

REDOX REACTION

- Which of the following cannot function as an oxidising agent?
 (1) N^{3-} (2) SO_4^{2-}
 (3) BrO_3^- (4) MnO_4^-
- Chlorine undergoes disproportionation in alkaline medium as shown below :

$$a \text{Cl}_2(\text{g}) + b \text{OH}^-(\text{aq}) \rightarrow c \text{ClO}^-(\text{aq}) + d \text{Cl}^-(\text{aq}) + e \text{H}_2\text{O}(\text{l})$$
 The values of a, b, c and d in a balanced redox reaction are respectively :
 (1) 1, 2, 1 and 1 (2) 2, 2, 1 and 3
 (3) 3, 4, 4 and 2 (4) 2, 4, 1 and 3
- $2\text{MnO}_4^- + b\text{I}^- + c\text{H}_2\text{O} \rightarrow x\text{I}_2 + y\text{MnO}_2 + z\text{OH}^-$
 If the above equation is balanced with integer coefficients, the value of z is _____.
- Total number of species from the following which can undergo disproportionation reaction _____.
 $\text{H}_2\text{O}_2, \text{ClO}_2, \text{P}, \text{Cl}_2, \text{Ag}, \text{Cu}^{+1}, \text{F}_2, \text{NO}_2, \text{K}^+$
- Given below are two statements :
Statement I: S_8 solid undergoes disproportionation reaction under alkaline conditions to form S^{2-} and $\text{S}_2\text{O}_3^{2-}$
Statement II: ClO_4^- can undergo disproportionation reaction under acidic condition.
 In the light of the above statements, choose the **most appropriate answer** from the options given below :
 (1) Statement I is correct but statement II is incorrect.
 (2) Statement I is incorrect but statement II is correct.
 (3) Both statement I and statement II are incorrect.
 (4) Both statement I and statement II are correct.
- Number of moles of H^+ ions required by 1 mole of MnO_4^- to oxidise oxalate ion to CO_2 is _____.
- In acidic medium, $\text{K}_2\text{Cr}_2\text{O}_7$ shows oxidising action as represented in the half reaction

$$\text{Cr}_2\text{O}_7^{2-} + \text{XH}^+ + \text{Ye}^- \rightarrow 2\text{A} + \text{ZH}_2\text{O}$$
 X, Y, Z and A are respectively are:
 (1) 8, 6, 4 and Cr_2O_3 (2) 14, 7, 6 and Cr^{3+}
 (3) 8, 4, 6 and Cr_2O_3 (4) 14, 6, 7 and Cr^{3+}
- Which of the following reactions are disproportionation reactions?
 (A) $\text{Cu}^+ \rightarrow \text{Cu}^{2+} + \text{Cu}$
 (B) $3\text{MnO}_4^{2-} + 4\text{H}^+ \rightarrow 2\text{MnO}_4^- + \text{MnO}_2 + 2\text{H}_2\text{O}$
 (C) $2\text{KMnO}_4 \rightarrow \text{K}_2\text{MnO}_4 + \text{MnO}_2 + \text{O}_2$
 (D) $2\text{MnO}_4^- + 3\text{Mn}^{2+} + 2\text{H}_2\text{O} \rightarrow 5\text{MnO}_2 + 4\text{H}^+$
 Choose the correct answer from the options given below:
 (1) (A), (B) (2) (B), (C), (D)
 (3) (A), (B), (C) (4) (A), (D)
- Lowest Oxidation number of an atom in a compound A_2B is -2 . The number of an electron in its valence shell is
- Only 2 mL of KMnO_4 solution of unknown molarity is required to reach the end point of a titration of 20 mL of oxalic acid (2 M) in acidic medium. The molarity of KMnO_4 solution should be _____ M.
- Thiosulphate reacts differently with iodine and bromine in the reaction given below :

$$2\text{S}_2\text{O}_3^{2-} + \text{I}_2 \rightarrow \text{S}_4\text{O}_6^{2-} + 2\text{I}^-$$

$$\text{S}_2\text{O}_3^{2-} + 5\text{Br}_2 + 5\text{H}_2\text{O} \rightarrow 2\text{SO}_4^{2-} + 4\text{Br}^- + 10\text{H}^+$$
 Which of the following statement justifies the above dual behaviour of thiosulphate?
 (1) Bromine undergoes oxidation and iodine undergoes reduction by iodine in these reactions
 (2) Thiosulphate undergoes oxidation by bromine and reduction by iodine in these reaction
 (3) Bromine is a stronger oxidant than iodine
 (4) Bromine is a weaker oxidant than iodine

