



CHEMISTRY POINT

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TIME-2hr 30min

No of Question- 100

Marks- 100

Single Correct Answer Type

- Weight of oxygen in one mole each of Fe_2O_3 and FeO is in the simple ratio of:
a) 3:2 b) 1:2 c) 2:1 d) 3:1
- Equivalent weight of a bivalent metal is 37.2. The molecular weight of its chloride is
a) 412.2 b) 216 c) 145.4 d) 108.2
- 0.0833 mole of carbohydrate of empirical formula CH_2O contain 1 g of hydrogen. The molecular formula of the carbohydrate is
a) $\text{C}_5\text{H}_{10}\text{O}_5$ b) $\text{C}_3\text{H}_4\text{O}_3$ c) $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ d) $\text{C}_6\text{H}_{12}\text{O}_6$
- The equivalent weight of $\text{Zn}(\text{OH})_2$ in the following reaction is equal to its, $\text{Zn}(\text{OH})_2 + \text{HNO}_3 \rightarrow \text{Zn}(\text{OH})(\text{NO}_3) + \text{H}_2\text{O}$:
a) (Formula wt.)/1 b) (Formula wt.)/2 c) 2 × formula wt.
d) 3 × formula wt.
- 5.85 g of NaCl are dissolved in 90 g of water. The mole fraction of NaCl is:
a) 0.1 b) 0.01 c) 0.2 d) 0.0196
- 2.76 g of silver carbonate on being strongly heated yield a residue weighing
a) 2.16 g b) 2.48 g c) 2.64 g d) 2.32 g
- A solution contains Na_2CO_3 and NaHCO_3 . 10 mL of the solution required 2.5 mL of 0.1 M H_2SO_4 for neutralization using phenolphthalein as indicator. Methyl orange is then added when a further 2.5 mL of 0.2 M H_2SO_4 was required. The amount of Na_2CO_3 in 1 litre of the solution is:
a) 5.3 g and 4.2 g b) 3.3 g and 6.2 g c) 4.2 g and 5.3 g d) 6.2 g and 3.3 g
- The volume occupied by one molecule of water (density 1 g cm^{-3}) is:
a) 18 cm^3 b) 22400 cm^3 c) $6.023 \times 10^{-23} \text{ cm}^3$
d) $3.0 \times 10^{-23} \text{ cm}^3$
- 510 mg of a liquid on vaporization in Victor Meyer's apparatus displaces 67.2 cm^3 of air at (STP). The molecular weight of the liquid is:
a) 130 b) 17 c) 170 d) 1700
- What volume of 6 M HCl should be added to 2 M HCl to get 1 L of 3 M HCl ?
a) 0.25 L b) 1.00 L c) 0.75 L d) 2.50 L
- The normality of one molar sodium carbonate solution is:
a) 2 b) 1 c) 0.5 d) 1.5
- If H_2SO_4 ionises as $\text{H}_2\text{SO}_4 + 2\text{H}_2\text{O} \rightarrow 2\text{H}_3\text{O}^+ + \text{SO}_4^{2-}$, then total number of ions produced by 0.1 M H_2SO_4 will be
a) 9.03×10^{21} b) 3.01×10^{22} c) 6.02×10^{22} d) $1.8 \times$



10^{23}

13. W_1 of an element combines with oxygen forming W_2 g of its oxide. The equivalent weight of the element is:

- a) $[W_1 / W_2] \times 8$ b) $[W_1 / (W_2 - W_1)] \times 8$ c) $[(W_2 - W_1) / W_1] \times 8$ d) $[W_1 / (W_1 - W_2)] \times 8$

14. A sample of ammonium phosphate $(NH_4)_3 PO_4$ contains 6.36 moles of hydrogen atoms. The number of moles of oxygen atom in the sample is (atomic mass of N = 14.04, H = 1, P = 31, O = 16)

- a) 0.265 b) 0.795 c) 2.12 d) 4.14

15. To neutralise 20 mL of $M/10$ NaOH, the volume of $M/20$ HCl needed is:

- a) 10 mL b) 30 mL c) 40 mL d) 20 mL

16. A, E, M and n are the atomic weight, equivalent weight, molecular weight and valence of an element. The correct relation is:

- a) $A = E \times n$ b) $A = M/E$ c) $A = M/n$ d) $M = A \times n$

17. Which one of the following set of units represents the smallest and largest amount of energy respectively?

- a) J and erg b) erg and cal c) Cal and eV d) eV and

L-atm

18. The number of atoms present in a 0.635 g of Cu piece will be

- a) 6.023×10^{-23} b) 6.023×10^{23} c) 6.023×10^{22} d)

6.023×10^{21}

19. What volume of hydrogen gas, at 273 K and 1 atm pressure will be consumed in obtaining 21.6 g of elemental boron (atomic mass = 10.8) from the reduction of boron trichloride by hydrogen?

- a) 89.6 L b) 67.2 L c) 44.8 L d) 22.4 L

20. The numerical value of N/n (where N is number of molecules is n moles of gas) is:

- a) 8.314 b) 6.02×10^{23} c) 1.602×10^{-24} d) $1.66 \times$

10^{-19}

21. In the relationship molecular formula = empirical formula $\times n$. The $(\text{C}^n)^n$ may have:

- a) Any value
b) Zero value
c) Only positive integer value
d) None of the above

22. 10 g $CaCO_3$ on heating gives 5.6 g CaO and g CO_2 .

- a) 4.4 b) 5.6 c) 6.5 d) 4.2

23. Which of the following changes with increase in temperature?

- a) Molality
b) Weight fraction of solute
c) Fraction of solute present in water
d) Mole fraction

24. On combustion of 4 g of the methane, 10.46 kJ of heat is liberated. Heat of combustion of methane is

- a) 83.68 kJ b) 10.46 kJ c) 41.84 kJ d) 20.93

kJ



25. A gas is found to have the formula $(CO)_x$. Its VD is 70. The value of x must be:
 a) 7 b) 4 c) 5 d) 6
26. Choose the wrong statement.
 a) 1 mole means 6.023×10^{23} particles
 b) Molar mass is mass of one molecule
 c) Molar mass is mass of one mole of a substance
 d) Molar mass is molecular mass expressed in grams
27. The term standard solution is used for the solutions whose:
 a) Normality is known b) Molarity is known c) Strength is known
 d) All of these
28. The ratio of mole fraction of a solute and a solvent in a binary solution is:
 a) Ratio of their wt. b) One c) Ratio of their mole d) Zero
29. If in a reaction HNO_3 is reduced to NO , the mass of HNO_3 absorbing one mole of electrons would be
 a) 21.0 g b) 36.5 g c) 18.0 g d) 31.5 g
30. At STP 5.6 litre of a gas weighs 60 g. The vapour density of gas is:
 a) 60 b) 120 c) 30 d) 240
31. The number of atoms present in 16 g of oxygen gas is:
 a) $6.02 \times 10^{11.5}$ b) 3.01×10^{23} c) $3.01 \times 10^{11.5}$
 d) 6.02×10^{23}
32. On analysis a certain compound was found to contain iodine and oxygen in the ratio of 254 g of iodine (at. mass 127) and 80 g oxygen (at. mass 16). What is the formula of the compound?
 a) I_2O b) I_2O_3 c) I_2O_3 d) I_2O_5
33. The vapour density of a volatile chloride of a metal is 95 and the specific heat of the metal is 0.13 cal/g. The equivalent weight of the metal will be:
 a) 6.0 b) 12.3 c) 18.6 d) 24.5
34. The equivalent weight of a certain trivalent element is 20. Molecular weight of its oxide is
 a) 152 b) 56 c) 168 d) 68
35. Gram molecular volume of oxygen at STP is
 a) 3200 cm^3 b) 5600 cm^3 c) 22400 cm^3 d) 11200 cm^3
36. Two elements X (at. Wt. 75) and Y (at. wt. 16) combine to give a compound having 75.8% of X. The formula of compound will be
 a) XY b) X_2Y c) XY_3 d) X_2Y_3
37. The amount of oxalic acid (hydrated) required to prepare 500 mL of its 0.1 N solution is:
 a) 0.315 g b) 6.3 g c) 3.15 g d) 63.0 g
38. The equivalent weight of $KMnO_4$ for acid solution is
 a) 79 b) 52.16 c) 158 d) 31.6
39. Consider a titration of potassium dichromate solution with acidified Mohr's salt solution using diphenylamine as indicator. The number of moles of Mohr's salt required per mole of dichromate is
 a) 3 b) 4 c) 5 d) 6
40. A mixture of CH_4 , N_2 and O_2 is enclosed in a vessel of one litre capacity at



0°C. The ratio of particle pressures of gases is 1 : 4 : 2. Total pressure of the gaseous mixture is 2660 mm. the number of molecules of oxygen present in the vessel is
 a) $(6.02 \times 10^{23})/22.4$ b) 6.02×10^{23} c) 22.4×10^{22} d) 1000

41. x g of Ag was dissolved in HNO₃ and the solution was treated with excess of NaCl when 2.87 g of AgCl was precipitated. The value of x is
 a) 1.08 g b) 2.16 g c) 2.70 g d) 1.62 g

42. One mole electron means:
 a) N electrons
 b) 6.023×10^{23} electrons
 c) 0.55 mg electrons
 d) All of these

43. A signature, written in carbon pencil weights 1 mg. What is the number of carbon atoms present in the signature?
 a) 5.02×10^{23} b) 5.02×10^{20} c) 6.02×10^{20} d) 0.502×10^{20}

44. The minimum quantity of H₂S needed to precipitate 63.5 g of Cu⁽²⁺⁾ will be nearly:
 a) 63.5 g b) 31.75 g c) 34 g d) 20 g

45. An unknown element forms an oxide. What will be the equivalent weight of the element if the oxygen content is 20% by weight?
 a) 16 b) 32 c) 8 d) 64

46. Cortisone is a molecular substance containing 21 atoms of carbon per molecule. The molecular weight of cortisone is 360.4. what is the percentage of carbon in cortisone?
 a) 59.9% b) 75% c) 69.98% d) None of these

47. Which mode of expressing concentration is independent of temperature?
 a) Molality b) Per cent by weight c) Mole fraction d) All of these

48. An ion is reduced to the element when it absorbs 6×10^{20} electrons. The number of equivalent of ion is:
 a) 0.1 b) 0.01 c) 0.001 d) 0.0001

49. The volume of 0.1 M H₂SO₄ required to neutralise 30 mL of 2.0 M NaOH is:
 a) 100 mL b) 300 mL c) 400 mL d) 200 mL

50. The law of definite proportions is not applicable to nitrogen oxide because
 a) Nitrogen atomic weight is not constant b) Nitrogen molecular weight is variable
 c) Nitrogen equivalent weight is variable d) Oxygen atomic weight is variable

51. 1.520 g of hydroxide of a metal on ignition gave 0.995 g of oxide. The equivalent weight of metal is
 a) 1.52 b) 0.995 c) 190 d) 9

52. A hydrocarbon contains 10.5 g carbon and 1 g hydrogen. Its 2.81 g has 1L volume at 1 atm and 27°C, hydrocarbon is
 a) C₆H₇ b) C₇H₈ c) C₅H₆ d) None



of the above

53. 1 mole of methyl amine on reaction with nitrous acid gives at NTP
a) 1.0 L of nitrogen b) 22.4 L of nitrogen c) 11.2 L of nitrogen
d) 5.6 L of nitrogen
54. The weight of sulphuric acid needed for dissolving 3 g magnesium carbonate is:
a) 3.5 g b) 7.0 g c) 1.7 g d) 17.0 g
55. When a metal is burnt, its weight is increased by 24 per cent. The equivalent weight of the metal will be:
a) 25 b) 24 c) 33.3 d) 76
56. A metal oxide is reduced by heating it in a stream of hydrogen. It is found that after complete reduction, 3.15 g of oxide yielded 1.05 g of metal. From the above data we can say that
a) The atomic weight of metal is 8 b) The atomic weight of metal is 4
c) The equivalent weight of metal is 4 d) The equivalent weight of metal is 8
57. The ratio of amounts of H_2S needed to precipitate all the metal ions from 100 mL of 1 M $AgNO_3$ and 100 mL of $CuSO_4$, will be
a) 1 : 1 b) 1 : 2 c) 2 : 1 d) None of these
58. The mole fraction of NaCl in a solution containing 1 mole of NaCl in 1000 g of water is :
a) 0.0177 b) 0.001 c) 0.5 d) 0.244
59. Which is correct for Na_2HPO_3 ?
a) It is not an acid salt b) Eq. wt. = $M/2$ c) Ox. no. of P is + 3
d) All of these
60. How many g of NaOH will be needed to prepare 250 mL of 0.1 M solution?
a) 1 g b) 10 g c) 4 g d) 6 g
61. If the specific heat of a metallic element is 0.214 cal/g, the atomic weight will be closest to:
a) 66 b) 12 c) 30 d) 65
62. An ore contains 1.34% of the mineral argentite, Ag_2S , by mass. How many gram of this ore would have to be processed in order to obtain 1.00 g of pure solid silver, Ag?
a) 74.6 g b) 85.7 g c) 107.9 g d) 134.0 g
63. In which of the following numbers all zeros are significant?
a) 0.500 b) 30.000 c) 0.00030 d) 0.0050
64. Weight of an atom of an element is 6.644×10^{-23} g. What will be the number of g atom of that element in 40 kg?
a) 10^3 b) 10^6 c) 1.5×10^3 d) None of these
65. In a compound $A_x B_y$:
a) Mole of A = mole of B = mole of $A_x B_y$
b) Eq. of A = Eq. of B = Eq. of $A_x B_y$
c) $Y \times X$ mole of A = $Y \times X$ mole of B = $(X+Y) \times$ mole of $A_x B_y$
d) $Y \times X$ mole of A = $Y \times X$ mole of B
66. One gram of hydrogen is found to combine with 80 g of bromine. One gram of calcium (Valency = 2) combines with 4 g of bromine. The equivalent weight of calcium is



- a) 10 b) 20 c) 40 d) 80
67. A bivalent metal has an equivalent mass of 32. The molecular mass of the metal nitrate is
 a) 182 b) 168 c) 192 d) 188
68. 12 g of Mg (at. wt. = 24) will react completely with an acid to give:
 a) One mole of H_2 b) Half mole of H_2 c) One mole of O_2
 d) None of these
69. The atomic weight of a metal (M) is 27 and its equivalent weight is 9, the formula of its chloride will be:
 a) MCl b) MCl_9 c) M_3Cl_4 d) MCl_3
70. 1.60 g of a metal were dissolved in HNO_3 to prepare its nitrate. The nitrate on strong heating gives 2 g oxide. The equivalent weight of metal is:
 a) 16 b) 32 c) 48 d) 12
71. 5.85 g of $NaCl$ dissolved in H_2O and solution is made upto 500 mL. The molarity is:
 a) 0.1 b) 0.2 c) 1.0 d) 0.117
72. Which property of an element is not variable?
 a) Valence b) At. wt. c) Eq. wt. d) None of these
73. The oxide of an element possesses the formula M_2O_3 . If the equivalent weight of the metal is 9, then the atomic weight of the metal will be:
 a) 9 b) 18 c) 27 d) 54
74. 0.7 g of $Na_2CO_3 \cdot xH_2O$ were dissolved in water and the volume was made to 100 mL, 20 mL of this solution required 19.8 mL of $N/10$ HCl for complete neutralisation. The value of x is:
 a) 7 b) 3 c) 2 d) 5
75. The specific heat of an element of atomic weight 32 is likely to be:
 a) 0.25 cal/g b) 0.24 cal/g c) 0.20 cal/g d) 0.15 cal/g
76. Number of atoms in 560 g of Fe (atomic mass 56 g mol^{-1}) is
 a) Twice that of 70 g N b) Half that of 20 g H c) Both are correct
 d) None of these
77. A 400 mg iron capsule contains 100 mg of ferrous fumarate, $(CHCOO)_2Fe$. the percentage of iron present in it is approximately
 a) 33% b) 25% c) 14% d) 8%
78. Equal weights of Zn metal and iodine are mixed together and I_2 is completely converted to ZnI_2 . What fraction by weight of original Zn remains unreacted? (Zn = 65, I = 127)
 a) 0.34 b) 0.74 c) 0.84 d) Unable to predict
79. An aqueous solution containing 6.5 g of $NaCl$ of 90% purity was subjected to electrolysis. After the complete electrolysis, the solution was evaporated to get solid $NaOH$. The volume of 1 M acetic acid required to neutralise $NaOH$ obtained above is
 a) 1000 cm^3 b) 2000 cm^3 c) 100 cm^3 d) 200 cm^3
80. Which of the following is correct?
 a) Mole fraction of I + mole fraction of II = 1
 (if only two components are present)
 b) $(\text{Mole fraction of I})/(\text{Mole fraction of II}) = (\text{mole of I})/(\text{mole of II})$



(if only two components are present)

- c) Mole fraction of solute =
(mole of solute)/(mole of solute+mole of solvent)
- d) All of the above
81. The number of significant figures in Avogadro's number is
a) Four b) Two c) Three d) Can be any of these
82. A gas has a vapour density 11.2. The volume occupied by 1g of the gas at NTP is
a) 1 L b) 11.2 L c) 22.4 L d) 4 L
83. A metal nitride, M_3N_2 contains 28% of nitrogen. The atomic mass of metal, M is
a) 24 b) 54 c) 9 d) 87.62
84. An oxide of iodine (I = 127) contains 25.4 g of iodine for 8 g of oxygen. Its formula could be:
a) I_2O_3 b) I_2O c) I_2O_5 d) I_2O_7
85. 20 g of an acid furnishes 0.5 moles of H_3O^+ ions in its aqueous solution. The value of 1 g eq. of the acid will be:
a) 40 g b) 20 g c) 10 g d) 100 g
86. 10 mL of gaseous hydrocarbon on combustion gives 40 mL of $CO_2(g)$ and 50 mL of H_2O (vap). The hydrocarbon is:
a) C_4H_5 b) C_8H_{10} c) C_4H_8 d) C_4H_{10}
87. 10 mL of concentrated H_2SO_4 (18 M) is diluted to one litre. The approximate molarity of the dilute acid is:
a) 18 M b) 180 M c) 0.18 M d) 1.8 M
88. Which represents per cent by strength?
a) $(wt. \text{ of solute}) / (\text{volume of solution}) \times 100$
b) $(wt. \text{ of solute}) / (\text{volume of solution}) \times 100$
c) $(\text{volume of solute}) / (\text{volume of solution}) \times 100$
d) All of the above
89. An alkaloid contains 17.28% of nitrogen and its molecular mass is 162. The number of nitrogen atoms present in one molecule of alkaloid is
a) 5 b) 4 c) 3 d) 2
90. 6.02×10^{20} molecules of urea are present in 100 mL of its solution. The molarity of urea solution is:
a) 0.1 b) 0.01 c) 0.02 d) 0.001
91. What volume of H_2 at 273 K and 1 atm will be consumed in obtaining 21.6 g of elemental boron (at. mass 10.8) from the reduction of boron trichloride with H_2 ?
a) 44.8 L b) 22.4 L c) 89.6 L d) 67.2 L
92. In a metal chloride, the weight of metal and chlorine are in the ratio of 1:2. The equivalent weight of the metal will be:
a) 71 b) 35.5 c) 106.5 d) 17.75
93. $KMnO_4$ (mol.wt. = 158) oxidizes oxalic acid in acid medium to CO_2 and water as follows
 $5C_2O_4^{2-} + 2MnO_4^- + 16H^+ \rightarrow 10CO_2 + 2Mn^{2+} + 8H_2O$
What is the equivalent weight of $KMnO_4$?



- a) 158 b) 31.6 c) 39.5 d) 79
94. How many H-atoms are present in 0.046 g of ethanol?
 a) 6×10^{20} b) 1.2×10^{21} c) 3×10^{21} d) 3.6×10^{21}
95. The pair of species having same percentage of carbon is:
 a) CH_3COOH and $\text{C}_6\text{H}_{12}\text{O}_6$
 b) CH_3COOH and $\text{C}_2\text{H}_5\text{OH}$
 c) HCOOCH_3 and $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
 d) $\text{C}_6\text{H}_{12}\text{O}_6$ and $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
96. The maximum number of molecules is present in:
 a) 15 L of H_2 gas at STP b) 5 L of N_2 gas at STP c) 0.5 g of H_2 gas d) 10 g of O_2 gas
97. If one mole of ethanol ($\text{C}_2\text{H}_5\text{OH}$) completely burns to carbon dioxide and water, the weight of carbon dioxide formed is about:
 a) 22 g b) 45 g c) 66 g d) 88 g
98. How many moles of MgIn_2S_4 can be made from 1 g each of Mg, In and S?
 (Atomic mass : Mg = 24, In = 114.8, S = 32)
 a) 6.47×10^{-4} b) 3.0×10^{-1} c) 9.17×10^{-2} d) 8.7×10^{-3}
99. One g of a mixture of Na_2CO_3 and NaHCO_3 consumes y equivalent of HCl for complete neutralisation. One g of the mixture is strongly heated, then cooled and the residue treated with HCl How many equivalent of HCl would be required for complete neutralization?
 a) 2y equivalent b) y equivalent c) $3y/4$ equivalent d) $3y/2$ equivalent
100. An organic compound containing C and H has 92.3% of carbon, its empirical formula is
 a) CH b) CH_3 c) CH_2 d) CH_4



