

10. An example of a disproportionation reaction is:

[JEE (Main)-2019]

- (1) $2\text{MnO}_4^- + 10\text{I}^- + 16\text{H}^+ \rightarrow 2\text{Mn}^{2+} + 5\text{I}_2 + 8\text{H}_2\text{O}$
- (2) $2\text{CuBr} \rightarrow \text{CuBr}_2 + \text{Cu}$
- (3) $2\text{KMnO}_4 \rightarrow \text{K}_2\text{MnO}_4 + \text{MnO}_2 + \text{O}_2$
- (4) $2\text{NaBr} + \text{Cl}_2 \rightarrow 2\text{NaCl} + \text{Br}_2$

11. Oxidation number of potassium in K_2O , K_2O_2 and KO_2 , respectively, is

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- (1) +1, +2 and +4
- (2) +2, +1 and $+\frac{1}{2}$
- (3) +1, +4 and +2
- (4) +1, +1 and +1

12. The redox reaction among the following is

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- (1) Reaction of $[\text{Co}(\text{H}_2\text{O})_6]\text{Cl}_3$ with AgNO_3
 - (2) Formation of ozone from atmospheric oxygen in the presence of sunlight.
 - (3) Combination of dinitrogen with dioxygen at 2000 K
 - (4) Reaction of H_2SO_4 with NaOH
13. While titrating dilute HCl solution with aqueous NaOH , which of the following will not be required?

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- (1) Pipette and distilled water

- (2) Clamp and phenolphthalein
- (3) Burette and porcelain tile
- (4) Bunsen burner and measuring cylinder

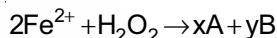
14. The oxidation states of transition metal atoms in $\text{K}_2\text{Cr}_2\text{O}_7$, KMnO_4 and K_2FeO_4 , respectively, are x, y and z. The sum of x, y and z is _____.

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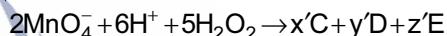
15. A 20.0 mL solution containing 0.2 g impure H_2O_2 reacts completely with 0.316 g of KMnO_4 in acid solution. The purity of H_2O_2 (in %) is _____.
(mol. wt. of H_2O_2 = 34; mol. wt. of KMnO_4 = 158)

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16. Consider the following equations :



(in basic medium)



(in acidic medium)

The sum of the stoichiometric coefficients

x, y, x', y' and z' for products A, B, C, D and E, respectively, is _____.

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17. 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)

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