

## DPP

DAILY PRACTICE PROBLEMS

CLASS : XI<sup>th</sup>

DATE :

**Solutio**

SUBJECT : CHEMISTRY

DPP No. : 1

### Topic :- SOME BASIC CONCEPTS OF CHEMISTRY

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(c)

$$\text{g atom of N} = \frac{28}{14} = 2$$

$$\text{g atom of oxygen} = \frac{80}{16} = 5$$

3

(d)

$$1 \text{ mole Ca}^{2+} = 1 \text{ mole CaCO}_3 = 100 \text{ g}$$

Rating = mg of CaCO<sub>3</sub> needed per g chelating agent (mol. wt. = 380)

$$= \frac{100 \times 10^3}{380} = 263 \text{ mg}$$

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(c)

Meq. of HCl = Meq. of CaCO<sub>3</sub>;

$$\therefore N \times 50 = \frac{1}{50} \times 1000 \text{ or } N = 0.4$$

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(a)

Weight of NH<sub>3</sub> = 4.25g

We know that number of atoms in 1 mole or 17 g of

$$\text{NH}_3 = 4 \times 6.023 \times 10^{23}$$

∴ Number of atom in 4.25 g of

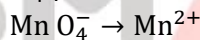
$$\text{NH}_3 = \frac{4 \times 6.023 \times 10^{23}}{17} \times 4.25$$

$$= 6.023 \times 10^{23}$$

7

(c)

In acidic medium, MnO<sub>4</sub><sup>-</sup> is reduced to Mn<sup>2+</sup>  
+7



Change in oxidation number = 7 - 2 = 5

Solution X      Solution Y

$$N_1 V_1 = N_2 V_2$$

For Fe<sup>2+</sup>      For MnO<sub>4</sub><sup>-</sup>

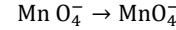
$$N \times 25 = 5M \times V \quad [\because \text{For MnO}_4^-, N = 5M \text{ in acidic medium}]$$

$$25N = 5M \times 20$$

$$25N = 100M$$

...(i)

In neutral medium, MnO<sub>4</sub><sup>-</sup> is reduced to MnO<sub>2</sub>



Change in oxidation number = 7 - 4 = 3

Solution X      Solution Y

$$N_1 V_1 = N_2 V_2$$

For Fe<sup>2+</sup>      For MnO<sub>4</sub><sup>-</sup>

$$25 \times N = 3M \times V$$

$$[\because \text{For MnO}_4^-, N = 3M \text{ in neutral medium}]$$

$$25N = 3M \times V$$

...(ii)

From Eqs (i) and (ii)



$$100M = 3M \times V$$

$$V = \frac{100}{3} = 33.3 \text{ mL}$$

8

(a)

$$\therefore 4 \text{ u} = 1 \text{ He atom}$$

$$\therefore 1 \text{ u} = \frac{1}{4} \text{ He atom}$$

$$\text{Hence, } 100 \text{ u} = \frac{1 \times 100}{4} = 25 \text{ atoms}$$

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(b)

$$\text{Mass} = 0.8 \times 1 = 0.8 \text{ g}$$

$$\therefore 180 \text{ g C}_6\text{H}_{12}\text{O}_6 \text{ has } 24 \text{ atom}$$

$$\therefore 0.8 \text{ g C}_6\text{H}_{12}\text{O}_6 \text{ has } \frac{24 \times 0.8 \times N}{180} = 6.42 \times 10^{22}$$

10

(a)

$$\text{Millimole of H}_2\text{SO}_4 = \frac{1}{10} \times 1000 = 100$$

$$\therefore \frac{w}{98} \times 1000 = 100$$

$$\therefore w = 9.8 \text{ g}$$

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(b)

Average atomic weight

$$= \frac{54 \times 5 + 56 \times 90 + 57 \times 5}{100} = 55.95$$

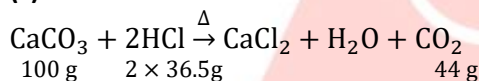
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(a)

$$m = \frac{0.5 \times 1000}{500} = 1$$

14

(c)



1 L of 1 N HCl means = 36.5 g HCl

Here, HCl is limiting reagent. Therefore, it reacts with 50 g  $\text{CaCO}_3$  and produces 22 g  $\text{CO}_2$ .

15

(b)

$$\text{The mass of KI in 2g salt} = \frac{2 \times 1}{100} = 0.02 \text{ g}$$

$$= \frac{0.02}{39+127} \text{ mol}$$

$$= \frac{0.02}{166} \times 6.02 \times 10^{23} \text{ ions}$$

$$= 7.2 \times 10^{19} \text{ ions}$$

16

(a)

$$22.4 \text{ L} = 17 \text{ g}$$

$$11.2 \text{ L} = \frac{17}{22.4} \times 11.2 = 8.5 \text{ g}$$

17

(b)

Meq. of acid. Meq. of NaOH

$$\frac{0.52}{E} \times 1000 = 100 \times 0.1$$

$$\therefore E = 52$$

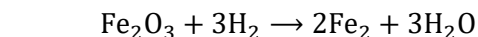
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(d)

In 100 tons of  $\text{Fe}_2\text{O}_3$ , pure  $\text{Fe}_2\text{O}_3$

$$= 100 - \frac{100 \times 20}{100}$$

$$= 80 \text{ tons}$$



$$2 \times 56 + 48 \qquad 2 \times 56$$

$$160 \qquad 2 \times 56$$



∴ 160 g Fe<sub>2</sub>O<sub>3</sub> gives Fe = 2 × 56 g  
 ∴ 80 tons Fe<sub>2</sub>O<sub>3</sub> will give Fe =  $\frac{2 \times 56 \times 80}{160}$   
 = 56 tons

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(c)

Meq. Of Ba(OH)<sub>2</sub> = Meq. of HCl

$$N \times 25 = 0.1 \times 35$$

$$N_{\text{Ba(OH)}_2} = \frac{3.5}{25}$$

$$\therefore M_{\text{Ba(OH)}_2} = \frac{3.5}{25 \times 2} = 0.07$$

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(b)

1000 g H<sub>2</sub>O = 1000 cm<sup>3</sup> H<sub>2</sub>O

$\frac{1000}{18}$  mole H<sub>2</sub>O = 1000 cm<sup>3</sup> H<sub>2</sub>O

$\frac{1000}{18} \times 6.023 \times 10^{23}$  molecule of H<sub>2</sub>O = 1000 cm<sup>3</sup> H<sub>2</sub>O

∴ 1 molecule of H<sub>2</sub>O =  $3 \times 10^{-23}$  cm<sup>3</sup>

### ANSWER-KEY

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

**SMARTLEARN  
COACHING**