

Question 3:

The brown - ring complex compound of iron is formulated as $[\text{Fe}(\text{H}_2\text{O})_5(\text{NO})]\text{SO}_4$. The oxidation state of iron is :

Answer (option 1) 1

When brown ring complex $[\text{Fe}(\text{H}_2\text{O})_5(\text{NO})]$ dissolves in water, it dissociates to give $[\text{Fe}(\text{H}_2\text{O})_5(\text{NO})]^{2+}$ and SO_4^{2-}

In $[\text{Fe}(\text{H}_2\text{O})_5(\text{NO})]$, NO is in +1 oxidation state and H_2O is neutral.

The oxidation state of iron (Fe)

$$\Rightarrow X + (+1) + 5(0) = +2$$

$$\Rightarrow X = +1$$