Consider the following reaction, **(2013 Main)**

$$xMnO_4^- + yC_2O_4^{2-} + zH^+ \longrightarrow xMn^{2+} + 2yCO_2 + \frac{z}{2}H_2O$$
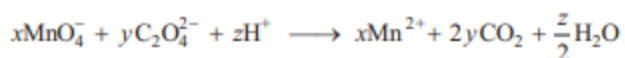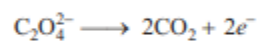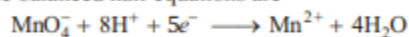
The values of x, y and z in the reaction are, respectively
(a) 5, 2 and 16   (b) 2, 5 and 8
(c) 2, 5 and 16   (d) 5, 2 and 8

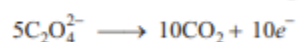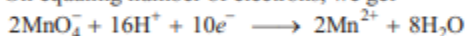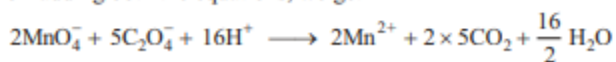The half equations of the reaction are
$$MnO_4^- \longrightarrow Mn^{2+}$$
$$C_2O_4^{2-} \longrightarrow CO_2$$
The balanced half equations are
$$MnO_4^- + 8H^+ + 5e^- \longrightarrow Mn^{2+} + 4H_2O$$
$$C_2O_4^{2-} \longrightarrow 2CO_2 + 2e^-$$
On equating number of electrons, we get
$$2MnO_4^- + 16H^+ + 10e^- \longrightarrow 2Mn^{2+} + 8H_2O$$
$$5C_2O_4^{2-} \longrightarrow 10CO_2 + 10e^-$$
On adding both the equations, we get
$$2MnO_4^- + 5C_2O_4^- + 16H^+ \longrightarrow 2Mn^{2+} + 2\times5CO_2 + \frac{16}{2}H_2O$$
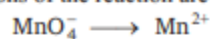
Thus x, y and z are 2, 5 and 16 respectively.