

DPP

DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : CHEMISTRY
DPP No. : 1

Topic :- SOME BASIC CONCEPTS OF CHEMISTRY

2 (c)

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

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

3 (d)

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

Rating = mg of CaCO_3 needed per g chelating agent (mol. wt. = 380)

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

5 (c)

Meq. of HCl = Meq. of CaCO_3 ;

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

6 (a)

Weight of $\text{NH}_3 = 4.25 \text{ g}$

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

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

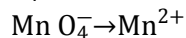
\therefore Number of atom in 4.25 g of

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

7 (c)

In acidic medium, MnO_4^- is reduced to Mn^{2+}

+7



Change in oxidation number = $7 - 2 = 5$

Solution X Solution Y

$$N_1V_1 = N_2V_2$$

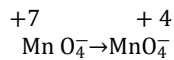
For Fe^{2+} For MnO_4^-

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

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

$$25N=100M \quad \dots(i)$$

In neutral medium, MnO_4^- is reduced to MnO_2



Change in oxidation number = $7 - 4 = 3$

Solution X Solution Y

$$N_1V_1 = N_2V_2$$

For Fe^{2+} For MnO_4^-

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

[\because For MnO_4^- , $N = 3M$ in neutral medium]

$$25N = 3M \times V \quad \dots(ii)$$

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)

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

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

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

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(a)

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

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

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

11

(b)

Average atomic weight

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

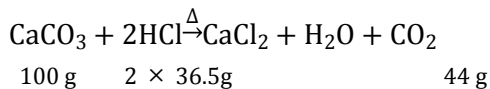
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(a)

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

14

(c)



1 L of 1 N HCl means = 36.5 g HCl

Here, HCl is limiting reagent. Therefore, it reacts with 50 g CaCO_3 and produces 22 g CO_2 .

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(b)

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

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

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

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

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

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

$$\therefore E = 52$$

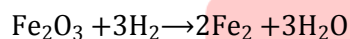
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(d)

In 100 tons of Fe_2O_3 , pure Fe_2O_3

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

$$= 80 \text{ tons}$$



$$2 \times 56 + 48$$

$$2 \times 56$$

$$160$$

$$2 \times 56$$

$$\therefore 160 \text{ g Fe}_2\text{O}_3 \text{ gives Fe} = 2 \times 56 \text{ g}$$

$$\therefore 80 \text{ tons Fe}_2\text{O}_3 \text{ will give Fe} = \frac{2 \times 56 \times 80}{160}$$

$$= 56 \text{ tons}$$

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(c)

Meq. Of $\text{Ba}(\text{OH})_2 = \text{Meq. of HCl}$

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

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

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

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(b)

$$1000 \text{ g H}_2\text{O} = 1000 \text{ cm}^3 \text{ H}_2\text{O}$$

$$\frac{1000}{18} \text{ mole H}_2\text{O} = 1000 \text{ cm}^3 \text{ H}_2\text{O}$$

$$\frac{1000}{18} \times 6.023 \times 10^{23} \text{ molecule of H}_2\text{O} = 1000 \text{ cm}^3 \text{ H}_2\text{O}$$

$$\therefore 1 \text{ molecule of H}_2\text{O} = 3 \times 10^{-23} \text{ cm}^3$$

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

PE