place when it sets to hard mass?
12. Write balanced equation
13. Hydrochloric acid is added over a piece of marble
14. Aluminium is heated with sodium hydroxide solution
15. Chlorine gas is passed over slaked lime.
16. Sodium bi carbonate is strongly heated.
17. a)what is gypsum? What happens when gypsum is heated to 1000C?

b)Name the sodium compound is used for borax and glass.

1. Multiple choice questions
   1. Many salts absorb water from atmosphere. This property is called
      1. Crystallisation b) hydration c) deliquescence d) efflorescence
   2. An aqueous solution of sodium acetate will turn
      1. methyl orange yellow b)red litmus blue c) phenolphthalein solution pink d) all of the above
   3. An aqueous solution of salt is acidic when which one of the following reacts?
      1. Strong acid and strong base b) Strong acid and weak base c) weak acid and weak base d) weak acid and strong base
   4. When hydrogen of an acid is partially neutralised by hydroxyl ion of abase we get
      1. Normal salt b) acidic salt c) basic salt d) complex salt
   5. The water of crystallisation of washing soda is
      1. 10 b) 9 c) 5 d) 1
2. Assertion and Reason questions
3. If both assertion and reason are true and reason is the correct explanation of assertion.
4. If both assertion and reason are true but reason is not correct explanation of assertion.
5. If assertion is true but reason is false.
6. If assertion is false but reason is true
7. Assertion: AlCl3 is a basic salt.

Reason: AlCl3 is a salt of strong acid and weak base

1. Assertion: Strength of the acid or a base decreases with dilution

Reason: Ionisation ofan acid and base increases with dilution.

1. Assertion: When rain is accompanied by a thunderstorm, the collected rain water will have pH value slightly lower than rain water without thunderstorm.

Reason: Temperature increases due to thunderstorm and so H+ ions increases.

1. Assertion: Bleaching powder reacts with dilute acids to evolve chlorine.

Reason: The chlorine liberated by action of dilute acids on bleaching powder is called available chlorine

1. Assertion: Distilled water conducts electricity whereas tap water does not.

Reason: Distilled water is ionic compound.

1. Assertion: Acetic acid does not act as an acid in benzene solution.

Reason: Benzene is non – polar.