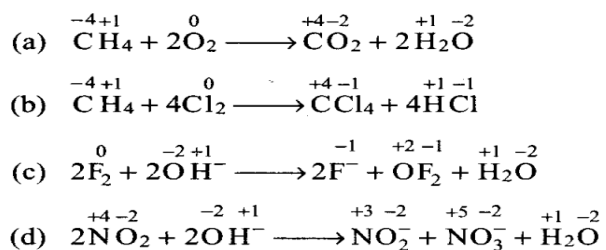


Q1. Identify disproportionation reaction

- (a) $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$
(b) $\text{CH}_4 + 4\text{Cl}_2 \rightarrow \text{CCl}_4 + 4\text{HCl}$
(c) $2\text{F}_2 + 2\text{OH}^- \rightarrow 2\text{F}^- + \text{OF}_2 + \text{H}_2\text{O}$
(d) $2\text{NO}_2 + 2\text{OH}^- \rightarrow \text{NO}_2^- + \text{NO}_3^- + \text{H}_2\text{O}$

Sol: (d)

Reactions in which the same substance is oxidized as well as reduced are called disproportionation reactions. Writing the OXIDATION NUMBER of each element above its symbol in the given reactions:



Thus, in reaction (d), N is both oxidized as well as reduced since the OXIDATION NUMBER of N increases from +4 in NO_2 to +5 in NO_3^- and decreases from +4 in NO_2 to +3 in NO_2^- .