

## Redox Reactions

1) Which element undergoes disproportionation in water? (DPMT2011)

- 1) Cl<sub>2</sub>                      2) F<sub>2</sub>                      3) K                      4) Carbon

Ans: 1,  $\text{Cl}_2 + \text{H}_2\text{O} \rightarrow \text{HCl} + \text{HClO}$

2) Oxidation state of phosphorus in metaphosphoric acid is (PMT2011)

- 1) +3                      2) +5                      3) -3                      4) +2

Ans: 2, HPO<sub>3</sub>

3) In the redox reaction  $x\text{KMnO}_4 + y\text{NH}_3 \rightarrow \text{KNO}_3 + \text{MnO}_2 + \text{KOH} + \text{H}_2\text{O}$  (DPMT2009)

- 1) x = 4, y=6                      2) x=3, y=8                      3) x=8, y=6                      4) x=8, y=3

Ans: 4 [ $8\text{KMnO}_4 + 3\text{NH}_3 \rightarrow 8\text{KNO}_3 + 3\text{MnO}_2 + 5\text{KOH} + 2\text{H}_2\text{O}$ ]

4) Oxidation number of P in PO<sub>4</sub><sup>-3</sup>, S in SO<sub>4</sub><sup>-2</sup> and that of Cr in Cr<sub>2</sub>O<sub>7</sub><sup>-2</sup> are respectively (PMT2009)

- 1) -3, +6 & +6                      2) +5, +6 & +6                      3) +3, +6 & +5                      4) +5, +3 & +6

Ans: 2

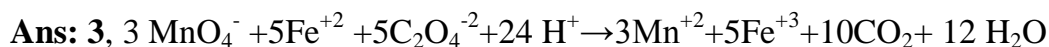
5) Hydrogen is prepared from water by adding (DUMET2011)

- 1) Ca, which acts as reducing agent                      2) Al, which acts as Oxidising agent  
3) Ag, which acts as reducing agent                      4) Au, which acts as Oxidising agent

Ans: 1,  $\text{Ca} + 2\text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2 + \text{H}_2$

6) Number of moles of  $\text{MnO}_4^-$  required to oxidize one mole of Ferrous Oxalate in acid medium will be (PMT2008)

- 1) 0.5 moles                      2) 0.2 moles                      3) 0.6 moles                      4) 0.4 moles



3 moles  $\text{MnO}_4^-$  oxidize 5 moles of Ferrous Oxalate.

Moles of  $\text{MnO}_4^-$  that oxidize 1 moles of Ferrous Oxalate =  $3/5 = 0.6$

7) Oxidation state of Fe in  $\text{K}_4[\text{Fe}(\text{CN})_6]$  (CPMT2008)

- 1) +6                      2) +4                      3) +2                      4) +5

Ans: 3

8) Oxidation state of P in  $\text{H}_4\text{P}_2\text{O}_5$ ,  $\text{H}_4\text{P}_2\text{O}_6$  and  $\text{H}_4\text{P}_2\text{O}_7$  are respectively (AIPMT2010)

- 1) +3,+5,+4                      2) +5,+3,+4                      3) +5,+4,+3                      4) +3,+4,+5

Ans: 4

9) The oxidation state of S in  $\text{H}_2\text{S}_2\text{O}_8$  is (PMT2007)

- 1) +2                      2) +4                      3) +6                      4) +7

Ans: 3, it has 6 normal and 2 peroxy oxygen atoms

10) Nitrogen forms a variety of compounds in all oxidation states ranging from (PMT2006)

- 1) -3 to +5                      2) -3 to +3                      3) -3 to +4                      4) -3 to +6

Ans: 1, Lowest state = group number - 8 =  $5 - 8 = -3$ , Maximum state = +group number = +5