# Redox Reactions

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

1) $Cl_2$ 2) $F_2$ 3) K 4) Carbon

**Ans: 1**, $Cl_2+H_2O \rightarrow HCl+HClO$

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

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

**Ans: 2**, $HPO_3$

**3) In the redox reaction $xKMnO_4+y\ NH_3 \rightarrow KNO_3+MnO_2+KOH+H_2O$**

**(DPMT2009)**

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

**Ans: 4** $[8KMnO_4+3NH_3 \rightarrow 8KNO_3+3MnO_2+5KOH+2H_2O]$

**4) Oxidation number of P in $PO_4^{-3}$, S in $SO_4^{-2}$ and that of Cr in $Cr_2O_7^{-2}$ 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, $Ca+2H_2O \rightarrow Ca(OH)_2+H_2$

**6) Number of moles of $MnO_4^-$ 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

**Ans: 3**, $3\ MnO_4^- + 5Fe^{+2} + 5C_2O_4^{-2} + 24\ H^+ \rightarrow 3Mn^{+2} + 5Fe^{+3} + 10CO_2 + 12\ H_2O$

3 moles $MnO_4^-$ oxidize 5 moles of Ferrous Oxalate.

Moles of $MnO_4^-$ that oxidize 1 moles of Ferrous Oxalate=3/5 =0.6

**7) Oxidation state of Fe in $K_4$ [Fe $(CN)_6$] (CPMT2008)**

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

**Ans: 3**

**8) Oxidation state of P in $H_4P_2O_5$, $H_4P_2O_6$ and $H_4P_2O_7$ 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 $H_2S_2O_8$ 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