DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : CHEMISTRY
DPP No. : 5

Topic :- SOME BASIC CONCEPTS OF CHEMISTRY

1 **(d)**

Mole of Ca $= \frac{30}{40}$ (the largest value)

2 **(a)**

Meq. of NaOH $= 0.1\,V$

Meq. of $CH_3COOH = 0.1\,V$

$\therefore$Meq. of CH_3COONa formed $= 0.1\,V$

The solution will be alkaline due to hydrolysis of CH_3COONa.

3 **(b)**

According to law of conservation of mass,

Mass of reactants = mass of products

$\therefore\ 6.3+15.0=18.0+x$

Or $x = 21.3 - 18.0 = 3.3\ g$

4 **(d)**

$$\text{Mole of glucose} = \frac{6.02 \times 10^{22}}{6.02 \times 10^{23}} = 0.1$$

$$\therefore \quad M_{\text{glucose}} = \frac{0.1 \times 1000}{50} = 2$$

5 **(b)**

$M > m$ provided d solvent $\lesssim 1$

6 **(b)**

$$m = \frac{4}{40 \times 0.996} = 0.1$$

7 **(c)**

$$PbO + 2HCl \longrightarrow PbCl_2 + H_2O$$

Eq. at $t = o$	$\frac{6.5 \times 2}{224}$	$\frac{3.2}{36.2}$	0	0
	=0.058	0.088	0	0
Eq. after reaction	0	0.030	0.058	0.058

$\therefore$ Mole of $PbCl_2$ formed $= \frac{0.058}{2} = 0.029$

8 **(a)**

Meq. of $H_2SO_4 = 50 \times 0.1 \times 2 = 10$;

Meq. of NaOH $= 50 \times 0.1 = 5$

$\therefore$Meq. of H_2SO_4 left = 10-5;

Solution is acidic.

9 **(a)**

18 mL H_2O or 18 g H_2O has $10N$ electrons.

10 **(b)**

The compound is $C_4H_8O_2$;

Mol. wt. = 88

$\therefore$ Vapour density = 44

11 **(b)**

Meq. of oxalic acid = Meq. of NaOH:

$\therefore \frac{w}{126/2} \times 1000 = 1000 \times 1$;

$\therefore \quad w = 63$ g

12 **(b)**

Mole of sucrose $= \frac{\text{mass of sucrose (in gram)}}{\text{molecular weight of sucrose}}$

$= \frac{25.6}{342.3} = 0.0747882$

Formula of sucrose $= C_{12}H_{22}O_{11}$

Number of H atoms in 1 mole of sucrose

$= 22 \times 6.023 \times 10^{23}$

Number of H atoms in 0.0747882 mole of sucrose

$= 22 \times 6.023 \times 10^{23} \times 0.074788$

$= 9.9 \times 10^{23}$

13 **(c)**

Liquid HCl is 100% pure

$\therefore M = \frac{100 \times 1.17 \times 1000}{36.5 \times 100} = 32.05$

14 **(a)**

Meq. of NaOH=Meq. of acid;

$20 \times 0.4 = 40 \times N$;

$\therefore \quad N = 0.2 \quad$ or $\quad M = 0.1$

15 **(c)**

Mass of solute = 120 g

Mass of water = 1000 g

Mass of solution = 1120 g

$\therefore$ Volume of solution $\left(\frac{m}{d}\right) = \frac{1120}{1.15}$ mL

Milli mole $= M \times V_{\text{in mL}}$

$\frac{120}{60} \times 1000 = M \times \frac{1120}{1.15}$

$\therefore \quad M = 2.05$

16 **(a)**

Eq. wt. $= \frac{\text{mol. wt.}}{\text{acidity}}$

NH_3 is monoacidic base.

17 **(b)**

$2MnO_4^- + 5C_2O_4^{2-} + 16H^+ \rightarrow 2Mn^{2+} + 10CO_2 + 8H_2O$

20 mL of 0.1 M $KMnO_4 = 20 \times 0.1 = 2$m mol

$\because$ 2 mmol of $KMnO_4 \equiv 5$ mmol of $C_2O_4^{2-}$

50 mL of 0.1 M $H_2C_2O_4 = 50 \times 0.1 = 5$mmol

Hence, 20 mL of 0.1 M $KMnO_4$

$\equiv 50$ mL of 0.1 M $H_2C_2O_4$

18 **(c)**

Solutions of known strength are prepared by dissolving solute in solvent in a measuring flask.

19 **(a)**

Let the percent abundance of lighter isotope is x.

$\therefore$ Atomic mass, $z = \frac{x(z-1) + (100-x)(z+2)}{z + 100 - x}$

$3x = 200$ or $x = 66.6\%$

20 **(a)**

$$\frac{\text{Wt.of metal oxide}}{\text{Wt.of metal chloride}} = \frac{\text{Eq.wt.of metal} + \text{Eq.wt.of oxide}}{\text{Eq.wt.of metal} + \text{Eq.wt.of chloride}}$$

$$\frac{3}{5} = \frac{E+8}{E+35.5}$$

$E = 33.25$

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