DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

Solutions

SUBJECT : CHEMISTRY
DPP No. : 8

Topic :- SOME BASIC CONCEPTS OF CHEMISTRY

1 **(b)**

It remains unchanged.

2 **(d)**

Given, % of C=54.55%

% of H=9.09%

%of O=36.36%

Element	%	At. no.	Ratio of atoms	Simplest ration
C	54.55	12	54.55/12=4.54	4.54/2.27=2
H	9.09	1	9.09/1=9.09	9.09/2.27=4
O	36.06	16	36.16/16=2.27	2.27/2.27=1

∴ Empirical formula is C_2H_4O.

3 **(a)**

$_6C^{12}$ contains 6 N protons, 6 N electrons and 6 N neutrons.

4 **(d)**

Meq. of H_3PO_4 = Meq. of $Ca(OH)_2$;

$0.25 \times 3 \times V = 25 \times 0.03 \times 2$

∴ $V = 2$ mL

5 **(a)**

$2PH_3(g) \longrightarrow 2P(s) + 3H_2(g)$

100	0	0	Before dissociation
0	-	150	After dissociation

6 **(c)**

$m = \dfrac{\text{moles of } CH_3COOH}{\text{wt.of solvent in kg}} = \dfrac{2.05 \times 1000}{897} = 2.285$

wt. of solvent = wt. of solution-wt. of solute

$= [1000 \times 1.02 - 2.05 \times 60] = 897$ g

7 **(c)**

Meq. of NaOH = Meq. of HCl

$100 \times 0.1 = 10$

$\therefore \ \frac{wt.}{40} \times 1000 = 10$; $\quad \therefore w_{NaOH} = 0.4$g

8 **(a)**

Meq. of $Na_2CO_3 = 250 \times 0.25 \times 2 = 125$

$\therefore \quad \frac{w}{53} \times 1000 = 125$

$\therefore \quad w = 6.625$

9 **(a)**

$\frac{n}{n+N} = 0.2;$

$\therefore \quad \frac{N}{n+N} = 0.8$

Thus, $\frac{n}{N} = \frac{1}{4}$

or $\frac{n \times 18 \times 1000}{W \times 1000} = \frac{1}{4}$

or $\frac{\text{molality} \times 18}{1000} = \frac{1}{4}$

10 **(a)**

$\%\text{by weight} = \dfrac{\text{weight of solute}}{\text{weight of solution}} \times 100$

or $20 = \frac{w}{(w+60)} \times 100$

or $w = 15$g

11 **(b)**

$C_3H_8 + 5\ O_2 \longrightarrow 3CO_2 + 4H_2O$

1 mol or 22.4 L C_3H_8 at STP requires 5 mole or 5×22.4 O_2 at STP.

12 **(d)**

22.4 litre refers for mol. wt.

$\therefore$ 11.2 litre refers for $\frac{\text{mol. wt.}}{2} =$ vapour density.

13. **(c)**

$N = \frac{10 \times 1000}{60 \times 100} = 1.66$

14 **(c)**

$K_2S_2O_8\ (aq) + 2KI\ (aq) \rightarrow 2K_2SO_4(aq) + I_2(aq)$

In this reaction one mole of $K_2S_2O_8$ reacts with 2 moles of KI,

Hence the stoichiometry of this reaction is 1:2.

15 **(d)**

$\text{Mole fraction} = \dfrac{\text{moles of alcohol}}{\text{total moles}} = \dfrac{2}{2+6} = \dfrac{2}{8}$

$= 0.25$

16 **(b)**

	$Ba(HO)_2$	$+ 2HCl$	$\longrightarrow$	$BaCl_2$	$+2H_2O$
meq.	$30 \times 0.1 \times 2$	20×0.05		0	0
	$=6$	$=1$			
	5	0		1	1

$\therefore \quad [OH^-] = \frac{5}{50} = 0.1$ M

17 **(a)**

$NaHCO_3$ being an acid salt will react with NaOH as,

$NaOH + NaHCO_3 \longrightarrow Na_2CO_3 + H_2O$

18 **(b)**

Eq. of metal oxide = Eq. of oxygen

$$\frac{100}{E} = \frac{20}{8} \qquad \therefore E = 40$$

19 **(b)**

According to the equation,

$NaCl + AgNO_3 \longrightarrow NaNO_3 + AgCl$

No. of moles of NaCl $= \frac{4.77}{58.5} = 0.08154$

No. of moles of $AgNO_3 = \frac{5.77}{170} = 0.03394$

Thus, $AgNO_3$ is the limiting reagent in the reaction.

Now, applying POAC for Ag (as Ag atoms are conserved in the reaction)

Moles of Ag in $AgNO_3$ = moles of Ag in AgCl

Or $1 \times$ moles of $AgNO_3 = 1 \times$ moles of AgCl

Or 0.03394×143.4(for AgCl) $= 4.87$g

20 **(d)**

100 ML O_2,NH_3 and $CO_2 = \frac{0.1}{22.4} = \frac{1}{224}$ mol

For O_2no. of molecules $= \frac{1}{224} \times 6.023 \times 10^{23}$

For NH_3 no. of molecules $= \frac{1}{224} \times 6.023 \times 10^{23}$

For CO_2 no. of molecules $= \frac{1}{224} \times 6.023 \times 10^{23}$

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