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:

$$S_{8(s)} + aOH^-_{(aq)} \rightarrow bS^{2-}_{(aq)} + CS_2O^{2-}_{3\ (aq)} + dH_2O_{(\ell)}$$

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 _____ × 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____× 10^{-2} g/L. (Round off to the nearest integer) **[JEE Main, July 2021]**

9. In basics medium CrO_4^{2-} oxidises $S_2O_3^{2-}$ to form SO_4^{2-} and itself changes into $Cr(OH)_4^-$. The volume of 0.154M CrO_4^{2-} required to react with 40 mL of 0.25M $S_2O_3^{2-}$ is ___mL. (Rounded-off to the nearest integer) **[JEE Main, Feb 2021]**

10. The volume, in mL, of 0.02 M $K_2Cr_2O_7$ 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)		