Question-6
Balance the following chemical equations.

a. $HNO_3 + Ca(OH)_2 \longrightarrow Ca(NO_3)_2 + H_2O$

b. $NaOH + H_2SO_4 \longrightarrow Na_2SO_4 + H_2O$

c. $NaCl + AgNO_3 \longrightarrow AgCl + NaNO_3$

d. $BaCl_2 + H_2SO_4 \longrightarrow BaSO_4 + HCl$

Solution:

a. $2HNO_3 + 2Ca(OH)_2 \longrightarrow 2Ca(NO_3)_2 + 2H_2O$

b. $6NaOH + 3H_2SO_4 \longrightarrow 3Na_2SO_4 + 6H_2O$

c. $NaCl + AgNO_3 \longrightarrow AgCl + NaNO_3$

d. $BaCl_2 + H_2SO_4 \longrightarrow BaSO_4 + 2HCl$

Question-7
Write the balanced chemical equations for the following reactions:

a. Calcium hydroxide + Carbon dioxide ⟶ Calcium carbonate + Water
b. Zinc + Silver nitrate ⟶ Zinc nitrate + Silver
c. Aluminium + Copper chloride ⟶ Aluminium chloride + Copper
d. Barium chloride + Potassium sulphate ⟶ Barium sulphate + Potassium chloride

Solution:

a. $2Ca(OH)_2 + 2CO_2 \longrightarrow 2CaCO_3 + 2H_2O$

b. $Zn + 2AgNO_3 \longrightarrow Zn(NO_3)_2 + 2Ag$

c. $2Al + 3CuCl_2 \longrightarrow 2AlCl_3 + 3Cu$

d. $BaCl_2 + K_2SO_4 \longrightarrow BaSO_4 + 2KCl$

Question-8
Write the balanced chemical equation for the following and identify the type of reaction of each case.

a. $KBr + BaI_2 \longrightarrow KI + BaBr_2$

b. $ZnCO_3 \longrightarrow ZnO + CO_2$

c. $H_2 + Cl \longrightarrow HCl$

d. $Mg + HCl \longrightarrow MgCl_2 + H_2$

Solution:

a. $2KBr + BaI_2 \rightarrow 2KI + BaBr_2$ (Double Displacement reaction)

b. $ZnCO_3 \rightarrow ZnO + CO_2$ (Decomposition reaction)

c. $H_2 + Cl_2 \rightarrow 2HCl$ (Combination reaction)

d. $Mg + 2HCl \rightarrow MgCl_2 + H_2$ (Displacement reaction)

Question-9

What is meant by exothermic and endothermic reactions? Give examples.

Solution:

An exothermic reaction is one that releases heat.

If 1 mole of N_2 molecule reacts with 1 mole of O_2 molecule, the heat of 184 KJ has to be supplied to initiate the reaction to give 1 mole of NO molecule. This means that the bonds between N – N and O – O are so strong that they do not break easily. N_2 has triple covalent bond between the two N atoms. O_2 has a double covalent bond. Thus energy has to be put into the reaction to break the strong bonds. Thus the above reaction is a good example of an endothermic reaction.

Question-10

Why is respiration considered an exothermic reaction?

Solution:

During respiration, glucose combines with oxygen in the cells of our body to form carbon dioxide and water along with the production of energy.

Glucose + oxygen → carbon dioxide + water + energy

It is an exothermic reaction, because energy is produced during this process.

********** END **********