



(Physical Chemistry)

Redox

1. The oxidation states of 'P' in $H_4P_2O_7$, $H_4P_2O_5$ and $H_4P_2O_6$, respectively, are:
- (1) 7, 5 and 6 (2) 5, 4 and 3 (3) 5, 3 and 4 (4) 6, 4 and 5

[JEE Main, July 2021]

2. In polythionic acid, $H_2S_xO_6$ ($x = 3$ to 5) the oxidation state(s) of Sulphur is/are :
- (1) + 5 only (2) + 6 only
 (3) + 3 and + 5 only (4) 0 and + 5 only [JEE Main, August 2021]

3. Which one of the following reactions indicates the reducing ability of hydrogen peroxide in basic medium ?
- (1) $HOCl + H_2O_2 \rightarrow H_3O^+ + Cl^- + O_2$
 (2) $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$
 (3) $2MnO_4^- + 3H_2O_2 \rightarrow 2MnO_2 + 3O_2 + 2H_2O + 2OH^-$
 (4) $Mn^{2+} + H_2O_2 \rightarrow Mn^{4+} + 2OH^-$

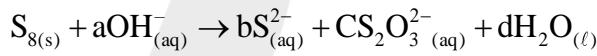
[JEE Main, June 2022]

4. In neutral or faintly alkaline medium, $KMnO_4$ being a powerful oxidant can oxidize, thiosulphate almost quantitatively, to sulphate. In this reaction overall change in oxidation state of manganese will be:

[JEE Main, July 2022]

- (1) 5 (2) 1 (3) 0 (4) 3

5. The reaction of sulphur in alkaline medium is the below:



The values of 'a' is _____. (Integer answer)

[JEE Main, Feb 2021]

6. The volume (in mL) of 0.1 N NaOH required to neutralise 10 mL of 0.1 N phosphinic acid is _____.
 [Given 10.00] [Jee Main, 2020]

7. The normality of H_2SO_4 in the solution obtained on mixing 100 mL of 0.1 M H_2SO_4 with 50 mL of 0.1 M NaOH is _____ $\times 10^{-1}$ N. (Nearest Integer) [JEE Main, July 2022]

8. 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 Main, July 2021]



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9. In basics medium CrO_4^{2-} oxidises $\text{S}_2\text{O}_3^{2-}$ to form SO_4^{2-} and itself changes into $\text{Cr}(\text{OH})_4^-$. The volume of 0.154M CrO_4^{2-} required to react with 40 mL of 0.25M $\text{S}_2\text{O}_3^{2-}$ is ___mL. (Rounded-off to the nearest integer) [JEE Main, Feb 2021]

10. The volume, in mL, of 0.02 M $\text{K}_2\text{Cr}_2\text{O}_7$ solution required to react with 0.288 g of ferrous oxalate in acidic medium is _____.
(Molar mass of Fe = 56 g mol⁻¹) [Jee Main, 2020]



ANSWERS KEY

- | | | | | | |
|--------|-----------|--------|----------|----------|---------|
| 1. (3) | 2. (4) | 3. (3) | 4. (4) | 5. (12) | 6. (10) |
| 7. (1) | 8. (1575) | | 9. (173) | 10. (50) | |

