Balancing Chemical Reactions

1.1 CHEMICAL EQUATIONS

Q1. Balance the following chemical equation.

Fe(s) +H2O(g) = Fe3O4 + H2(g)

MnO2 + HCL = MnCl2 + Cl2 + H2O

HNO3 + Ca(OH)2 = Ca(NO3)2 + H2O

Q2.Balance the following skeletal equation

$Mg_3N_2 + H_2O \rightarrow Mg(OH)_2 + NH_3$

Q3.Express following reactions in the form of chemical equations and then balance these equations

a)Phosphorus burns in oxygen to form phosphorus pentoxide

b)Sodium hydroxide reacts with sulphuric acid to form sodium sulphate and water

Q4.Write the balanced equation for the following chemical reactions :

i)Hydrogen+Chlorine→Hydrogen chloride

ii)Barium chloride+Aluminium sulphate→Barium sulphate+Aluminium chloride

Q5.What is a balanced chemical equation? Why should the chemical equation be balanced ?

Q6.On what basis is a chemical equation balanced?

State any two observations in an activity suggesting the occurrence of a chemical reaction.

1.2 TYPES OF CHEMICAL REACTIONS

Combination

Decomposition

1. Why most decomposition reactions are endothermic?
2. Write one use of quick lime.
3. Which colour is NO_2 fumes?
4. Fe_2O_3 is solid, liquid or gas?
5. Which gas gets collected at anode during water electrolysis?
6. What is the ratio of hydrogen to oxygen produced during water electrolysis by volume?
7. What is the ratio of hydrogen to oxygen produced during water electrolysis by mass?
8. Why are graphite rod used in electrolysis?

Q1. What happens chemically when quick lime is added to water?

Q2. How will you test for the gas which is liberated when HCL reacts with an active metal?

Q3. What is an oxidation reaction? Is it exothermic or endothermic? Give one example of oxidation Reaction.

Q4. Give an example of photochemical reaction.

Q5. Give an example of a decomposition reaction. Describe any activity to illustrate such a reaction by heating.

Q6. Why is respiration considered as exothermic process?

Q7. Name a reducing agent which may be used to obtain manganese from manganese dioxide.

Q8. What change in colour is observed when silver chloride is left exposed to sunlight? Also mention the type of chemical reaction.

Q9. Define a combination reaction. Give one example of an exothermic combination reaction.

Q10. What is observed when a solution of potassium iodide is added to lead nitrate solution?What type of reaction is this? Write a balanced chemical equation for this reaction.

Q11. Distinguish between an exothermic and an endothermic reaction.

Q12. Distinguish between a displacement and a double displacement reaction.

Q13. Identify the type of reaction in the following:

$Fe + CuSO_4(aq) = FeSO_4(aq) + Cu(s)$

$2H_2 + O_2 = 2H_2O$