**Time :** 08:45:00 **CHEMISTRY**

**Marks :** 2100

1.SOME BASIC CONCEPTS OF CHEMISTRY

**Single Correct Answer Type**

1. Weight of oxygen in one mole each of in the simple ratio of:

 a) 3 : 2 b) 1 : 2 c) 2 : 1 d) 3 : 1

2. 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

3. 0.0833 mole of carbohydrate of empirical formula contain 1 g of hydrogen. The molecular formula of the carbohydrate is

 a) b) c) d)

4. The equivalent weight of Zn in the following reaction is equal to its,

 :

 a) b) c) 2 d) 3

5. 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

6. 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

7. A solution contains and 10 mL of the solution required 2.5 mL of 0.1

for neutralization using phenolphthalein as indicator. Methyl orange is then added when a further 2.5 mL of 0.2 was required. The amount of 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

8. The volume occupied by one molecule of water (density 1 g ) is:

 a) b) c) d)

9. 510 mg of a liquid on vaporization in Victor meyer’s apparatus displaces 67.2 of air at (STP). The molecular weight of the liquid is:

 a) 130 b) 17 c) 170 d) 1700

10. 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

11. The normality of one molar sodium carbonate solution is:

 a) 2 b) 1 c) 0.5 d) 1.5

12. If ionises as , then total number of ions produced by 0.1 M will be

 a) b) c) d) 1.8

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

 a) b) c) d)

14. A sample of ammonium phosphate 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 / 10 NaOH, the volume of HCl needed is:

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

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

 a) = b) c) d)

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) b) c) d)

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 (where is number of molecules is moles of gas) is:

 a) 8.314 b) 6.02 c) d)

21. In the relationship molecular formula = empirical formula

 a) Any value

 b) Zero value

 c) Only positive integer value

 d) None of the above

22. 10 g on heating gives 5.6 g CaO and …. g

 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 . Its VD is 70. The value of must be:

 a) 7 b) 4 c) 5 d) 6

26. Choose the wrong statement.

 a) 1 mole means 6.023 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 is reduced to the mass of 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) b) c) d)

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) b) c) d)

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) b) c) d)

36. Two elements (at. Wt. 75) and (at. wt. 16) combine to give a compound having 75.8% of . The formula of compound will be

 a) b) c) d)

37. The amount of oxalic acid (hydrated) required to prepare 500 mL of its 0.1 solution is:

 a) 0.315 g b) 6.3 g c) 3.15 g d) 63.0 g

38. The equivalent weight of 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 and is enclosed in a vessel of one litre capacity at . 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) b) c) d) 1000

41. g of was dissolved in and the solution was treated with excess of when 2.87 g of was precipitated. The value of 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 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) b) c) d)

44. The minimum quantity of needed to precipitate 63.5 g of 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 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 required to neutralise 30 mL of 2.0 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 hydrocarbon is

 a) b) c) 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 needed to precipitate all the metal ions from 100 mL of 1 M and 100mL of 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 ?

 a) It is not an acid salt b) Eq. wt. 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 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, by mass. How many gram of this ore would have to be processed in order to obtain 1.00 g of pure solid silver,

 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 What will be the number of g atom of that element in 40 kg?

 a) b) c) d) None of these

65. In a compound

 a) Mole of = mole of = mole of

 b) Eq. of

 c)

 d)

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 b) Half mole of c) One mole of d) None of these

69. The atomic weight of a metal ( is 27 and its equivalent weight is 9, the formula of its chloride will be:

 a) b) c) d)

70. 1.60 g of a metal were dissolved in 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 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 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 were dissolved in water and the volume was made to 100 mL, 20 mL of this solution required 19.8 mL of 10 HCl for complete neutralisation. The value of 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 () 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, 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 is completely converted to. 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) b) c) d)

80. Which of the following is correct?

 a) Mole fraction of I + mole fraction of II = 1

(if only two components are present)

 b)

(if only two components are present)

 c)

 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, contains 28% of nitrogen. The atomic mass of metal, 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) b) c) d)

85. 20 g of an acid furnishes 0.5 moles of 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 (g) and 50 mL of (vap). The hydrocarbon is:

 a) b) c) d)

87. 10 mL of concentrated (18 is diluted to one litre. The approximate molecular of the dilute acid is:

 a) 18 b) 180 c) 0.18 d) 1.8

88. Which represents per cent by strength?

 a)

 b)

 c)

 d) All of the above

89. An alkaloid contains of nitrogen and it’s 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. 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 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 ?

 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. (mol.wt.= 158) oxidizes oxalic acid in acid medium to and water as follows

 What is the equivalent weight of ?

 a) 158 b) 31.6 c) 39.5 d) 79

94. How many H-atoms are present in 0.046 g of ethanol?

 a) b) c) d)

95. The pair of species having same percentage of carbon is:

 a)

 b)

 c)

 d)

96. The maximum number of molecules is present in:

 a) 15 L of gas at STP b) 5 L of gas at STP c) 0.5 g of gas d) 10 g of gas

97. If one mole of ethanol 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 can be made from 1 each of in and S? (Atomic mass : Mg = 24, , In = 114.8, S = 32)

 a) 6.47 b) 3.0 c) 9.17 d) 8.7

99. One g of a mixture of and consumes 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) equivalent b) equivaletnt c) equivalent d) equivalent

100. An organic compound containing C and H has 92.3% of carbon, its empirical formula is

 a) CH b) c) d)

101. 1.5 g of a divalent metal displaced 4 g of copper (at. wt. = 63.8) from a solution of copper sulphate. The atomic weight of the metal is:

 a) 12 b) 24 c) 48 d) 6

102. 4 g of copper was dissolved in concentrated nitric acid. The copper nitrate solution on strong heating gave 5 g of its oxide. The equivalent weight of copper is

 a) 23 b) 32 c) 12 d) 20

103. If g of a metal displaces g of another metal from its salt solution and if the equivalent weights are and respectively, the correct expression for the equivalent weight of is

 a) b) c) d)

104. The weight of an atom of atomic mass 260 amu is:

 a) b) c) d)

105. An organic compound has an empirical formula () its vapour density is 45. The molecular formula of the compound is

 a) b) c) d)

106. 10 g of hydrogen and 64 of oxygen were filled in a steel vessel and exploded. Amount of water produced in this reaction will be:

 a) 1 mole b) 2moles c) 3 moles d) 4 moles

107. If one mole of reacts with an excess of NaOH, how many moles of water are formed?

 a) 2 b) 1 c) 3 d) 4

108. The mass of of gas at STP is

 a) 0.16 g b) 0.8 g c) 0.08 g d) 1.6 g

109. Which term is to be correctly used for expressing concentration of electrolytes in solution?

 a) Molarity b) Normality c) Formality d) None of these

110. The haemoglobin from the red blood corpuscles of most mammals contains approximately 0.33% of iron by weight. The molecular weight of haemoglobin as 67,200. The number of iron atoms in each molecule of haemoglobin is (atomic weight of iron = 56):

 a) 2 b) 3 c) 4 d) 5

111. If two compounds have the same empirical formula but different molecular formulae, they must have

 a) Different percentage composition b) Different molecular weights

 c) Same viscosity d) Same vapour density

112. 0.1 mole of a carbohydrate with empirical formula contains 1 g of hydrogen. What is its molecular formula?

 a) b) c) d)

113. Mole fraction of the solute in a 1.00 molal aqueous solution is:

 a) 1.7700 b) 0.1770 c) 0.0177 d) 0.0344

114. How many moles of magnesium phosphate, will contain 0.25 mole of oxygen atoms?

 a) 0.02 b) c) d)

115. 2 g of mixture of on reaction with excess What would be the mass % of in the original mixture?

 a) 60 b) 30 c) 70 d) 35

116. On analysis a certain compound was found to contain iodine and oxygen in the ration 254 g of iodine and 80 g of oxygen. The atomic mass of iodine is 127 and that of oxygen is 16. Which is the formula of the compound?

 a) IO b) c) d)

117. The vapour density of gas is three times that of gas . If the molecular weight of is , the molecular weight of is:

 a) b) c) d)

118. A sample of pure Cu (3.18 g) heated in a stream of oxygen for some time gains in weight with the formation of black oxide of copper (CuO). The final weight is 3.92 g. What per cent of copper remains unoxidised?

 a) b) c) d)

119. In the following reaction, which choice has value twice that of the equivalent mass of the oxidizing agent?

 a) 64 b) 32 c) 16 d) 48

120. The chloride of metal contains 71 % chlorine by weight and the vapour density of it is 50. The atomic weight of the metal will be:

 a) 29 b) 58 c) 35.5 d) 71

121. If 0.5 mole of is mixed with 0.2 mole of , the maximum number of moles f that can be formed is

 a) 0.7 b) 0.5 c) 0.03 d) 0.10

122. How many significant figures are there in (respectively)

(1)73.000 g (2) 0.0503 g and (3) 2.001 s?

 a) 3,3,4 b) 3,4,5 c) 2,5,4 d) 5,3,4

123. The formula weight of is 342. A solution containing 342 g of in :

 a) One litre of solution is one molar

 b) One litre of solution is 2 molar

 c) 1000 g of water is 3 normal

 d) 2 litre of solution is 3 molar

124. For the reaction, Equivalent weight of is

 a) b) *M* c) *2M* d)

125. Two oxides of a metal contain 50% and 40% metal () respectively. If the formula of fist oxide is , the formula of second oxide will be

 a) b) c) d)

126. An organic compound on analysis was found to contain 10.06% carbon, 0.84% hydrogen and 89.10% chlorine. What will be the empirical formula of the substance?

 a) b) c) d)

127. 22.4 litre of water vapour at NTP, when condensed to water, occupies an approximate volume of:

 a) 18 litre b) 1 litre c) 1 mL d) 18 mL

128. Which statement is correct?

 a) Atomic weight of an element varies with valence

 b) Molecular weight changes with valence

 c) Equivalent weight changes with valence

 d) None of the above

129. Excess of carbon dioxide is passed through 50 mL of 0.5 M calcium hydroxide solution. After the completion of the reaction, the solution was evaporate was evaporated to dryness. The solid calcium carbonate was completely neutralised with 0.1 N hydrochloric acid. The volume of hydrochloric acid required is (Atomic mass of calcium=40)

 a) b) c) d)

130. 9.8 g of is present in 2 litre of a solution. The molarity of the solution is:

 a) 0.1 b) 0.05 c) 0.01 d) 0.2

131. The number of mole present in 2 litre of 0.5 NaOH is:

 a) 2 b) 1 c) 0.1 d) 0.5

132. The solution are 0.1 and 0.2 molar in a substance. If 100 mL of are mixed with 25 mL of and there is no change in volume on mixing, then the final molarity of the solution is:

 a) 0.15 b) 0.18 c) d) 0.30

133. The gravimetric composition of water as H : O is:

 a) 1 : 1 b) 1 : 2 c) 1 : 8 d) 1 : 16

134. A mixture of and NaCl weighing 4.44 g is treated with sodium carbonate solution to precipitate all the ions as calcium carbonate. The calcium carbonate so obtained is heated strongly to get 0.56 g of CaO. The percentage of NaCl in the mixture (atomic mass of ) is

 a) 75 b) 30.6 c) 25 d) 69.4

135. In the reaction,

 a) 6 L HCl () is consumed for every produced

 b) is produced regardless of temperature and pressure for every mole Al that reacts

 c) at STP is produced for every mole Al that reacts

 d) at STP is produced for every mole HCl() consumed

136. Number of atoms of oxygen present in 10.6 g of will be

 a) b) c) d)

137. If 0.22 of a substance when vaporized displaced 45 of air measured over water at 293 K and 755 mm pressure and if vapour pressure of = 17.4 mm then the molecular weight of substance will be:

 a) 222.2 b) 332.3 c) 121.1 d) 127.5

138. The number of water molecules present in a drop of water (volume 0.0018 mL) at room temperature is

 a) b) 1.084 c) 4.84 d) 6.023

139. A certain amount of a metal whose equivalent mass is 28 displaces 0.7 L of at STP from an acid. Hence, mass of the element is

 a) 1.75 g b) 0.875 g c) 3.50 g d) 7.00 g

140. Law of multiple proportions is illustrated by one of the following pairs

 a) b) c) d)

141. Amount of oxygen required for combustion of 1 kg of a mixture of butane and isobutane is:

 a) 1.8 kg b) 2.7 kg c) 4.5 kg d) 3.58 kg

142. About a gaseous reaction,

Which statement is wrong?

 a) letre of combines with litre of to give and

 b) moles of combines with moles of to give and

 c) number of molecules of combine with number of molecules of to form and

 d) g of combines with g of to give and

143. The simplest formula of a compound containing 50% of element (at. wt. 10) and 50% of element (at. wt. 20) is:

 a) b) c) d)

144. The number of mole of KCl in 1000 mL of 3 molar solution is:

 a) 1.5 b) 3.0 c) 1.0 d) 4.0

145. A person has as many as notes as number of oxygen atoms in 24.8 g (mol. wt. = 248.0). A note counting machine counts 60 million notes per day. How much day would be taken to count these notes?

 a) b) c) d)

146. An oxide of sulphur contains 50 % S. what will be its empirical formula?

 a) SO b) c) d)

147. 8 g of has the same number of molecules as:

 a) 7 g of CO b) 11 g of c) 7 g of d) All of these

148. When 10 g of 90% pure lime stone is heated completely, the volume (in litres) of is liberated at STP is

 a) 22.4 b) 2.24 c) 20.16 d) 2.016

149. Mass of 0.1 mole of methane is

 a) 1 g b) 16 g c) 1.6 g d) 0.1 g

150. The per cent of in 66% pure sample is:

 a) 32 b) 28 c) 14 d) None of the above

151. Equal weight of has weight of oxygen in the ratio:

 a) 1.35 b) 0.74 c) 0.37 d) 2.7

152. The number of mole of solute per kg of solvent is called:

 a) Mole fraction of solute

 b) Normality

 c) Molarity

 d) Molality

153. The empirical formula of a compound is If its VD is 30, its molecular formula is:

 a) b) c) d)

154. The decomposition of a certain mass of gas at STP. The mass of KOH required to completely neutralise the gas is

 a) 56 g b) 28 g c) 42 g d) 20 g

155. 19.7 kg of gold was recovered from a smuggler. How many atoms of gold were recovered (Au = 197)?

 a) 100 b) 6.02 c) 6.02 d) 6.02

156. 2.79 g of silver carbonate on being strongly heated yields a residue weighing:

 a) 2.16 g b) 2.48 g c) 2.32 g d) 2.64 g

157. In acidic medium, the equivalent weight of is

 a) b) c) d)

158. Which has the highest mass?

 a) 1 g-atom of C

 b) 1/2 mole of

 c) 10 mL of water

 d) atoms of oxygen

159. How many atoms are present in a mole of

 a)

 b)

 c)

 d) None of the above

160. Volume of 2 HCl needed to neutralize the solution containing one litre of 1 solution of NaOH is :

 a) 1 litre b) 2 litre c) 3 litre d)

161. 80 g of oxygen contains as many atoms as in

 a) 80 g of hydrogen b) 1 g of hydrogen c) 10 g of hydrogen d) 5 g of hydrogen

162. An element (at. wt. = 75) and (at. wt. = 25) combine to form a compound. The compound contains 75% by weight. The formula of the compound will be:

 a) b) c) d)

163. If molecular weight of then its equivalent weight in acidic medium would be

 a) b) c) d)

164. Molecular weight of tribasic acid is Its equivalent weight will be:

 a) b) c) d)

165. 5 mL of HCl, 20 mL of and 30 mL of 3 are mixed together and volume made one litre. The normality of the resulting solution is:

 a) b) c) d)

166. If 20 g of is treated with 100 mL of 20% solution, the amount of produced is

 a) 22.4 L b) 8.80 g c) 4.40 g d) 2.24 L

167. The empirical formula of a compound is One mole of this compound has a mass of 42 g. Its molecular formula is

 a) b) c) d)

168. The volume of air needed for complete combustion of 1 kg carbon at STP is:

 a) 9333.33 litre b) 933.33 litre c) 93.33 litre d) 1866.67 litre

169. Mixture = 0.02 mole of Br and 0.02 mole of was prepared in 2 L of solution.

 Number of moles of and are

 a) 0.01, 0.01 b) 0.02, 0.01 c) 0.01, 0.02 d) 0.02, 0.02

170. 100 mL each of 0.5 NaOH, HCl and 10 are mixed together. The resulting solution will be:

 a) Acidic b) Neutral c) Alkaline d) None of these

171. 1.5 litre of a solution of normality and 2.5 litres of 2 HCl are mixed together. The resultant solution had a normality 5. The value of is:

 a) 6 b) 10 c) 8 d) 4

172. The number of water molecules in 1 L of water is

 a) 18 b) c) d) 55.55

173. The maximum number of molecules are present in

 a) gas at STP b) gas at STP

 c) gas d) gas

174. Polyethylene can be produced from calcium carbide according to the following sequence of reactions;



 The mass of polyethylene which can be produced from 20.0 kg of is:

 a) 6.75 kg b) 7.75 kg c) 8.75 kg d) 9.75 kg

175. Calculate g-atom of element in 40 kg, if weight of one atom of an element is 6.644 g:

 a) - b) 10 g-atom c) - d) None of these

176. The molality of 15% (wt./vol.) solution of of density 1.1 g/ is approximately:

 a) 1.2 b) 1.4 c) 1.8 d) 1.6

177. The density of solution is 0.6 g/mL. It contains 34% by weight of . Calculate the normality of the solution:

 a) 4.8 b) 10 c) 0.5 d) 5.8

178. 171 g of cane sugar (mol. wt. = 342) are dissolved in 1000 g of water at 30 ͦC. If the density of solution is 1.1 g/mL, then:

 a) Molarity < molality b) Molarity = molality c) Molality < molarity d) None of these

179. Amount of oxygen required for complete combustion of 27 g Al is:

 a) 24 g b) 12 g c) 20 g d) 6 g

180. The least number of molecules are contained in:

 a) 2 g hydrogen b) 8 g oxygen c) 4 g nitrogen d)

181. Which of the following is correct for

 , heat =348 kJ?

 a) Heat absorbed b) Mass of product >Mass of reactant

 c) Mass of product < Mass of reactant d) Mass of product = Mass of reactant

182. The molarity of 2 is:

 a) b) c) d)

183. Amount of oxalic acid present in a solution can be determined by its titration with solution in the presence of The titration given unsatisfactory result when carried out in the presence of HCl because HCl

 a) Gets oxidised by oxalic acid to chlorine

 b) Furnishes ions in addition to those from oxalic acid

 c) reduces permanganate to

 d) Oxidises oxalic acid to carbon dioxide and water

184. The mass of 112 of gas a STP is

 a) 0.16 g b) 0.8 g c) 0.08 g d) 1.6 g

185. The volume of oxygen necessary for the complete combustion of 20 L of propane is

 a) 40 L b) 60 L c) 80 L d) 100 L

186. The value of gram molar volume of gas is:

 a) 1 litre b) 22.4 litre c) 11.2 litre d) 22.4 litre at STP

187. Carbon dioxide contains 27.27% of carbon, carbon disulphide contains 15.79% of carbon and sulphur dioxide contains 50% of sulphur. This data is an agreement with

 a) Law of conservation of mass b) Law of definite proportions

 c) Law of multiple proportions d) Law of reciprocal proportions

188. In a compound C, H, N atoms are present in 9 :1 : 3.5 by weight. Molecular weight of compound is 108, its molecular formula is:

 a) b) c) d)

189. The total molarity of all the ions containing 0.1 of and 0.1 of is:

 a) 0.2 b) c) d)

190. How much water is to be added to dilute 10 mL of 10 HCl to make it decinormal?

 a) 990 mL b) 1010 mL c) 100 mL d) 1000 mL

191. Density of air at NTP is 0.001293 g/mL. Its vapour density is:

 a) 0.001293 b) 1.293 c) 14.48 d) Cannot be calculated

192. The number of moles of water present in 90 g of a water is:

 a) 2 b) 3 c) 4 d) 5

193. If 30 mL of and 20 mL of reacts to form water, what is left at the end of reaction:

 a) 10 mL b) 5 mL c) 10 mL d) 5 mL

194. The term atom molecule were introduced by:

 a) Ostwald, Avogadro respectively

 b) Dalton, Avogadro respectively

 c) Avogadro, Dalton respectively

 d) None of the above

195. Arrange the following in the order of increasing mass (atomic mass; O = 16, Cu = 63, N = 14)

1. One atom of oxygen
2. One atom of nitrogen
3. mole of oxygen
4. mole of copper

 a) b) c) d)

196. One part of an element combines with two parts of another element . 6 parts of element combines with 4 parts of. If and combine together, the ratio of their weights, will be governed by

 a) Law of definite proportions b) Law of multiple proportions

 c) Law of reciprocal proportions d) Law of conservation of mass

197. A metal oxide has the formula It can be reduced by hydrogen to give free metal and water. 0.1596 g of the metal oxide required 6 mg of hydrogen for complete reduction. The atomic weight of the metal is:

 a) 27.90 b) 159.60 c) 79.80 d) 55.80

198. grams of calcium carbonate was completely burnt in air. The weight of the solid residue formed is 28 g. What is the value of (in grams)?

 a) 44 b) 200 c) 150 d) 50

199. In a gaseous reaction of the type which is wrong?

 a) litre of combines with litre of to give and

 b) mole of combines with mole of to give and

 c) g of combines with g of to give and

 d) molecules of combines with molecules of to give

200. Which of the following are correct?

 a) G molecular wt. = mol. wt. in g = wt. of molecules

 b) 1 mole = molecules = molecule

 c) Mole = g molecules

 d) All of the above

**Time :** 08:45:00 **CHEMISTRY**

**Marks :** 2100

1.SOME BASIC CONCEPTS OF CHEMISTRY

|  |
| --- |
| **: ANSWER KEY :** |

|  |
| --- |
| **1) d 2) c 3) d 4) a****5) d 6) a 7) a 8) d****9) c 10) a 11) a 12) d****13) b 14) c 15) c 16) a****17) d 18) d 19) b 20) b****21) c 22) a 23) c 24) c****25) c 26) b 27) d 28) c****29) a 30) b 31) d 32) d****33) b 34) c 35) b 36) d****37) c 38) d 39) d 40) a****41) b 42) d 43) d 44) c****45) b 46) c 47) d 48) c****49) b 50) c 51) d 52) b****53) b 54) a 55) c 56) c****57) b 58) a 59) d 60) a****61) c 62) b 63) b 64) a****65) b 66) b 67) d 68) b****69) d 70) b 71) b 72) b****73) c 74) c 75) c 76) c****77) d 78) b 79) c 80) d****81) a 82) a 83) a 84) c****85) a 86) d 87) c 88) c****89) d 90) b 91) d 92) d****93) b 94) d 95) a 96) a****97) d 98) c 99) b 100) a****101) b 102) b 103) a 104) a****105) d 106) d 107) a 108) c****109) c 110) c 111) b 112) a****113) c 114) b 115) b 116) d****117) c 118) c 119) b 120) a****121) d 122) d 123) a 124) a****125) b 126) b 127) d 128) c****129) c 130) b 131) b 132) c****133) c 134) a 135) d 136) c****137) c 138) a 139) a 140) d****141) d 142) d 143) b 144) b****145) c 146) b 147) d 148) d****149) c 150) c 151) a 152) d****153) b 154) b 155) d 156) a****157) d 158) a 159) a 160) d****161) d 162) d 163) c 164) b****165) d 166) b 167) a 168) a****169) a 170) c 171) b 172) d****173) a 174) c 175) c 176) d****177) d 178) a 179) a 180) c****181) d 182) a 183) c 184) c****185) d 186) d 187) d 188) c****189) b 190) a 191) c 192) d****193) d 194) b 195) a 196) c****197) d 198) d 199) c 200) d** |