Oxidation, Reduction, Red-ox reactions, Types

1. **Which element undergoes disproportination 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 meta phosphoric 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} +5$C_2O_4^{-2}$+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