

DPP

DAILY PRACTICE PROBLEMS

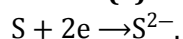
CLASS : XIIth
DATE :

SOLUTION

SUBJECT : CHEMISTRY
DPP NO. : 4

Topic :-REDOX REACTIONS

1 (a)



2 (d)

All terms have same meaning.

3 (b)

The sum of the oxidation states is always zero in neutral compound.

The oxidation state of X, Y, and Z are +2, +5 and -2 respectively.

1. In X_2YZ_6

$$2 \times 2 + 5 + 6(-2) \neq 0$$

2. In XY_2Z_6

$$2 + 5 \times 2 + 6(-2) = 0$$

3. In XY_5

$$2 + 5 \times 5 \neq 0$$

4. In X_3YZ_4

$$3 \times 2 + 5 + 4(-2) \neq 0$$

Hence, the formula of the compound is XY_2Z_6 .

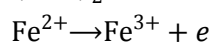
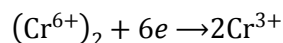
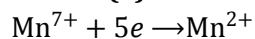
4 (c)

F is most electronegative element and thus, has -1 ox.no.

$$\text{Thus, } a + (-2) = 0$$

$$\therefore a = +2$$

5 (a)



$$\text{Meq. of } Fe^{2+} = \text{Meq. of } KMnO_4 = \text{Meq. of } K_2Cr_2O_7$$

$$1 \times 5 \times V_{KMnO_4} = 1 \times 6 \times V_{K_2Cr_2O_7}$$

P E

$$\therefore V_{\text{KMnO}_4} = \frac{6}{5} V_{\text{K}_2\text{Cr}_2\text{O}_7}$$

6 (b)

$$\text{Meq. of KMnO}_4 \text{ in 1 mL} = \text{Meq. of Fe} = \frac{5 \times 10^{-3}}{56/1} \times 10^3$$

$$\therefore \text{Meq. if KMnO}_4 \text{ in 250 mL} = \frac{5 \times 250}{56/1}$$

$$\text{Thus, } \frac{w}{31.6} \times 1000 = \frac{5 \times 250}{56/1} = 0.7 \text{ g}$$

7 (c)

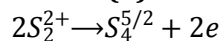
Let the oxidation number of Cr in K_2CrO_4 is x .

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

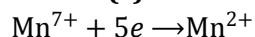
$$2 + x - 8 = 0$$

$$x = +6$$

8 (b)



9 (c)



$$\therefore E = M/5$$

10 (c)

Let the oxidation number of Cr be x

\therefore For $\text{K}_2\text{Cr}_2\text{O}_7$

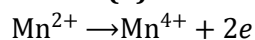
$$+1 \times 2 + 2x + 7(-2) = 0$$

$$2 + 2x - 14 = 0$$

$$2x = 12$$

$$x = 6$$

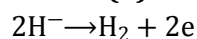
11 (b)



12 (c)

$\text{S}^{4+} + 4e \rightarrow \text{S}^0$; SO_2 is reduced and thus, oxidant.

13 (b)



14 (b)

Let the oxidation number of carbonyl carbon in methanal (HCHO) and methanoic acid (HCOOH) is x and y is respectively.

In HCHO ,

$$2(+1) + x + (-2) = 0$$

$$2 + x - 2 = 0$$

$$x = 0$$

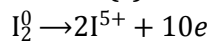
In HCOOH ,

$$2(+1) + y + 2(-2) = 0$$

$$2 + y - 4 = 0$$

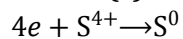
$$y = 2$$

15 (c)



$$\therefore E = \frac{M}{10} = \frac{254}{10} = 25.4$$

16 (c)

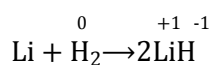


$$\therefore E_{SO_2} = \frac{64}{4} = 16$$

17 (a)



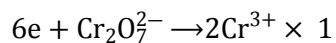
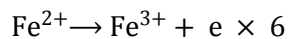
18 (a)



Oxidation number of hydrogen is decreasing from 0 to -1 . So, H_2 is acting as oxidising agent in this reaction.

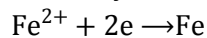
19 (d)

Mohr's salt is $FeSO_4 \cdot (NH_4)_2 SO_4 \cdot 6H_2O$



20 (a)

1 faraday of electricity involves change of one mole electron.



PE

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

PE