

# DPP

DAILY PRACTICE PROBLEMS

CLASS : XII<sup>th</sup>  
DATE :

SOLUTION

SUBJECT : CHEMISTRY  
DPP NO. : 10

## Topic :-REDOX REACTIONS

1 (a)

Meq. of SnCl<sub>2</sub> = Meq. of HgCl<sub>2</sub>

$$0.5 \times V = 600 \times 0.1$$

$$\therefore V = 120 \text{ mL}$$

2 (a)

Meq. of FeSO<sub>4</sub> = Meq. of KMnO<sub>4</sub> = 200 × 1

$$\therefore \frac{w}{152/1} \times 1000 = 200$$

$$\therefore w = 30.4 \text{ g}$$

3 (a)

Meq. of Fe = Meq. of K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>

$$\frac{w}{56/1} \times 1000 = 1 \times 0.1055$$

$$\therefore w = 5.9 \times 10^{-3} \text{ g} = 5.9 \text{ mg}$$

4 (d)

[Mn<sup>7+</sup> + 5e → Mn<sup>2+</sup>] × 3

Fe<sup>2+</sup> → Fe<sup>3+</sup> + e

(C<sup>3+</sup>)<sub>2</sub> → 2C<sup>4+</sup> + 2e

[FeC<sub>2</sub>O<sub>4</sub> → Fe<sup>3+</sup> + 2C<sup>4+</sup> + 3e] × 5

$$\therefore 3 \text{ mole MnO}_4^- \equiv 5 \text{ mole FeC}_2\text{O}_4$$

5 (c)

The sum of oxidation number is zero.

6 (c)

Electrons released at anode = Electrons used at cathode.

8 (c)

Cr<sub>2</sub><sup>6+</sup> + 6e → 2Cr<sup>3+</sup>

9 (b)

Mn<sup>7+</sup> + 5e → Mn<sup>2+</sup>

Fe<sup>2+</sup> → Fe<sup>3+</sup> + e

10 (d)

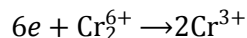
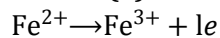
Loss of an electron or increase in oxidation number is oxidation process.



11 (c)

Due to inert pair effect which is more predominant in T1.

12 (a)



Thus, electrons involved per Cr atom = 3.

13 (a)

Let oxidation state of Cr in  $K_2Cr_2O_7 = x$

$$(+1 \times 2) + 2x + (-2 \times 7) = 0$$

$$\text{or } +2 + 2x - 14 = 0$$

$$\therefore x = +6$$

Let oxidation state of Cr in  $K_2CrO_4 = x$

$$+1 \times 2 + x + (-2 \times 4) = 0$$

$$2 + x - 8 = 0$$

$$x = 6$$

$\therefore$  Change in oxidation state of Cr is zero when it changes from

$K_2Cr_2O_7$  to  $K_2CrO_4$ .

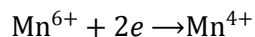
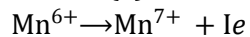
14 (b)

In  $HNO_2$ , the oxidation number of N is + 3 which is less than the maximum possible, oxidation number *ie*, + 5 and more than the minimum possible oxidation number *ie*, - 3, therefore, it can act both as an oxidizing as well as reducing agent

15 (a)

Ox. No. of N in  $N_3H, NH_2OH, N_2H_4, NH_3$  are  $-\frac{1}{3}, -1, -2, -3$  respectively.

16 (a)



17 (b)

$FeCl_3$  cannot be oxidised because Fe has highest oxidation state.

18 (d)

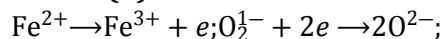
Meq. of  $KMnO_4 =$  Meq. Of  $Cl_2$

$$1 \times 5 \times 1000 = \frac{w}{(71/2)} \times 1000$$

$$\therefore w = 177.5 \text{ g}$$

$$\therefore V_{Cl_2} = 56 \text{ litre at NTP}$$

19 (d)



$H_2O_2$  acts as oxidant.

20 (b)

Let oxidation state of I in  $IPO_4 = 'x'$ .

$$x + (-3) = 0$$

( $\text{PO}_4^{3-}$  ion has charge equal to  $-3$ )

$$x = +3$$

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

PE