DPP
DAILY PRACTICE PROBLEMS

CLASS : XIIth
DATE :

SOLUTION

SUBJECT : CHEMISTRY
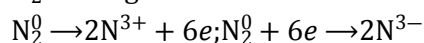DPP NO. : 7

Topic :-REDOX REACTIONS
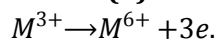
1   (a)

$SO_2 + 2H_2O \rightarrow H_2SO_4 + 2H$; thus, matter is reduced by liberated hydrogen.

2   (c)

N_2 undergoes oxidation and reduction as well;

$N_2^0 \rightarrow 2N^{3+} + 6e$; $N_2^0 + 6e \rightarrow 2N^{3-}$

3   (b)

$M^{3+} \rightarrow M^{6+} + 3e$.

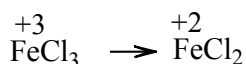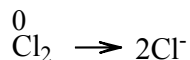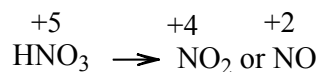**4   (a)**

$2H^- \rightarrow H_2 + 2e$; Thus, H^- is oxidized.

5   (d)

All these substances can accept electrons and can decrease their oxidation number and hence, all these act as oxidation agent
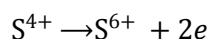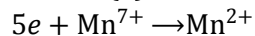
$$\underset{HNO_3}{\overset{+5}{}} \rightarrow \underset{NO_2 \text{ or } NO}{\overset{+4 \quad +2}{}}$$

$$\underset{Cl_2}{\overset{0}{}} \rightarrow 2Cl^-$$

$$\underset{FeCl_3}{\overset{+3}{}} \rightarrow \underset{FeCl_2}{\overset{+2}{}}$$

6   (b)

Meq.of I_2 = Meq.of $Na_2S_2O_3 = 40 \times 0.11$

$\therefore \dfrac{w}{254/2} \times 1000 = 40 \times 0.11$

$w_{I_2} = 0.558$ g

7   (a)

$5e + Mn^{7+} \rightarrow Mn^{2+}$
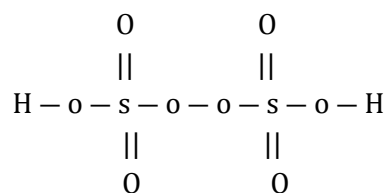
$S^{4+} \rightarrow S^{6+} + 2e$

8   (c)

Meq.of $HNO_3 = 1000 \times 2 = 2000$

$\therefore \dfrac{w}{63/3} \times 1000 = 2000$

$\therefore w = 42$ g

9   **(c)**

The chemical structure of $H_2S_2O_8$ is as follows

$$
\begin{array}{ccc}
O & & O \\
\| & & \| \\
H-o-s-o-o-s-o-H \\
\| & & \| \\
O & & O
\end{array}
$$

$$\underset{\text{for H}}{2\times(+1)} + \underset{\text{for S}}{2\times x} + \underset{\text{for O}}{6\times(-2)} + \underset{\text{for O}\_\_O}{2\times(-1)} = 0$$

$+2 + 2x - 12 - 2 = 0$

$2x = +12$

$$x = +6$$

10   **(a)**

$2e + M^{7+} \rightarrow M^{5+}$, M^{7+} is oxidation; M^{+5} is reductant.

11   **(a)**

$S^{2-} \rightarrow S^0 + 2e$

$\therefore E = M/2 = \dfrac{34}{2} = 17$

12   **(a)**

$Mn^{7+} + 5e \rightarrow Mn^{2+}$.
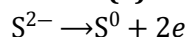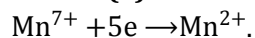
13   **(b)**

In N_3H

Oxidation number of $N = -\dfrac{1}{3}$

In N_2O_4 Oxidation number of $N = +4$

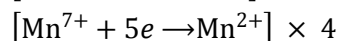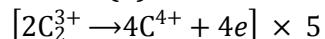In NH_2OH Oxidation number of $N = -1$

In NH_3 Oxidation number of $N = -3$

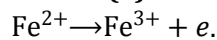Hence, in N_2O_4 the oxidation number of nitrogen is highest.

14   **(b)**

Starch $+ I_2 \rightarrow$ Blue

15   **(d)**

$\left[2C_2^{3+} \rightarrow 4C^{4+} + 4e \right] \times 5$

$\left[Mn^{7+} + 5e \rightarrow Mn^{2+} \right] \times 4$

16   **(a)**

$Fe^{2+} \rightarrow Fe^{3+} + e$.

17   **(d)**

$3 \times a + (+1) = 0$

$\therefore a = -1/3$

18   **(a)**

Mole of O_2 formed $= \dfrac{3}{24} = \dfrac{1}{8}$

$\therefore$ Mole of $H_2O_2 = \dfrac{1}{8} \times 2 = \dfrac{1}{4}$

$\therefore 100 \times X = \dfrac{1}{4} \times 1000 \ (m \ \text{mole} = \text{M} \times V)$

$\therefore X = 2.5$

19   **(c)**

$2CuSO_4 + 4KI \longrightarrow Cu_2I_2 + 2K_2SO_4 + I_2$

20   **(d)**
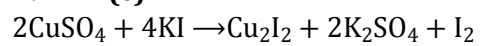
$+2$ and $+3$

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	A	C	B	A	D	B	A	C	C	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	A	A	B	B	D	A	D	A	C	D