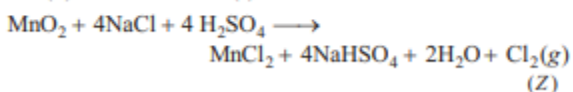Thermal decomposition of a Mn compound (X) at 513 K results in compound (Y), MnO_2 and a gaseous product. MnO_2 reacts with NaCl and concentrated H_2SO_4 to give a pungent gas Z. X, Y and Z, respectively, are   (2019 Main, 12 April II)

(a) K_3MnO_4, K_2MnO_4 and Cl_2 (b) K_2MnO_4, $KMnO_4$ and SO_2
(c) $KMnO_4$, K_2MnO_4 and Cl_2 (d) K_2MnO_4, $KMnO_4$ and Cl_2

Thermal decomposition of Mn compound (X), i.e. $KMnO_4$ at 513 K results in compound Y(i.e. K_2MnO_4), MnO_2 and a gaseous product. MnO_2 reacts with NaCl and concentrated H_2SO_4 to give a pungent gas Z(i.e. Cl_2). The reactions involved are as follows :

$$2KMnO_4 \xrightarrow[\Delta]{513\,K} K_2MnO_4 + MnO_2 + O_2(g)$$
$$\,(X) \qquad\qquad\quad (Y)$$

$$MnO_2 + 4NaCl + 4H_2SO_4 \longrightarrow$$
$$MnCl_2 + 4NaHSO_4 + 2H_2O + Cl_2(g)$$
$$(Z)$$
$$\text{Pungent gas.}$$