66. When an oxide of manganese (A) is fused with KOH in the presence of an oxidising agent and dissolved in water, it gives a dark green solution of compound (B). Compound (B) disproportionates in neutral or acidic solution to give purple compound (C). An alkaline solution of compound (C) oxidises potassium iodide solution to a compound (D) and compound (A) is also formed. Identify compounds A to D and also explain the reactions involved.

66. A = MnO_2 (B) K_2MnO_4 (C) $KMnO_4$ (D) KIO_3

$$\underset{(A)}{2\,MnO_2} + 4KOH + O_2 \longrightarrow \underset{(B)}{2K_2MnO_4} + 2H_2O$$

$$3MnO_4^{2-} + 4H^+ \longrightarrow \underset{(C)}{2MnO_4^-} + MnO_2 + 2H_2O$$

$$2MnO_4^- + H_2O + KI \longrightarrow \underset{(A)}{2MnO_2} + 2OH^- + \underset{(D)}{KIO_3}$$

71. A violet compound of manganese (A) decomposes on heating to liberate oxygen and compounds (B) and (C) of manganese are formed. Compound (C) reacts with KOH in the presence of potassium nitrate to give compound (B). On heating compound (C) with conc. H_2SO_4 and NaCl, chlorine gas is liberated and a compound (D) of manganese along with other products is formed. Identify compounds A to D and also explain the reactions involved.

71. A = $KMnO_4$ B = K_2MnO_4 C = MnO_2 D = $MnCl_2$

$$\underset{(A)}{KMnO_4} \xrightarrow{\Delta} \underset{(B)}{K_2MnO_4} + \underset{(C)}{MnO_2} + O_2$$

$$MnO_2 + KOH + O_2 \longrightarrow 2K_2MnO_4 + 2H_2O$$

$$MnO_2 + 4NaCl + 4H_2SO_4 \longrightarrow \underset{(D)}{MnCl_2} + 2NaHSO_4 + 2H_2O + Cl_2$$