Solutions/Answers to NCERT/CBSE CHEMISTRY Class 11(Class XI)textbook

CHAPTER EIGHT

REDOX REACTIONS

8.3 Justify that the following reactions are redox reactions:

(a) $CuO(s) + H_2(g) \rightarrow Cu(s) + H_2O(g)$

In this equation Cuo Is reduced to Cu and the oxidation no of Cu in CuO decreases from +2 to 0 in Cu.Hydrogen is oxidized to water and its ON no increases to +1 in water from 0 in Hydrogen .Therefore it is a redox reaxtion.

(b) $Fe_2O_3(s) + 3CO(g) \rightarrow 2Fe(s) + 3CO_2(g)$:- In the given reaction the ON of Fe decreases from +3 in Fe_2O_3 to 0 in Fe.While the ON of C in CO increases from +2 to +4 in CO_2.Therefore Fe_2O_3 is reduced and CO is oxidized to CO_2. Therfore it is a redox reaction.

(c) $4BCl_3(g) + 3LiAlH_4(s) \rightarrow 2B_2H_6(g) + 3LiCl(s) + 3\ AlCl_3$ (s:- In the given reaction the ON of B decreases from +3 in BCl_3 to 3 in B_2H_6.While the ON of H in $LiAlH_4$ increases from -1 to +1 in B_2H_6.Therefore BCl_3 is reduced and $LiAlH_4$ is oxidized . Therfore it is a redox reaction.

(d) $2K(s) + F_2(g) \rightarrow 2K+F-$ (s) :- :- In the given reaction the ON of K increases from +0 in K to +1 inKF.While the ON of F decreases from 0 to -1 in KF.Therefore K is Oxidised to KI while F is reduced . Therfore it is a redox reaction.

(e) $4\ NH_3(g) + 5\ O_2(g) \rightarrow 4NO(g) + 6H_2O(g)$:- :- In the given reaction the ON of N increases from -3 in NH_3 to +2 in NO.While the ON of O decreases from 0 to –2in No or H_2O.Therfore NH_3 is oxidized and O_2 has been reduced. Therfore it is a redox reaction.