DPP –10 [Equivalent Concept]

Chapter: Some Basic Concepts of Chemistry

"The difference between average and confident students is assignment completion"

TYPE 1 : Valence Factor (n-factor) of Acids, Bases & Salts

Q.1 **The valency factor of CH_3COOH is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.2 **The valency factor of $Ca(OH)_2$ is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.3 **The valency factor of CsOH is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.4 **The valency factor of $Al(OH)_3$ is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.5 **The valency factor of $CaCO_3$ is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.6 **The valency factor of NaH_2PO_4 is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.7 **The valency factor of H_3BO_3 is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.8 **The valency factor of $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot {}_{24}H_2O$ (alum) is**

(1) 2 (2) 4 (3) 6 (4) 8

Q.9 **The n-factor of H_3PO_4 in the reaction:**

$NaOH + H_3PO_4 \longrightarrow NaH_2PO_4 + H_2O$

(1) 1 (2) 2 (3) 3 (4) 4

Q.10 The n-factor of H_2SO_4 in the reaction:
$NaOH + H_2SO_4 \longrightarrow NaHSO_4 + H_2O$

(1) 1 (2) 2 (3) 3 (4) 4

Q.11 The n-factor of $Ca(OH)_2$ in the reaction:
$Ca(OH)_2 + HCl \longrightarrow Ca(OH)Cl + H_2O$

(1) 1 (2) 2 (3) 3 (4) 4

Q.12 The n-factor of Na_2CO_3 in the reaction:
$Na_2CO_3 + HCl \longrightarrow NaHCO_3 + NaCl$

(1) 1 (2) 2 (3) 3 (4) 4

Q.13 The n-factor of Na_2CO_3 in the reaction:
$Na_2CO_3 + HCl \longrightarrow NaCl + H_2O + CO_2$

(1) 1 (2) 2 (3) 3 (4) 4

Q.14 The n-factor of H_3PO_4 in the reaction:
$NaOH + H_3PO_4 \longrightarrow Na_2HPO_4 + H_2O$ (unbalanced)

(1) 1 (2) 2 (3) 3 (4) 4

Q.15 The n-factor of H_3PO_4 in the reaction:
$NaOH + H_3PO_4 \longrightarrow Na_3PO_4 + H_2O$ (unbalanced)

(1) 1 (2) 2 (3) 3 (4) 4

Q.16 The n-factor of $Al(OH)_3$ in the reaction:
$Al(OH)_3 + HCl \longrightarrow Al(OH)_2Cl + H_2O$

(1) 1 (2) 2 (3) 3 (4) 4

Q.17 The valency factor of Na_2CO_3 in the reaction:
$2NaOH + H_2SO_4 \longrightarrow Na_2SO_4 + 2H_2O$
(v.f. for base NaOH)

(1) 1 (2) 2 (3) 3 (4) 4

Q.18 The valency factor of H_2SO_4 in the reaction:
$2NaOH + H_2SO_4 \longrightarrow Na_2SO_4 + 2H_2O$

(1) 1 (2) 2 (3) 3 (4) 4

Q.19 **The n-factor of $Fe_2(SO_4)_3$ ($2Fe^{3+} + 3SO_4^{2-}$) is**

(1) 2 (2) 3 (3) 6 (4) 9

Q.20 **The n-factor of $FeSO_4 \cdot {}_7H_2O$ is**

(1) 1 (2) 2 (3) 3 (4) 4

Q.21 **The molar ratio in which $Ba_3(PO_4)_2$ and $AlCl_3$ would react is**

(1) 1 : 2 (2) 2 : 1 (3) 1 : 3 (4) 3 : 1

TYPE 2 : Equivalent Weight of Acids, Bases & Salts

Q.22 **Molecular weight of a dibasic acid is W. Its equivalent weight will be**

(1) $\frac{W}{2}$ (2) $\frac{W}{3}$ (3) W (4) $3W$

Q.23 **Molecular weight of a tribasic acid is W. Its equivalent weight will be**

(1) $\frac{W}{2}$ (2) $\frac{W}{3}$ (3) W (4) $3W$

Q.24 **Equivalent weight of H_3PO_4 in the reaction $H_3PO_4 + OH^- \longrightarrow H_2PO_4^- + H_2O$ is**

(1) 98 (2) 49 (3) 32.67 (4) 24.5

Q.25 **Equivalent weight of H_3PO_4 in the reaction $H_3PO_4 + 2OH^- \longrightarrow HPO_4^{2-} + 2H_2O$ is**

(1) 98 (2) 49 (3) 32.67 (4) 24.5

Q.26 **Equivalent weight of H_3PO_4 in the reaction $H_3PO_4 + 3OH^- \longrightarrow PO_4^{3-} + 3H_2O$ is**

(1) 98 (2) 49 (3) 32.67 (4) 24.5

Q.27 **A, E, M and n are the atomic weight, equivalent weight, molecular weight and valency of an element. The correct relation is**

(1) $A = E \times n$
(2) $A = \frac{M}{E}$
(3) $A = \frac{M}{n}$
(4) $M = A \times n$

Q.28 **The equivalent weight of H_3BO_3 is (molecular weight M)**

(1) M (2) $\frac{M}{2}$ (3) $\frac{M}{3}$ (4) $\frac{M}{6}$

Q.29 The equivalent weight of H_3PO_2 is (molecular weight M)

(1) M (2) $\frac{M}{2}$ (3) $\frac{M}{3}$ (4) $\frac{M}{6}$

Q.30 The equivalent weight of $FeSO_4 \cdot (NH_4)_2SO_4 \cdot {}_6H_2O$ (Mohr's salt) is (molecular weight M)

(1) $\frac{M}{2}$ (2) $\frac{M}{4}$ (3) $\frac{M}{6}$ (4) M

Q.31 The equivalent weight of $K_2SO_4 \cdot Cr_2(SO_4)_3 \cdot {}_{24}H_2O$ (chrome alum) is (molecular weight M)

(1) $\frac{M}{2}$ (2) $\frac{M}{4}$ (3) $\frac{M}{6}$ (4) $\frac{M}{8}$

Q.32 The equivalent weight of Al_2O_3 is (molecular weight M)

(1) $\frac{M}{2}$ (2) $\frac{M}{4}$ (3) $\frac{M}{6}$ (4) $\frac{M}{3}$

Q.33 The equivalent weight of HNO_3 is (molecular weight M)

(1) M (2) $\frac{M}{2}$ (3) $\frac{M}{3}$ (4) $\frac{M}{4}$

Q.34 The equivalent weight of $MgCO_3$ is (molecular weight M)

(1) $\frac{M}{2}$ (2) M (3) $\frac{M}{4}$ (4) $\frac{M}{6}$

Q.35 The equivalent weight of $CaSO_4$ is (molecular weight M)

(1) $\frac{M}{2}$ (2) M (3) $\frac{M}{4}$ (4) $\frac{M}{6}$

Q.36 Choose the incorrect match regarding equivalent weight

(1) H_3PO_2 — M
(2) H_3PO_4 — $\frac{M}{3}$
(3) H_3BO_3 — $\frac{M}{3}$
(4) H_2SO_4 — $\frac{M}{2}$

Q.37 The equivalent weight of NaCl is

(1) 29.25 (2) 58.5 (3) 117 (4) 14.6

Q.38 The equivalent weight of K_2SO_4 is

(1) 87 (2) 174 (3) 43.5 (4) 58

Q.39 The equivalent weight of $Ca_3(PO_4)_2$ is

(1) 51.67 (2) 103.33 (3) 155 (4) 310

TYPE 3 : Equivalent Weight of Elements (from Oxide/Chloride data)

Q.40 In a metal oxide 32% oxygen is present. What will be equivalent mass of metal?

(1) 17 (2) 34 (3) 32 (4) 52

Q.41 A metal oxide contains 60% metal. The equivalent weight of metal is

(1) 12 (2) 60 (3) 40 (4) 24

Q.42 The oxide of a metal has 32% oxygen. Its equivalent weight would be

(1) 34 (2) 32 (3) 17 (4) 16

Q.43 When an element forms an oxide in which oxygen is 20% of the oxide by mass, the equivalent mass of the element will be

(1) 32 (2) 40 (3) 60 (4) 128

Q.44 A_1 g of an element gives A_2 g of its oxide. The equivalent mass of the element is

(1) $\frac{A_2 - A_1}{A_1} \times 8$
(2) $\frac{A_2 - A_1}{A_2} \times 8$
(3) $\frac{A_1}{A_2 - A_1} \times 8$
(4) $(A_2 - A_1) \times 8$

Q.45 x g of the metal gave y g of its oxide. Hence equivalent weight of the metal is

(1) $\frac{y - x}{x} \times 8$
(2) $\frac{x}{y - x} \times 8$
(3) $\frac{x}{y} \times 8$
(4) $\frac{x + y}{x} \times 8$

Q.46 Sulphur forms two chlorides S_2Cl_2 and SCl_2. The equivalent mass of sulphur in SCl_2 is 16. The equivalent weight of sulphur in S_2Cl_2 is

(1) 8 (2) 16 (3) 32 (4) 64

Q.47 If equivalent weight of S in SO_2 is 8, then equivalent weight of S in SO_3 is

(1) $\frac{8 \times 2}{3}$
(2) $\frac{8 \times 3}{2}$
(3) $8 \times 2 \times 3$
(4) $\frac{2 \times 3}{8}$

Q.48 Metal chloride contains 71% chlorine. Calculate equivalent weight of that metal bromide (at. wt. Br = 80)

(1) 14.5 (2) 85 (3) 94.5 (4) 100

Q.49 If the equivalent weight of an element is 32, then the percentage of oxygen in its oxide is[NSEC-2000]

(1) 16 (2) 40 (3) 32 (4) 20

Q.50 If m_1 g of a metal A displaces m_2 g of another metal B from its salt solution and if their equivalent weights are E_2 and E_1 respectively, then the equivalent weight of A can be expressed by

(1) $\frac{m_1}{m_2} \times E_2$
(2) $\frac{m_2}{m_1} \times E_2$
(3) $\frac{m_1}{m_2} \times E_1$
(4) $\frac{m_2}{m_1} \times E_1$

Q.51 3 g of an oxide of a metal is converted to chloride completely and it yielded 5 g of chloride. Equivalent weight of the metal is

(1) 33.25 (2) 3.325 (3) 12 (4) 20

Q.52 The equivalent weight of a metal is double that of oxygen. How many times is the weight of its oxide greater than weight of the metal?

(1) 1.5 (2) 2 (3) 0.5 (4) 3

TYPE 4 : Equivalent Weight from Hydrogen/Acid/Salt Displacement

Q.53 1 mol O_2 will be equal to

(1) 4 g equivalent oxygen
(2) 2 g equivalent oxygen
(3) 32 g equivalent oxygen
(4) 8 g equivalent oxygen

Q.54 Volume of one gram equivalent of H_2 at NTP is

(1) 5.6 L (2) 11.2 L (3) 22.4 L (4) 44.8 L

Q.55 One g equivalent of a substance is present in

(1) 0.25 mol of O_2
(2) 0.5 mol of O_2
(3) 1.00 mol of O_2
(4) 8.00 mol of O_2

Q.56 Which property of an element is not variable?

(1) Valency
(2) Atomic weight
(3) Equivalent weight
(4) None

Q.57 In a compound AxBy

(1) Mole of A = mole of B = mole of AxBy
(2) eq. of A = eq. of B = eq. of AxBy
(3) yx mole of A $= yx$ mole of B $= (x + y)\times$ mole of AxBy
(4) $y\times$ mole of A $= y\times$ mole of B

Q.58 Equivalent weight of a divalent metal is 24. The volume of hydrogen liberated at STP by 12 g of the same metal when added to excess of an acid solution is

(1) 2.8 litres
(2) 5.6 litres
(3) 11.2 litres
(4) 22.4 litres

Q.59 1.0 g of a metal combines with 8.89 g of bromine. Equivalent weight of the metal is nearly (at. wt. of Br = 80)

(1) 8 (2) 9 (3) 10 (4) 7

Q.60 If 1.2 g of a metal displaces 1.12 L of hydrogen at NTP, equivalent weight of metal would be

(1) 1.2×11.2
(2) 12
(3) 24
(4) $1.2 + 11.2$

Q.61 If 2.4 g of a metal displaces 1.12 L hydrogen at normal temperature and pressure, the equivalent weight of metal would be

(1) 12 (2) 24 (3) 1.2×11.2 (4) $1.2 \div 11.2$

Q.62 1 g of hydrogen is found to combine with 80 g of bromine. 1 g of calcium (valency = 2) combines with 4 g of bromine. The equivalent weight of calcium is

(1) 10 (2) 20 (3) 40 (4) 80

Q.63 2.8 g of iron displaces 3.2 g of copper from a solution of copper sulphate. If the equivalent mass of iron is 28, then equivalent mass of copper will be

(1) 16 (2) 32 (3) 48 (4) 64

Q.64 A metal oxide is reduced by heating it in a stream of hydrogen. It is found that after complete reduction 3.15 g of the oxide have yielded 1.05 g of the metal. We may conclude that

(1) Atomic weight of the metal is 4
(2) Equivalent weight of the metal is 8
(3) Equivalent weight of the metal is 4
(4) Atomic weight of the metal is 8

Q.65 14 g of element X combines with 16 g of oxygen. On the basis of this information, which of the following is a correct statement?

(1) The element X could have an atomic weight of 7 and its oxide is XO
(2) The element X could have an atomic weight of 14 and its oxide is X_2O
(3) The element X could have an atomic weight of 7 and its oxide is X_2O
(4) The element X could have an atomic weight of 14 and its oxide is XO_2

Q.66 The weights of two elements which combine with one another are in the ratio of their

(1) Atomic weight
(2) Molecular weight
(3) Equivalent weight
(4) None

Q.67 The vapour density of a volatile chloride of divalent metal is 59.5 and equivalent mass of the metal is

(1) 96 (2) 48 (3) 24 (4) 12

Q.68 1.12 litre dry chlorine gas at STP was passed over a heated metal when 5.56 g of chloride of the metal was formed. The equivalent weight of the metal is

(1) 20.1
(2) 10.05
(3) 40.2
(4) 5.025

Q.69 0.84 g of metal hydride contains 0.04 g of hydrogen. The equivalent weight of the metal is

(1) 80 (2) 40 (3) 20 (4) 60

Q.70 1 mole of OH^- ions is obtained from 85 g of hydroxide of a metal. What is the equivalent weight of the metal?

(1) 68 (2) 85 (3) 17 (4) 34

Q.71 An oxide of a metal contains 40% oxygen, by weight. What is the equivalent weight of the metal?

(1) 12 (2) 24 (3) 16 (4) 8

Q.72 74.5 g of a metallic chloride contains 35.5 g of chlorine. The equivalent mass of the metal is

(1) 19.5
(2) 35.5
(3) 39.0
(4) 78.0

Q.73 1.6 g of Ca and 2.60 g of Zn when treated with an acid in excess separately, produced the same amount of hydrogen. If the equivalent weight of Zn is 32.6, what is the equivalent weight of Ca?

(1) 10 (2) 20 (3) 40 (4) 5

TYPE 5 : Number of Equivalents & Milliequivalents

Q.74 0.126 g of an acid requires 20 mL of 0.1 N NaOH for complete neutralization. Equivalent weight of the acid is

(1) 45 (2) 53 (3) 40 (4) 63

Q.75 The weight of KOH in its 50 milliequivalent is

(1) 1.6 g (2) 2.2 g (3) 2.8 g (4) 4.8 g

Q.76 0.84 g of a metal carbonate reacts exactly with 40 mL of N/2 H_2SO_4. The equivalent weight of the metal carbonate is

(1) 84 (2) 64 (3) 42 (4) 32

Q.77 0.45 g of acid (molecular wt. = 90) was exactly neutralised by 20 mL of 0.5 N NaOH. Basicity of the acid is

(1) 1 (2) 2 (3) 3 (4) 4

Q.78 0.5 g of a base was completely neutralised by 100 mL of 0.2 N acid. Equivalent weight of the base is

(1) 50 (2) 100 (3) 25 (4) 125

Q.79 0.52 g of a dibasic acid required 100 mL of 0.2 N NaOH for complete neutralization. The equivalent weight of acid is

(1) 26 (2) 52 (3) 104 (4) 156

Q.80 0.45 g of a dibasic acid is completely neutralised with 100 mL of $\frac{N}{10}$ NaOH. The molecular weight of acid is

(1) 45 (2) 90 (3) 180 (4) 22.5

Q.81 45 g of acid of molecular weight 90 neutralised by 200 mL of 5 N caustic potash. The basicity of the acid is

(1) 1 (2) 2 (3) 3 (4) None

Q.82 0.98 g of the metal sulphate was dissolved in water and excess of barium chloride was added. The precipitated barium sulphate weighed 0.95 g. The equivalent weight of the metal is

(1) 72.61 (2) 36.3 (3) 145.2 (4) 24.2

Q.83 Assertion: Equivalent wt. of Cu in both CuO and Cu_2O is different.
Reason: Equivalent wt. of an element is constant.

(1) A (Both assertion and reason are true, reason is correct explanation)
(2) B (Both true, reason is not the correct explanation)
(3) C (Assertion true, reason false)
(4) D (Assertion false, reason true)

Q.84 Statement-1: Mass of a particular substance that combines with 8 gm of oxygen is said to be equivalent weight of substance.
Statement-2: x gm of metal gave y gm of its oxide, so equivalent weight of metal is $\left(\frac{x}{y-x}\right) \times 8$.

(1) Statement-1 is true, Statement-2 is true and Statement-2 is correct explanation for Statement-1
(2) Statement-1 is true, Statement-2 is true and Statement-2 is NOT the correct explanation
(3) Statement-1 is true, Statement-2 is false
(4) Statement-1 is false, Statement-2 is true

TYPE 6 : Normality

Q.85 The normality of 0.3 M phosphorus acid (H_3PO_3) is

(1) 0.1 (2) 0.9 (3) 0.3 (4) 0.6

Q.86 Which of the following solution has normality equal to molarity?

(1) H_2SO_4 aqueous solution
(2) H_3PO_4 aqueous solution
(3) HNO_3 aqueous solution
(4) $Mg(OH)_2$ aqueous solution

Q.87 The normality of solution obtained by mixing 100 mL of 0.2 M H_2SO_4 with 100 mL of 0.2 M NaOH is

(1) 0.1 (2) 0.2 (3) 0.5 (4) 0.3

Q.88 The mass of oxalic acid crystals ($H_2C_2O_4 \cdot {}_2H_2O$) required to prepare 50 mL of a 0.2 N solution is

(1) 4.5 g (2) 6.3 g (3) 0.63 g (4) 0.45 g

Q.89 Number of oxalic acid molecules in 100 mL of 0.02 N oxalic acid is

(1) 6.023×10^{20}
(2) 6.023×10^{21}
(3) 6.023×10^{22}
(4) 6.023×10^{23}

Q.90 Which amongst the following has the highest normality? [NSEC-2002]

(1) 16.0 g of NaOH in 200 mL of water
(2) 1 N oxalic acid
(3) 2 M sulphuric acid
(4) 1.5 hydrochloric acid

Q.91 The volume of water which must be added to 0.4 dm^3 of 0.25 N oxalic acid in order to make it exactly decinormal is [NSEC-2002]

(1) 0.2 dm^3
(2) 0.4 dm^3
(3) 0.6 dm^3
(4) 0.8 dm^3

Q.92 What volume of water should be added to 1600 mL of a 0.205 N solution so that the resulting solution will be 0.2 N? [NSEC-2008]

(1) 40 mL (2) 50 mL (3) 100 mL (4) 20 mL

Q.93 1 g Ca was burnt in excess of O_2 and the oxide was dissolved in water to make up one litre of solution. The normality of solution is

(1) 0.04 (2) 0.4 (3) 0.05 (4) 0.5

Q.94 A dilute solution of H_2SO_4 is made by adding 5 mL of 3 N H_2SO_4 to 245 mL of water. The normality and molarity of the diluted solution are

(1) 0.06 N and 0.03 M
(2) 0.03 N and 0.06 M
(3) 0.06 N and 0.06 M
(4) 0.03 N and 0.03 M

TYPE 7 : Law of Chemical Equivalence (Titration)

Q.95 **The volume of 0.1 M $Ca(OH)_2$ needed for the neutralization of 40 mL of 0.05 M oxalic acid is**

(1) 10 mL (2) 20 mL (3) 30 mL (4) 40 mL

Q.96 **How many millilitre of 0.5 M H_2SO_4 are needed to dissolve 0.5 g of copper (II) carbonate?** [JEE 1999]

(1) 8.097 mL
(2) 16.19 mL
(3) 4.05 mL
(4) 24.3 mL

Q.97 **An aqueous solution of 6.3 g of oxalic acid dihydrate is made upto 250 mL. The volume of 0.1 N NaOH required to completely neutralise 10 mL of this solution is** [JEE 2001]

(1) 40 mL (2) 20 mL (3) 10 mL (4) 4 mL

Q.98 **Calculate volume of 1 N H_3PO_4 required to react with 20 mL 2 N $Ca(OH)_2$ solution**

(1) 40 mL (2) 20 mL (3) 80 mL (4) 10 mL

Q.99 **Calculate volume of 1 N H_2SO_4 required to react with 20 mL 1 M $Al(OH)_3$ solution**

(1) 60 mL (2) 40 mL (3) 20 mL (4) 80 mL

Q.100 **Calculate volume of 0.4 M NaOH required to react with the following mixture: HCl (1 mol) + H_2SO_4 (2 mol)**

(1) 12.5 L (2) 6.25 L (3) 25 L (4) 5 L

Q.101 **Calculate volume of 0.2 M H_2SO_4 required to react with the following mixture: NaOH (1 mol) + $Ca(OH)_2$ (2 mol)**

(1) 12.5 L (2) 6.25 L (3) 25 L (4) 5 L

Q.102 **How many litres of 0.1 N HCl are required to react completely with 19 gm mixture of Na_2CO_3 and $NaHCO_3$ containing equimolar amounts of the two?**

(1) 3 L (2) 1.5 L (3) 6 L (4) 2 L

Q.103 **H_3PO_4 is a tribasic acid and one of its salt is NaH_2PO_4. What volume in mL of 1 M NaOH solution should be added to 12 g of NaH_2PO_4 to convert it into Na_3PO_4? (at. wt. of P = 31)**

(1) 100 mL (2) 200 mL (3) 80 mL (4) 300 mL

Q.104 **If 25 mL of a H_2SO_4 solution reacts completely with 1.06 g of pure Na_2CO_3, what is the normality of this acid solution?**

(1) 1 N (2) 0.5 N (3) 1.8 N (4) 0.8 N

Q.105 **The minimum quantity of H_2S needed to precipitate 63.5 g of Cu^{2+} will be nearly**

(1) 63.5 g (2) 31.75 g (3) 34 g (4) 2.0 g

Q.106 **The volume of 1.5 M H_3PO_4 solution required to neutralize exactly 90 mL of a 0.5 M $Ba(OH)_2$ solution is**

(1) 10 mL (2) 30 mL (3) 20 mL (4) 60 mL

Q.107 **The volume of 0.1 N dibasic acid sufficient to neutralize 1 g of a base that furnishes 0.04 mole of OH^- in aqueous solution is** **[JEE(Main)-OnLine-2016]**

(1) 400 mL (2) 200 mL (3) 600 mL (4) 800 mL

Q.108 **50 mL of 0.5 M oxalic acid is needed to neutralize 25 mL of sodium hydroxide solution. The amount of NaOH in 50 mL of the given sodium hydroxide solution is** **[JEE(Main)-(Jan.)-2019]**

(1) 4 g (2) 2 g (3) 8 g (4) 1 g

Q.109 **25 mL of the given HCl solution requires 30 mL of 0.1 M sodium carbonate solution. What is the volume of this HCl solution required to titrate 30 mL of 0.2 M aqueous NaOH solution?** **[JEE(Main)-(Jan.)-2019]**

(1) 25 mL (2) 50 mL (3) 12.5 mL (4) 75 mL

Q.110 **How many millilitres of 0.1 N H_2SO_4 solution will be required for complete reaction with a solution containing 0.125 g of pure Na_2CO_3?**

(1) 23.6 mL (2) 25.6 mL (3) 26.3 mL (4) 32.6 mL

Q.111 **One litre of a solution contains 18.9 g of HNO_3 and one litre of another solution contains 3.2 g of NaOH. In what volume ratio must these solutions be mixed to obtain a neutral solution?**

(1) 3 : 8 (2) 8 : 3 (3) 15 : 4 (4) 4 : 15

Q.112 **1 mol each of H_3PO_2, H_3PO_3 and H_3PO_4 will neutralise respectively x mol of NaOH, y mol of $Ca(OH)_2$ and z mol of $Al(OH)_3$ (assuming all as strong electrolytes). x, y, z are in the ratio of**

(1) 3 : 1.5 : 1 (2) 1 : 2 : 3 (3) 3 : 2 : 1 (4) 1 : 1 : 1

Q.113 **1.250 g of metal carbonate (MCO_3) was treated with 500 mL of 0.1 M HCl solution. The unreacted HCl required 50.0 mL of 0.500 M NaOH solution for neutralization. Identify the metal M** [NSEC-2016]

(1) Mg (2) Ca (3) Sr (4) Ba

Q.114 **What weight of Na_2CO_3 of 85% purity would be required to prepare 45.6 mL of 0.235 N H_2SO_4?**

(1) 0.6681 g
(2) 0.5679 g
(3) 1.336 g
(4) 0.2839 g

Q.115 **What volume at NTP of gaseous ammonia will be required to be passed into 30 cm^3 of 1 N H_2SO_4 solution to bring down the acid strength of the latter to 0.2 N?**

(1) 537.6 mL (2) 268.8 mL (3) 1075.2 mL (4) 134.4 mL

Q.116 **If one mole of H_2SO_4 reacts with one mole of NaOH, equivalent weight of H_2SO_4 will be**

(1) 98 (2) 49 (3) 96 (4) 48

Q.117 **100 millimoles of dichloroacetic acid ($CHCl_2COOH$) can neutralize how many moles of ammonia to form ammonium dichloroacetate?**

(1) 0.0167 (2) 0.1 (3) 0.3 (4) 0.6

Q.118 **10 mL of sulphuric acid solution (specific gravity = 1.84) contains 98% by weight of pure acid. Calculate the volume of 2 N NaOH solution required to just neutralize the acid.**

(1) 9.2 mL (2) 92 mL (3) 18.4 mL (4) 184 mL

— End of DPP —