



Redox Reactions

Q.No.1: Hydrogen peroxide oxidises $[\text{Fe}(\text{CN})_6]^{4-}$ to $[\text{Fe}(\text{CN})_6]^{3-}$ in acidic medium but reduces $[\text{Fe}(\text{CN})_6]^{3-}$ to $[\text{Fe}(\text{CN})_6]^{4-}$ in alkaline medium. The other products formed are, respectively : **JEE 2018**

- A. H_2O and $(\text{H}_2\text{O} + \text{O}_2)$
- B. H_2O and $(\text{H}_2\text{O} + \text{OH}^-)$
- C. $(\text{H}_2\text{O} + \text{O}_2)$ and H_2O
- D. $(\text{H}_2\text{O} + \text{O}_2)$ and $(\text{H}_2\text{O} + \text{OH}^-)$

Q.No.2: The oxidation states of Cr in $[\text{Cr}(\text{H}_2\text{O})_6] \text{Cl}_3$, $[\text{Cr}(\text{C}_6\text{H}_6)_2]$, and $\text{K}_2[\text{Cr}(\text{CN})_2(\text{O})_2(\text{O}_2)(\text{NH}_3)]$, respectively are : **JEE 2018**

- A. + 3, 0, and + 6
- B. + 3, 0, and + 4
- C. + 3, + 4, and + 6
- D. + 3, + 2, and + 4

Q.No.3: 25 ml of the given HCl solution requires 30 mL of 0.1 M sodium carbonate solution. What is the volume of this HCl solution required to titrate 30 mL of 0.2 M aqueous NaOH solution? **JEE 2019**

- A. 25 mL
- B. 75 mL
- C. 50 mL
- D. 12.5 mL

Q.No.4: (A) $\text{HOCl} + \text{H}_2\text{O}_2 \rightarrow \text{H}_3\text{O}^+ + \text{Cl}^- + \text{O}_2$
(B) $\text{I}_2 + \text{H}_2\text{O}_2 + 2\text{OH}^- \rightarrow 2\text{I}^- + 2\text{H}_2\text{O} + \text{O}_2$
Choose the correct option. **JEE 2021**

- A.** H_2O_2 acts as oxidising agent in equations (A) and (B).
- B.** H_2O_2 act as oxidizing and reducing agent respectively in equations (A) and (B).
- C.** H_2O_2 acts as reducing agent in equations (A) and (B).
- D.** H_2O_2 acts as reducing and oxidising agent respectively in equations (A) and (B).

Q.No.5: In mildly alkaline medium, thiosulphate ion is oxidized by MnO_4^- to "A". The oxidation state of sulphur in "A" is _____. **JEE 2021**

Q.No.6: 15 mL of aqueous solution of Fe^{2+} in acidic medium completely reacted with 20 mL of 0.03 M aqueous $\text{Cr}_2\text{O}_7^{2-}$. The molarity of the Fe^{2+} solution is _____ $\times 10^{-2}$ M. (Round off to the Nearest Integer). **JEE 2021**

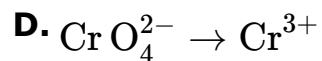
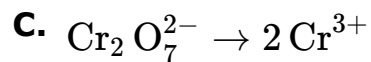
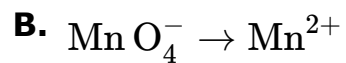
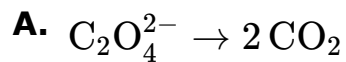
Q.No.7: The reaction of sulphur in alkaline medium is given below:
 $\text{S}_{8(s)} + a\text{OH}^-_{(aq)} \rightarrow b\text{S}^{2-}_{(aq)} + c\text{S}_2\text{O}_3^{2-}_{(aq)} + d\text{H}_2\text{O}_{(l)}$
 The value of 'a' is _____. **JEE 2021**

Q.No.8: The species given below that does NOT show disproportionation reaction is **JEE 2021**

- A.** BrO_3^-
- B.** BrO^-
- C.** BrO_2^-
- D.** BrO_4^-

Q.No.9: Identify the process in which change in the oxidation state is five :

JEE 2021



Q.No.10: 10.0 mL of 0.05 M KMnO_4 solution was consumed in a titration with 10.0 mL of given oxalic acid dihydrate solution. The strength of given oxalic acid solution is _____ $\times 10^{-2}$ g/L.
(Round off to the Nearest Integer).

JEE 2021

Vidyarohi