SELF ASSESSMENT TEST SOLUTIONS

- 1. $2AI + 3H_2SO_4 \rightarrow Al_2 (SO_4)_3 + 3H_2$ $Na_2CO_3 + 2HCI \rightarrow 2NaCI + H_2O + CO_2$ $Ca (OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$
- 2. (a) 2 Cu + $O_2 \rightarrow$ 2 Cu O

(b) 4AI +
$$3O_2 \rightarrow 2AI_2O_3$$

(c)
$$Al_2O_3 + 2NaOH \rightarrow 2NaAl O_2 + H_2O$$

3. $CaO + H_2O \rightarrow Ca(OH)_2 + Heat$ Quicklime Slaked lime

Water started boiling due to exothermic reaction.

When slaked lime is applied on the walls, it combines with $\mathrm{CO}_{_2}$ from air and forms CaCO_3

 $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

4. (a) Dilute hydrochloric acid reacts with magnesium to form magnesium chloride and H_2 gas.

 $Mg(s) + 2HCI(aq) \longrightarrow MgCI_2(aq) + H_2(g)$

(b) When dilute hydrochloric acid reacts sodium hydroxide, neutralisation reaction takes place and salt and water are formed.

 $NaOH(aq) + HCI(aq) \longrightarrow NaCI(aq) + H_2O(I)$

(c) Egg shells are calcium carbonate (CaCO₃). Dilute hydrochloric acid dissolves the CaCO₃ and makes the shell soft.

 $CaCO_{3}(s) + HCI(aq) \longrightarrow CaCI_{2} + CO_{2}(g) + H_{2}O(I)$

- 5. (i) Exothermic reaction.
 - (ii) Combination reaction. (iii) Decomposition reaction.
- 6. (a) Brown fumes; white residue (b) Decomposition reaction

 $2Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2$

7. $CaCO_3 + dil. H_2SO_4 \rightarrow CaSO_4 + H_2O + CO_2$ (A) (B)

 $\begin{array}{c} \text{Ca(OH)}_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O} \\ \text{(Lime water)} & \text{(A)} \end{array}$

 $A - CaCO_3$ (Limestone)

$$\mathbf{B} - CO_2(g)$$

8. (a) C + $O_2 \rightarrow CO_2$

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(b) $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$ + energy.

(c) Sulphur dioxide and sulphur trioxide.

9. (i) Decomposition reactions require energy either in the form of heat, light or electricity for breaking down the reactants or energy is absorbed.

(ii) Iron has displaced Copper from Copper Sulphate solution to form Iron Sulphate which is light green in colour. It is because Fe is more reactive than Copper.

(iii) During digestion, food (rice, potatoes etc) containing carbohydrates are broken down to form glucose. This glucose combines with oxygen in the cells of our body and provides energy. Since energy is given out, it is exothermic.

10. On mixing the clear solution of two ionic compounds a substance which is insoluble in water is formed. This insoluble substances is known as precipitate and the reaction in which precipitate formed is called precipitation reaction.

Example: When sodium sulphate solution is mixed with barium chloride solution a white precipitate of a substance $(BaSO_4)$ is formed.

 $Na_2SO_4(aq) + BaCl_2(aq) \rightarrow BaSO_4(\downarrow) + 2NaCl(aq)$