**ACTIVE SITE TUTORIALS**

**Date :** 20-08-2019 **TEST ID: 516**

**Time :** 37:15:00 **CHEMISTRY**

**Marks :** 2377

1.SOME BASIC CONCEPTS OF CHEMISTRY

**Single Correct Answer Type**

| 1. | In which of the following pairs do the two species resemble each other most closely in chemical properties? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 2. | Number of moles of reduced by 1 mol of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | 1 |
| 3. | A mixed solution of potassium hydroxide and sodium carbonate required of an solution when titrated with phenolphthalein as an indicator. But the same amount of the solution when titrated with methyl orange as indicator required 25 mL of the same acid. the amount of KOH present in the solution is | | | | | | | |
|  | a) | 0.014 g | b) | 0.14 g | c) | 0.028 g | d) | 1.4 g |
| 4. | The volume strength of 1.5 N solution is | | | | | | | |
|  | a) | 4.8 | b) | 8.4 | c) | 3.0 | d) | 8.0 |
| 5. | A solution of 200 ppt is | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) & (b) | d) | None of these |
| 6. | Which gives ppt with ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 7. | Mass of one atom of the element is How many atoms are contained in 1 g of the element | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 8. | 1.056 g of the was treated with of After reaction was over, 0.601 g of Sn was recovered. Thus, empirical formula of the compound formed is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 9. | 0.4 mole of and 0.2 mole of were dissolved in water to have of solution, the molarity of ion is | | | | | | | |
|  | a) | 0.8 M | b) | 1.6 M | c) | 1.2 M | d) | 10.0 M |
| 10. | Match the substances given in based on reactions given in select correct answer from the alternate   |  |  |  |  | | --- | --- | --- | --- | |  | (Reaction) |  | (Substances) | | I | A white, waxy solid, normality stored under water because it spontaneously inflames in air |  |  | | II | A viscous liquid that reacts with table sugar, giving a charred mass |  |  | | III | An acid that reacts with copper metal, releasing brown fumes |  |  | | IV | A pale greenish yellow gas that dissolves in aqueous to give a solution used as a bleach |  |  |   Codes  I II III IV | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 11. | A mixture contains and . Following steps have been adopted but written in disorder  I: Filter, boil of  II: Filter, add and pass gas  III: Pass gas into acidified solution of mixture | | | | | | | |
|  | a) | I, II, III | b) | III, I, II | c) | III, II, I | d) | I, III, II |
| 12. | The reaction between yttrium metal and dilute produces and ions. The molar ratio of yttrium to that hydrogen produced is | | | | | | | |
|  | a) | 2:3 | b) | 3:2 | c) | 1:2 | d) | 2:1 |
| 13. | A 500 g toothpaste contains 0.2 g fluoride. The concentration of fluoride in terms of ppm is | | | | | | | |
|  | a) | 100 | b) | 250 | c) | 400 | d) | 450 |
| 14. | at NTP is obtained by heating g of pure is | | | | | | | |
|  | a) | 100 g | b) | 200 g | c) | 50 g | d) | 44.8 g |
| 15. | A hydrate of has 50% water by mass. It is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 16. | Potassium selenate is isomorphous with potassium sulphate and contains 50.0% of Se. Find the atomic weight of Se | | | | | | | |
|  | a) | 142 | b) | 71 | c) | 47.33 | d) | 284 |
| 17. | Oxalic acid forms two series of salt and If 0.9 g of oxalic acid is in solution, and have normality respectively | | | | | | | |
|  | a) | 0.1 N, 0.1 N | b) | 0.1 N, 0.2 N | c) | 0.2 N, 0.2 N | d) | 0.2 N, 0.1 N |
| 18. | In basic medium, reacts with resulting in the formation of and . How many mL of 0.1 M is required to react with 40 of ? | | | | | | | |
|  | a) | 240.2 mL | b) | 24.02 mL | c) | 266.67 mL | d) | 26.67 mL |
| 19. | Volume of solution to prepare 0.10 M from 1.575 g of it is | | | | | | | |
|  | a) | 125 mL | b) | 250 mL | c) | 500 mL | d) | 1000 mL |
| 20. | A sodium salt of an unknown anion when treated with gives white precipitate only boiling. The anion is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 21. | Gas turns solution milky. burns with blue flame. also decolourlses . Thus, and are | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 22. | and can be separated using | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 23. | Maximum number of moles of that can be precipitated by mixing of and of will be | | | | | | | |
|  | a) | 0.002 | b) | 0.003 | c) | 0.005 | d) | 0.001 |
| 24. | When 10 mL of ethyl alcohol (density = 0.7893 g ) is mixed with 20 mL of water (density 0.9971 g ) at C, the final solution has a density of 0.9571 g . The percentage change in total volume on mixing is | | | | | | | |
|  | a) | 3.1% | b) | 2.4% | c) | 1% | d) | None of these |
| 25. | Which has maximum number of millimoles of ion? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | Equal | | |
| 26. | For , the correct choice is | | | | | | | |
|  | a) | is dibasic and reducing | | | b) | is dibasic and non-reducing | | |
|  | c) | is tribasic and reducing | | | d) | is tribasic and non-reducing | | |
| 27. | A mixture of and required equal volumes of 0.2 M and 0.2 M NaOH separately for complete titration. The mole ratio of and in the mixture is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 28. | On balancing the above equation in basic solution, using integral coefficient, which of the following whole numbers will be the coefficient of ? | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 29. | 0.05 g of a piece of metal in dilute acid gave 24.62 mL of at and 760 mm pressure. The of metal is | | | | | | | |
|  | a) | 25 | b) | 12.5 | c) | 50 | d) | 37.5 |
| 30. | How many moles of will be liberated by one mole of is the following reaction: | | | | | | | |
|  | a) | 4.5 | b) | 2.5 | c) | 1.25 | d) | None |
| 31. | on reaction with dil. gives a colourless pungent gas that can turn green. Green colour is due to formation of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 32. | When of is mixed with of the resultant solution is the same as a solution of | | | | | | | |
|  | a) | and | | | b) |  | | |
|  | c) | and | | | d) | and | | |
| 33. | 5.6 g of a metal forms 12.7 g of metal chloride. Hence equivalent weight of the metal is | | | | | | | |
|  | a) | 127 | b) | 254 | c) | 56 | d) | 28 |
| 34. | Which of the following salts does not give positive test for nitrate ion? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 35. | 27 g of Al will react completely with …….. g of | | | | | | | |
|  | a) | 8 g | b) | 10 g | c) | 24 g | d) | 49 g |
| 36. | Test tube contains aqueous solution while test tube contains solution. On passing gas | | | | | | | |
|  | a) | is precipitated | | | b) | is precipitated | | |
|  | c) | Both (a) and (b) are precipitated | | | d) | None of the above is precipitated | | |
| 37. | A solution of a metal ion when treated with KI gives a red precipitate which dissolves in excess KI to give a colourless solution. Moreover, the solution of metal ion on treatment with a solution of cobalt (III) thiocyanate gives rise to a deep blue crystalline precipitate. The metal ion is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 38. | Mixture is initially orange in colour. When solution is prepared in dil. Acid, it changes to dark brown colour. Mixture contains | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 39. | When of 0.1 M is neutralized with a mixture of mL of 0.1 M HCl and mL of 0.2 M using methyl orange indicator, what is value of and ? | | | | | | | |
|  | a) | 200, 100 | b) | 100, 200 | c) | 300, 200 | d) | 200, 300 |
| 40. | (gas) used by dentist. Hence, is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 41. | Borax on heating strongly above its melting point melts to a liquid, which then solidifies to a transparent mass commonly known as borax-bead. The transparent glassy mass consist of | | | | | | | |
|  | a) | Sodium pyroborate | | | b) | Boric anhydride | | |
|  | c) | Sodium metaborate | | | d) | Boric anhydride and sodium metaborate | | |
| 42. | Consider the ionisation of as follow:  The total number of ions furnished by 100 mL of 0.1 M will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 43. | White ppt of on reaction with are blackened. Select correct statement about | | | | | | | |
|  | a) | is also called calomel | | | b) | reacts with forming | | |
|  | c) | changes to grey on reaction with | | | d) | All of the above are correct statements | | |
| 44. | What volume of 0.05 M in acidic medium is needed for complete oxidation of 200 mL of 0.06 M solution? | | | | | | | |
|  | a) | 1.2 | b) | 1.2 L | c) | 120 | d) | 800 |
| 45. | oxidises (black) to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 46. | would separate the following at | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 47. | of solution (volume strength ) required of solution in acidic medium. Hence, is | | | | | | | |
|  | a) | 0.56 | b) | 5.6 | c) | 0.1 | d) | 10.0 |
| 48. | Two substances I and II of carbon and oxygen have respectively 72.73% and 47.06% oxygen. Hence, they follow | | | | | | | |
|  | a) | Law of multiple proportion | | | b) | Law of reciprocal proportion | | |
|  | c) | Law of definite proportion | | | d) | Law of conservation of mass | | |
| 49. | 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 |
| 50. | A sample of copper sulphate pentahydrate contains 3.782 g of Cu. How many grams of oxygen are in the sample? | | | | | | | |
|  | a) | 0.952 g | b) | 3.809 g | c) | 4.761 g | d) | 8.576 g |
| 51. | 4.4 g of contains how many litres of at STP? | | | | | | | |
|  | a) | 2.4 L | b) | 2.24 L | c) | 44 L | d) | 22.4 L |
| 52. | The equivalent weight of a certain trivalent element is 20. Molecular weight of its oxide is | | | | | | | |
|  | a) | 152 | b) | 56 | c) | 168 | d) | 68 |
| 53. | 4.2 g of a metallic carbonate was heated in a hard glass tube and evolved was found to have 1120 mL of volume at STP. The of the metal is | | | | | | | |
|  | a) | 12 | b) | 24 | c) | 18 | d) | 15 |
| 54. | Mass of one is | | | | | | | |
|  | a) | 14 u | b) | 7 u | c) | 14 g | d) | 7 g |
| 55. | 5.3 g of is dissolved in of Unused acid required of Hence, equivalent weight of is | | | | | | | |
|  | a) | 23 | b) | 12 | c) | 24 | d) | 13 |
| 56. | A mixture on heating gave a gas used as an anaesthetic, 1.1 g of gas occupies 0.56 L at NTP. Mixture contains | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 57. | Which is temperature independent? | | | | | | | |
|  | a) | Mass per cent | | | b) | Volume per cent | | |
|  | c) | Mass/volume per cent | | | d) | Molarity | | |
| 58. | In the flowing equation    What volume of 0.2 M solution is required just to react with 30 mL of 0.2 M solution | | | | | | | |
|  | a) | 40 | b) | 80 | c) | 20 | d) | 60 |
| 59. | 0.3 g platinichloride of an organic diacidic base left 0.09 g of platinum on ignition. The molecular weight of the organic base is | | | | | | | |
|  | a) | 120 | b) | 240 | c) | 180 | d) | 60 |
| 60. | Passing gas into a mixture of and ions in an acidified aqueous solution precipitates | | | | | | | |
|  | a) | and | b) | and | c) | and | d) | and |
| 61. | Equivalent weight of (molecular weight) when it disproportionates into and is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 62. | is formed according to reaction  To make 4g , Na required is | | | | | | | |
|  | a) | 4.6 g | b) | 4.0 g | c) | 2.3 g | d) | 0.23 g |
| 63. | of solution of is oxidized to by of is | | | | | | | |
|  | a) | 0.15 M | | | | | | | |
|  | b) | 0.30 M | | | | | | | |
|  | c) | 0.10 M | | | | | | | |
|  | d) | 0.20 M | | | | | | | |
| 64. | Mass of one atom of is Hence, number of moles of atom in 40 kg is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 65. | 0.7 g sample of iron ore was dissolved in acid. Iron was reduced to +2 state and it required 50 ml of M/50 solution for titration. The percentage of Fe and in the ore is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 66. | To prepare a solution that is starting with of | | | | | | | |
|  | a) | Add 0.75 g | | | b) | ADD of water | | |
|  | c) | Add | | | d) | Evaporate water | | |
| 67. | How many moles of ion will react with 1 mol of ferrous oxalate in acidic medium? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 68. | can be used to detect one or more out of | | | | | | | |
|  | a) |  | b) |  | c) | All but | d) | All but |
| 69. | A mixture upon adding conc. gives orange red fumes. It may contain the anion pair | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 70. | 34 g of is present in 1120 mL of solution. This solution is called | | | | | | | |
|  | a) | 10 vol solution | b) | 20 vol solution | c) | 34 vol solution | d) | 32 vol solution |
| 71. | Molecular weight of and are are respectively. Their equivalent weights are and respectively. Then is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 72. | In the mixture of , volume of required is mL with phenolphthalein indicator and then mL with methyl orange indicator in same titration. Hence, volume of for complete reaction of is: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 73. | HF attacks glass forming | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 74. | When 2 g of gas A is introduced into an evacuated flask kept of , the pressure was found to be 1 atmosphere. If 3 g of another gas B is then added to the same flask, the pressure becomes 1.5 atm. Assuming ideal behavior, the ratio of molecular weights is | | | | | | | |
|  | a) | 1:3 | b) | 3:1 | c) | 2:3 | d) | 3:2 |
| 75. | If equal volumes of 1 M and 1 M solutions are allowed to oxidise Fe (II) to Fe (III) in acidic medium, then Fe (II) oxidized will be | | | | | | | |
|  | a) |  | b) |  | c) | Equal in both cases | d) | Can’t be determined |
| 76. | The simplest formula of a compound containing 50% of an element X (atomic weight 10) and 50% of element Y (atomic weight 20) is: | | | | | | | |
|  | a) | XY | b) |  | c) |  | d) |  |
| 77. | Number of millilitres of a solution which required to precipitate the sulphur as in a 0.60 g sample that contains 12% S is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 78. | All the oxygen in a 0.5434 g sample of a pure oxide of iron is removed by reduction in a stream of The loss in weight is 0.1210 g. hence, formula of the iron oxide is | | | | | | | |
|  | a) | FeO | b) |  | c) |  | d) |  |
| 79. | A certain metal sulphide is used extensively as a high temperature lubricant. If is 40.00% by mass sulphur, atomic mass of is | | | | | | | |
|  | a) | 60 | b) | 96 | c) | 100 | d) | 80 |
| 80. | The weight of 1 L of ozonised oxygen at STP was found to be 1.5 g. When 100 mL of this mixture at STP was treated with turpentine oil, the volume was reduced to 90 mL. The molecular weight of ozone is | | | | | | | |
|  | a) | 49 | b) | 47 | c) | 46 | d) | 47.9 |
| 81. | The empirical formula of a compound of carbon with hydrogen is of this gaseous compound has mass equal to that of under standard state. Thus, molecular formula of the compound is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 82. | The concentration of 10% in is | | | | | | | |
|  | a) | 10 | b) | 0.83 | c) | 1 | d) | 1.67 |
| 83. | is reddish brown coloured gas soluble in forming and are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 84. | In the titration of of with when | | | | | | | |
|  | a) | of has been added | | | b) | of has been added | | |
|  | c) | of has been added | | | d) | of has been added | | |
| 85. | By changes to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 86. | 800 g of a 40% solution by weight was cooled. 100 g of solute precipitated. The percentage composition of remaining solution is | | | | | | | |
|  | a) | 31.4% | b) | 20.0% | c) | 23.0% | d) | 24% |
| 87. | The purity of in a given sample is 85%. Calculate the weight of impure sample of which requires 10 mL of M/5 solution in a titration in acidic medium | | | | | | | |
|  | a) | 2 g | b) | 0.2 g | c) | 0.17 | d) | 0.15 g |
| 88. | is a colourless substance. Aqueous solution of gives reddish-orange ppt with KI; ppt dissolves in excess of KI forming a colourless solution. If and solution is added to this colourless solution reddish brown ppt is formed. Substance is | | | | | | | |
|  | a) | Epsom salt | b) | Mohr’s saslt | c) | Calomel | d) | Corrosive sublimate |
| 89. | can be used to detect some ions out of and . Exclude ions are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 90. | In the estimation of nitrogen by Kjeldahl’s method, 2.8 g of an organic compound required 20 millimoles of for the complete neutralisation of gas evolved. The percentage of nitrogen in the sample is | | | | | | | |
|  | a) | 20% | b) | 10% | c) | 40% | d) | 30% |
| 91. | Mixture of 1 mole of and 2 moles of forms 1 mole of Thus, per cent yield of is | | | | | | | |
|  | a) | 25% | b) | 50% | c) | 75% | d) | 100% |
| 92. | is formed in the following steps  I. 50% yield  II. 100% yield  III. 50% yield  To obtain 2 moles , calcium required is | | | | | | | |
|  | a) | 1 mol | b) | 2 mol | c) | 3 mol | d) | 4 mol |
| 93. | When the same amount of zinc is treated separately with excess of sulphuric acid and excess of sodium hydroxide, the ratio of volume of hydrogen evolved is | | | | | | | |
|  | a) | 1:1 | b) | 1:2 | c) | 2:1 | d) | 9:4 |
| 94. | Acidified can be decolourised by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 95. | An element A (atomic weight = 12) and B (atomic weight = 35.5) combines to form a compound X. If 4 mol of B combines with 1 mol of A to give 1 mol of X. The weight of 1 mol of X would be | | | | | | | |
|  | a) | 47.5 g | b) | 74.0 g | c) | 154.0 g | d) | 148.8 g |
| 96. | The density of 1 M solution of is The molality of the solution is | | | | | | | |
|  | a) | 1.0585 | b) | 1.00 | c) | 0.10 | d) | 0.0585 |
| 97. | reacts with oxalic acid according to the equation  Here of is equivalent to | | | | | | | |
|  | a) | of | | | b) | of | | |
|  | c) | of | | | d) | of | | |
| 98. | Which of the following substances contains greatest mass of chlorine? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 99. | What mass of could be formed by the reaction of with 48 g of | | | | | | | |
|  | a) | 44 g | b) | 33 g | c) | 16 g | d) | 24 g |
| 100. | At and 1 atm, if the density of the liquid water is 1.0 g and that of water vapour is 0.00006 g , then the volume occupied by water molecule in 1 L steam at this temperature is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 101. | If 0.5 mole of is mixed with 0.20 mole of , the maximum number of moles of then can be formed is | | | | | | | |
|  | a) | 0.1 | b) | 0.2 | c) | 0.5 | d) | 0.7 |
| 102. | Test of this anion is not performed in glass test tubes. This anion is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 103. | A 0.13 g of a specimen containing is treated with iodide ions. If iodine liberated | | | | | | | |
|  | a) | 75.3% | b) | 85.3% | c) | 95.3% | d) | None |
| 104. | One equivalent of magnesium oxide weighs 20 g then one equivalent of magnesium chloride weighs | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 105. | 20 of M HCl neutralisses completely 10 mL of 0.1 M solution and a further 5 mL of 0.2 M solution to methyl orange end point. The value of is | | | | | | | |
|  | a) | 0.167 M | b) | 0.133 M | c) | 0.15 M | d) | 0.2 M |
| 106. | When 2.76 g of silver carbonate is strongly heated, it yields a residue weighting | | | | | | | |
|  | a) | 2.16 g | b) | 2.48 g | c) | 2.32 g | d) | 2.64 g |
| 107. | If 20 of 0.1 M is required to titrate 10 of a liquid iron supplement, then the concentration of iron in the vitamin solution is | | | | | | | |
|  | a) | 1.2 M | b) | 2.4 M | c) | 0.6 N | d) | 1.56 M |
| 108. | A metal displaced of (in standard conditions) from an acid. Volume of needed to combine with this amount of into is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 109. | 0.5 g of a mixture of and requires 30 of 0.25 solution for neutralisation. The percentage composition of the mixture is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 110. | The of a oxide of an element is 44. The of the element is 14. The atomic weight of the element is | | | | | | | |
|  | a) | 14 | b) | 28 | c) | 42 | d) | 56 |
| 111. | Which of the following are soluble in excess of  ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 112. | In the separation of and in 2nd group of qualitative analysis of cations tetrammine copper (II) sulphate and tetraammine cadmium (II) sulphate react with to form the corresponding cyanide complexes, which one of the following pairs of the complexes and their relative stabilities enables the separation of and ? | | | | | | | |
|  | a) | : less stable and  : more stable | | | b) | : more stable and  : less stable | | |
|  | c) | : less stable and  : more stable | | | d) | : more stable and  : less stable | | |
| 113. | Aqueous solution of a mixture contains and . On passing gas and adding , then organic layer will be | | | | | | | |
|  | a) | Violet | b) | Reddish brown | c) | Colourlesss | d) | Blue |
| 114. | Ferric alum gives red colour with due to formation of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 115. | is soluble in due to formation of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 116. | When 8.3 g copper sulphate (249.5) reacts with excess of potassium iodide then the amount of iodine liberated is | | | | | | | |
|  | a) | 42.3 g | b) | 24.3 g | c) | 4.23 g | d) | 2.43 g |
| 117. | follow | | | | | | | |
|  | a) | Law of definite proportion | | | b) | Law of multiple proportion | | |
|  | c) | Law of conservation of mass | | | d) | All of the above | | |
| 118. | 10of is oxidised by 10 mL of . Hence, 10 of is neutralised by | | | | | | | |
|  | a) | 10 of | | | b) | 10 of | | |
|  | c) | 10 of 0.1 | | | d) | 10 of 0.05 N | | |
| 119. | Aqueous solution of gives yellow ppt with may contain | | | | | | | |
|  | a) | or or | | | b) | or | | |
|  | c) | or | | | d) | or | | |
| 120. | by mass. Hence, is | | | | | | | |
|  | a) | 4 | b) | 5 | c) | 6 | d) | 7 |
| 121. | A sample of ammonium phosphate contains 3.18 moles of H-atoms. The number of moles of oxygen atoms in the sample is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 122. | Volume of 0.50 M solution required to react with of solution is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 123. | The weight of residue obtained by heating 2.76 g of silver carbonate is | | | | | | | |
|  | a) | 2.76 g | b) | 2.98 g | c) | 2.16 g | d) | 2.44 g |
| 124. | Some white colourless crystals are heated. A cracking sound is heard and brown fumes are given off. The residue is yellow-brown in colour. When a glowing splinter is held in the fumes, it is reglighted. The fumes consist of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | and |
| 125. | 12.5 mL of a solution containing 6.0 g of a dibasic acid in 1 L was found to be neutralized by 10 mL of a decinormal solution of . The molecular weight of the acid is | | | | | | | |
|  | a) | 150 | b) | 120 | c) | 110 | d) | 75 |
| 126. | Sulphur forms the chlorides and . The equivalent mass of S in is 16 g . Thus, equivalent mass of S in is | | | | | | | |
|  | a) | 8 g | b) | 32 g | c) | 16 g | d) | 64 g |
| 127. | One isotope of a non-metallic element has mass number 127 and 74 neutrons in the nucleus. The anion derived from the isotope has 54 electrons. Hence, symbol for the anion is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 128. | and can be separated using | | | | | | | |
|  | a) |  | b) | water | c) | Both (a) and (b) | d) | None of these |
| 129. | The decompositon of yielded 11.2 L of The mass of KOH required to combine with to form carbonate is | | | | | | | |
|  | a) | 56 g | b) | 112 g | c) | 28 g | d) | 11.2 g |
| 130. | The volume of 0.5 M that completely dissolves 3.1 g of copper carbonate is (molecular mass of copper carbonate ) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 131. | Two glucose solutions are mixed. One has a volume of 480 mL and a concentration of 1.50 M and the second has a volume of 520 mL and concentration 1.20 M. The molarity of final solution is | | | | | | | |
|  | a) | 1.20 M | b) | 1.50 M | c) | 1.344 M | d) | 2.70 M |
| 132. | can be prepared by reacting hexfluoro mangante (IV) with antimony pentafluoride as:  The number of equivalent of required to react completely with one mol of in the given reaction is | | | | | | | |
|  | a) | 1.52 | b) | 5.0 | c) | 0.5 | d) | 4.0 |
| 133. | 1 mol each of and will form | | | | | | | |
|  | a) | 1 mol | b) | 0.5 mol | c) | 0.25 mol | d) | 2 mol |
| 134. | Ethyl alcohol is 46% by weight of solution. Hence, mole fraction of ethyl alcohol is | | | | | | | |
|  | a) | 0.46 | b) | 0.54 | c) | 0.75 | d) | 0.25 |
| 135. | In the following reaction,  2 moles each of form | | | | | | | |
|  | a) | 1 mol | b) | 1/3 mol | c) | 2/3 mol | d) | 4 mol |
| 136. | How many equivalents are there per mol of in its oxidation to | | | | | | | |
|  | a) | 2 | b) | 4 | c) | 6 | d) | 8 |
| 137. | A mixture of two colourless substances was dissolved in water. When gaseous was passed through the solution, a deep brown colour developed. Addition of or to the original solution give a white precipitate. The mixture contained | | | | | | | |
|  | a) | and | | | b) | and | | |
|  | c) | and | | | d) | and | | |
| 138. | 10 g mixture of and has 1.68 g . It is heated at 400 K. Weight of the residue will be | | | | | | | |
|  | a) | 9.38 g | b) | 8.32 g | c) | 10.0 g | d) | 1.68 g |
| 139. | Mole fraction of ethanol in ethanol water mixture is 0.25. Hence, the percentage concentration of ethanol by weight of mixture is | | | | | | | |
|  | a) | 25% | b) | 75% | c) | 46% | d) | 54% |
| 140. | of compound have equal number of moles. Thus, molar mass of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 141. | 0.116 g of (A) is neutralised by 0.074 g of . Hence, protonic hydrogen in (A) will be | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 142. | The molality of 1 L solution with is equal to 9. The weight of the solvent present in the solution is 910 g. The value of is: | | | | | | | |
|  | a) | 90 | b) | 80.3 | c) | 40.13 | d) | 9 |
| 143. | 1 kg of solution contains 0.04 g of . The approximate concentration of solution is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 144. | Equal volumes of and are mixed. The concentration of the principal ions in the resulting solution are | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 145. | With , colour of the bead in sodium carbonate-bead test is | | | | | | | |
|  | a) | Pink | b) | Black | c) | Yellow | d) | Green |
| 146. | 36.6 g of the crystal hydrate of barium chloride when roasted lose 5.4 g in mass. Thus, salt is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 147. | In the following reaction :  The equivalent weight of (with molecular weight ) is: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 148. | 1.2 g of Mg is treated with of Molar concentration of the solution after complete reaction is | | | | | | | |
|  | a) | 0.5 M | b) | 0.005 M | c) | 0.10 M | d) | 0.20 M |
| 149. | of molar gives 3 L of under the condition when 1 mole occupies 24 L, value of is | | | | | | | |
|  | a) | 2.5 | b) | 1.0 | c) | 0.5 | d) | 0.25 |
| 150. | Mole fraction of a solute in an aqueous solution is 0.2. The molality of the solution will be | | | | | | | |
|  | a) | 13.88 | b) | 1.388 | c) | 0.138 | d) | 0.0138 |
| 151. | The molarity of is 18 M. Its density is 1.8 g . Hence, molality is: | | | | | | | |
|  | a) | 36 | b) | 200 | c) | 500 | d) | 18 |
| 152. | required of solution in acidic medium. Volume of required by of is | | | | | | | |
|  | a) | 50 mL | b) | 100 mL | c) | 125 mL | d) | 150 mL |
| 153. | For the reaction, the volume of carbon monoxide required at STP to reduce one mole of ferric oxide is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 154. | In sodium carbonate bead test, chromium salts (green) change to coloured bead | | | | | | | |
|  | a) | Yellow, | b) | Yellow, | c) | Yellow, | d) | Orange, |
| 155. | A salt which will turn dark on exposure to sunlight has the formula | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 156. | The solution of sodium meta aluminate on boiling with ammonium chloride gives a white precipitate of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 157. | In the mixture of and , the volume of a given HCl required is mL with phenolphthaleiun indicator and further mL required with methyl orange indicator. Hence, volume of for complete reaction of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 158. | A substance that will deliquesce in the normal laboratory atmosphere is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 159. | What weight of a metal of equivalent weight 12 will give 0.475 g of its chloride? | | | | | | | |
|  | a) | 0.12 g | b) | 0.24 g | c) | 0.36 g | d) | 0.48 g |
| 160. | If 0.5 g of a mixture of two metals A and B with respective equivalent weights 12 and 9 displace of at STP from an acid, the composition of the mixture is | | | | | | | |
|  | a) | 40% A, 60% B | b) | 60% A, 40% B | c) | 30% A, 70% B | d) | 70% A, 30% B |
| 161. | is hydrolysed by forming | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 162. | In the decomposition of 10 g of are obtained. Hence, percentage purity of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 163. | In this reaction the mass of carbon will be used up in forming 11.2 L of CO at NTP is | | | | | | | |
|  | a) | 0.6 g | b) | 6 g | c) | 12 g | d) | 24 g |
| 164. | The molarity of a solution obtained by mixing of with of will be | | | | | | | |
|  | a) | 0.875 M | b) | 1.00 M | c) | 1.75 M | d) | 0.0975 M |
| 165. | Equivalent weight of in acidic, neutral and basic media are in ratio of: | | | | | | | |
|  | a) | 3:5:15 | b) | 5:3:1 | c) | 5:1:13 | d) | 3:15:5 |
| 166. | A colourless gas is dissolved in water and the resulting solution turns red litmus blue, the gas may have been which one of the following? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 167. | The volume of oxygen liberated at STP from 0.68 g of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 168. | An organic compound contains 4% sulphur. Its minimum molecular weight is | | | | | | | |
|  | a) | 200 | b) | 400 | c) | 800 | d) | 1600 |
| 169. | and are both present in the same solution. To precipitate one of the ions and leave the other in solution, add | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 170. | Which set does not contain amphoteric species? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 171. | If an ore sample containing is treated with 50 of 0.2750 M aqnd the unreached required 18.28 mL of 0.1232 M in acidic medium, the number of moles of Mn in the ore is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 172. | A mixture contains and . On adding dilute and KI and then starch, blue colour appears. This is due to | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 173. | 100 mL of 20.8% solution and 50 mL of 9.8% solution will form | | | | | | | |
|  | a) | 23.3 g | b) | 11.65 g | c) | 30.6 g | d) | None of these |
| 174. | In which case purity of the substance is 100%? | | | | | | | |
|  | a) | 1 mole of gave (at STP) | | | b) | 1 mole of gave | | |
|  | c) | 1 mole of gave | | | d) | 1 mole of gave 1 mole | | |
| 175. | Two samples of of 1.0 M and 0.25 M are mixed. Find volumes of these samples taken in order to prepare 0.75 M HCl solution. Assume no water is added  (I) (II)  (III) (IV) | | | | | | | |
|  | a) | I, II, IV | b) | I, II | c) | II, III, IV | d) | I, II, III, IV |
| 176. | To increase the molar solubility of in a saturated aqueous solution add | | | | | | | |
|  | a) | More water | b) |  | c) |  | d) |  |
| 177. | The molality of a solution is 9. The weight of the solute in solution is | | | | | | | |
|  | a) | 900.0 g | b) | 469 g | c) | 882.0 g | d) | 9.0 g |
| 178. | A candle is burnt in a beaker until it extinguishes itself. A sample of gaseous mixture in the beaker contains and molecules of, and molecules of . The total pressure is 734 mm of Hg. The partial pressure of would be | | | | | | | |
|  | a) | 760.0 mm of Hg | b) | 76.0 mm of Hg | c) | 7.6 mm of Hg | d) | 0.76 mm of Hg |
| 179. | 10 mL of 1 M solution and 5 mL 0.5 M are mixed together to precipitate out . The amount of precipated will be | | | | | | | |
|  | a) | 0.005 mol | b) | 0.00025 mol | c) | 0.025 mol | d) | 0.0025 mol |
| 180. | Ethanol-water mixture has 46 g ethanol in 100 g mixture. By a suitable technique volatile component goes off. Thus | | | | | | | |
|  | a) | 3 moles of non-volatile component are left | | | | | | | |
|  | b) | atoms of non-volatile component are left | | | | | | | |
|  | c) | atoms of volatile component are separated | | | | | | | |
|  | d) | All the above statements are correct | | | | | | | |
| 181. | of is neutralized by | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | All the above are correct | | |
| 182. | When a substance reacts with water it produces a combustible gas and a solution of substance in water. When another substance reacts with this solution of , it also produces the same gas on warming but can produce gas on reaction with dilute sulphuric acid at room temperature. imparts a deep golden yellow colour to a smokeless flame of Bunsen burner. and , respectively are | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 183. | The equivalent weight of phosphoric acid in the reaction  is | | | | | | | |
|  | a) | 59 | b) | 49 | c) | 25 | d) | 98 |
| 184. | Upon mixing 50.0 mL of 0.1 M lead nitrate solution with 50 mL of 0.05 M chromic sulphate solution, precipitation of lead sulphate solution takes place. How many moles of lead sulphate are formed and what is the molar concentration of chromic sulphate left in the solution? | | | | | | | |
|  | a) | 0.005, 0.0084 | b) | 0.0084, 0.005 | c) | 0.005, 0.00084 | d) | 0.05, 0.00084 |
| 185. | Which of the following reactions is not oxidation reduction? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | (a)and (c) |
| 186. | Marsh test is used for detecting | | | | | | | |
|  | a) | As | b) | Zn | c) | Al | d) |  |
| 187. | An iron sample contains What is the amount so that it is precipitated as which weighs 0.40 g? | | | | | | | |
|  | a) | 2.15 g | b) | 1.075 g | c) | 4.30 g | d) | 2.01 g |
| 188. | Sodium fusion extract, obtained from aniline, on treatment with iron (II) sulphate and , in presence of air gives a Prussian blue precipitate. The blue colour is due to the formation of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 189. | 10 of solution (volume strength) required 10of N/0.56 solution in acidic medium. Hence, is | | | | | | | |
|  | a) | 0.56 | b) | 5.6 | c) | 0.1 | d) | 10 |
| 190. | The compound thioacetamide has been into analytical chemistry to replace which one of the following reagents? | | | | | | | |
|  | a) |  | b) |  | c) | YAS | d) |  |
| 191. | What maximum amount of gets precipitated if is mixed with 1 mole of | | | | | | | |
|  | a) | 0.5 mol | b) | 1.0 mol | c) | 1.5 mol | d) | 2.0 mol |
| 192. | Solution of in dil. white turbidity. black ppt is soluble in | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 193. | 11.2 L of is absorbed in 1 mole formed is | | | | | | | |
|  | a) | 5.6 mol | b) | 11.2 mol | c) | 0.5 mol | d) | 1.0 mol |
| 194. | are isotonic and isoelectronic. Thus, increasing order of atomic number of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 195. | The ion most difficult to remove as a precipitate is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 196. | is 0.001 M. Hence, concentration in ppm is | | | | | | | |
|  | a) |  | b) | 100 | c) | 212 | d) | 63 |
| 197. | of oxidized of in acidic medium (when is reduced to ); volume of same required to oxidize of in basic medium (when is reduced to ) will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 198. | If 100 mL of and 100 mL of are mixed, the mass percent of in the resulting solution is | | | | | | | |
|  | a) | 90 | b) | 47.36 | c) | 50 | d) | 60 |
| 199. | A salt contains cation and again . Both decolourise in acidic medium. Salt is | | | | | | | |
|  | a) | Ferrous oxalate | | | b) | Ferric oxalate | | |
|  | c) | Both (a) and (b) | | | d) | None of these | | |
| 200. | is obtained in the following steps:  To get 0.25 mol of , mol of 50% pure required | | | | | | | |
|  | a) | 1 mol | b) | 0.50 mol | c) | 0.25 mol | d) | 0.125 mol |
| 201. | The of in the reaction is | | | | | | | |
|  | a) | 49 | b) | 98 | c) | 32.66 | d) | 147 |
| 202. | Normality of a solution that contains 12.64 g of in of solution to be used in the reaction that produces ion as the reducing product is | | | | | | | |
|  | a) | 0.16 N | b) | 0.32 N | c) | 0.80 N | d) | 0.08 N |
| 203. | Of the following oxides, all are soluble, in except | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 204. | One litre of a sample of hard water contains 5.55 mg of and 4.75 mg of . The total harness in terms of ppm of is | | | | | | | |
|  | a) | 5 ppm | b) | 10 ppm | c) | 20 ppm | d) | None of these |
| 205. | In iodometric titration, hypo is oxidized to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 206. | Mass of one atom of is then its 32 g is equal to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of the above | | |
| 207. | In a glass-tube, there are 18 g of glucose. 0.08 mole of glucose is taken. Glucose left in the glass-tube is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 208. | Stock phosphoric acid solution is (by mass of solution) and has a specific gravity of 1.70. Hence, molarity of solution is | | | | | | | |
|  | a) | 8.51 M | b) | 1.70 M | c) | 14.74 M | d) | 7.37 M |
| 209. | From the complete decomposition of 20 g at STP, the volume of obtained is | | | | | | | |
|  | a) | 2.24 L | b) | 4.48 L | c) | 20 L | d) | 22.4 L |
| 210. | Which element has maximum percentage in iron (III) sulphate (IV)? | | | | | | | |
|  | a) | Iron | b) | Sulphur | c) | Oxygen | d) | Equal |
| 211. | Consider the following laws of chemical combination with examples  Law of multiple proportion :  Law of reciprocal proportion :  Which is correct with examples? | | | | | | | |
|  | a) | I and II | b) | I only | c) | II only | d) | None of the above |
| 212. | Aqueous solution containing one mole borax reacts with two moles of acids. This is because of | | | | | | | |
|  | a) | Formation of 2 moles of only | | | b) | Formation of 2 moles of only | | |
|  | c) | Formation of mole each of and | | | d) | Formation of 2 mol each of and of which only reacts with acid | | |
| 213. | Mixture of 1 g each of and is reacted with The of required to react completely with the above mixture is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 214. | of solution is neutralized by of solution. of same solution is oxidized by of solution in acidic medium. Hence, molarity of is | | | | | | | |
|  | a) | 0.1 M | b) | 0.2 M | c) | 0.04 M | d) | 0.02 M |
| 215. | In the following reaction,  2 moles react with 4 moles of to form Thus, per cent yield of is | | | | | | | |
|  | a) | 25% | b) | 50% | c) | 100% | d) | 75% |
| 216. | An aqueous solution of glucose is 10%. The volume in which 1 g mol of it is dissolved will be | | | | | | | |
|  | a) | 0.9 L | b) | 9 L | c) | 1.8 L | d) | 18 L |
| 217. | of solution of is evaporated to dryness; residue obtained is 0.111g Molarity of solution is | | | | | | | |
|  | a) | 0.1 M | b) | 1.0 M | c) | 0.01 M | d) | 0.001 M |
| 218. | Colourless salt blue colour. can be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 219. | The mass of required for neutralization of one mole of is | | | | | | | |
|  | a) | 30 g | b) | 70 g | c) | 35 g | d) | 95 g |
| 220. | A gaseous mixture contains and in the ratio of 1:4 by wight. The ratio of their number of molecules is | | | | | | | |
|  | a) | 1:4 | b) | 1:8 | c) | 7:32 | d) | 3:16 |
| 221. | A mineral consists of an equimolar mixture of the carbonates of two bivalent metals. One metal is present to the extent of 15.0% by weight, 3.0 g of the mineral on heating lost 1.10 g of . The percent by weight of other metal is | | | | | | | |
|  | a) | 65 | b) | 25 | c) | 75 | d) | 35 |
| 222. | in a solution prepared by mixing of with of is | | | | | | | |
|  | a) | 0.135 M | b) | 0.141 M | c) | 0.210 M | d) | 0.246 M |
| 223. | A metal nitrate reacts with KI to give a black precipitate which on addition of excess of KI converts into orange colour solution. The cation of metal nitrate is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 224. | Upon treatment with ammoniacal , the metal ion that precipitates as a sulphide is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 225. | If two compounds have same empirical formula but different molecular formula, they must have | | | | | | | |
|  | a) | Same viscosity | | | b) | Same vapour density (VD) | | |
|  | c) | Different molecular weight | | | d) | Different percentage composition | | |
| 226. | A gaseous mixture contains oxygen and nitrogen in the ratio 1:4 by weight. Therefore, the ratio of the number of molecules is: | | | | | | | |
|  | a) | 1:4 | b) | 1:8 | c) | 7:32 | d) | 3:16 |
| 227. | Analysis of chlorophyll shows that it contains 2.40 per cent magnesium. Thus, number of atoms in 1 g chlorophyll is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 228. | To make 0.01 mole which of the following has maximum mass? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 229. | Select the correct statement | | | | | | | |
|  | a) | In iodometric titration, hypo is taken in burette | | | | | | | |
|  | b) | In iodimetric titration, ---- solution is taken in burette | | | | | | | |
|  | c) | In iodometric titration ----- formed exist as | | | | | | | |
|  | d) | All the above are correct statements | | | | | | | |
| 230. | Precipitates of IIA and IIB can be separated by | | | | | | | |
|  | a) |  | b) | Yellow | c) | Both (a) and (b) | d) | None of these |
| 231. | What is the valency of an element of which the equivalent weight is 12 and the specific heat is 0.25? | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 232. | Ammonium salts can be decomposed by | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 233. | In a titration is oxidized to by of require of solution. Hence, changes to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 234. | On adding and solution to the neutral solution of , there is formation of yellowish orange precipitate of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 235. | (molarity) and (molality) are related to each other by equation  molecular weight of solute, density | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) | Both (a) and (b) | | | d) | None of the above | | |
| 236. | On repeated sparking, 10 mL of a mixture of carbon monoxide and nitrogen required 7 mL of oxygen for combustion. What was the volume of nitrogen? (All volumes are measured under identical conditions) | | | | | | | |
|  | a) | 7/2 mL | b) | 4 mL | c) | 7 mL | d) | 17/2 mL |
| 237. | The molar mass of a compound if 0.372 mole of it has a mass of 186 g, is | | | | | | | |
|  | a) | 200 g | b) | 372 g | c) | 500 g | d) | 186 g |
| 238. | If 5.0 g of Al react with 4.45 g of empirical formula of aluminum oxide is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 239. | 1 mole of ferric oxalate is oxidized by moles of Thus, is | | | | | | | |
|  | a) | 1.2 | b) | 2.1 | c) | 3.1 | d) | 1.3 |
| 240. | can be used to test one or more out of | | | | | | | |
|  | a) | only | b) |  | c) |  | d) | All of these |
| 241. | To increase significantly the concentration of free ion is a solution of the complex ion  add to the solution some | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 242. | The number of moles of oxygen obtained by the electrolytic decomposition of 90 g water is | | | | | | | |
|  | a) | 2.5 | b) | 5 | c) | 7.5 | d) | 10 |
| 243. | Resultant molarity of ion in a mixture of of and of is | | | | | | | |
|  | a) | 0.1 M | b) | 0.2 M | c) | 0.267 M | d) | 0.133 M |
| 244. | An isotope of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 245. | An aqueous solution of a substance gives a white precipitate on treatment with dilute hydrochloric acid, which dissolves on heating. When hydrogen sulphide is passed through the hot acidic solution, a black precipitate is obtained. The substance is a | | | | | | | |
|  | a) | salt | b) | salt | c) | salt | d) | salt |
| 246. | oxidized to Equivalent weight of is | | | | | | | |
|  | a) | 48 | b) | 32 | c) | 8 | d) | 4 |
| 247. | At and 1 atm, if the density of the liquid water is 1.0 g and that of water vapour is 0.0006 g , then the volume occupied by water molecules in 1 L of steam at this temperature is | | | | | | | |
|  | a) | 6 | b) | 60 | c) | 0.6 | d) | 0.06 |
| 248. | 1.0 g of a monobasic acid when completely acted upon Mg gave 1.301 g anhydrous Mg salt. Equivalent weight of acid is | | | | | | | |
|  | a) | 35.54 | b) | 36.54 | c) | 17.77 | d) | 18.27 |
| 249. | Cortisone is a molecular substance containing 21 atoms of carbon per molecule. The mass percentage of carbon in cortisone is 69.98%. its molar mass is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 250. | 100 of is oxidised by 100 of 0.01 M in acidic medium (reduced to ). 100 mL of the same is oxidised by mL of 0.01 M in basic medium ( reduced to ). Hence, V is | | | | | | | |
|  | a) | 500 | b) | 100 | c) |  | d) |  |
| 251. | 1.6 g of pyrousite ore was ore was treated with 50 of 0.1 N oxalic acid and some sulphuric acid. the oxalic acid left in excess was raised to 250 in a flask. 25 of this solution, when titrated with , required 30 mL of the solution. The percentage of pure in the sample is | | | | | | | |
|  | a) | 10.86% | b) | 5.43% | c) | 1.086% | d) | None of these |
| 252. | How many moles of electrons weight one kilogram? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 253. | Which of the following has maximum number of C-atoms? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 254. | Three test tubes contain and (but unknown). To each aqueous solution is added in excess. Following changes occur  Black ppt  Brown ppt  White ppt but dissolves in excess of  and contain respectively | | | | | | | |
|  | a) | and | b) |  | c) |  | d) |  |
| 255. | Dimethyl glyoxime and are used to distinguish and separate and . These are used to order | | | | | | | |
|  | a) | then | | | b) | DMG then | | |
|  | c) | At random | | | d) | Given reagent are not suitable | | |
| 256. | ether blue perchromic anhydride (in ethereal layer). Blue colour is due to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 257. | 1.2 g of Mg is treated with of Molar concentration of the solution after complete reaction is | | | | | | | |
|  | a) | 0.5 M | b) | 0.005 M | c) | 0.10 M | d) | 0.20 M |
| 258. | Number of moles in is equal to the number of moles in  I : 1.8 g glucose  II : 6 g urea  III : 34.2 g sucrose  Select the correct group. | | | | | | | |
|  | a) | I, II, III | b) | I, II | c) | I, III | d) | II, III |
| 259. | Which is soluble in ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 260. | oxidises KI in the presence of to . The equivalent weight of the is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 261. | Aqueous solution of salt  is  (red ppt) (black) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 262. | A sample of is 50% pure. On heating 1.12 L of (at STP) is obtained. Residue left (assuming non-volatile impurity) is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 263. | 1 g of a sample of was dissolved in of 0.33 M alkaline solution of and refluxed till all the cyanide was converted into . The reaction mixture was cooled and its portion was acidified by adding in excess and then titrated to end point against 19.0 mL of 0.1 M solution. The percentage purity of NaCN sample is | | | | | | | |
|  | a) | 55.95 % | b) | 65.95 % | c) | 75.95 % | d) | 85.95 % |
| 264. | 1 mole of is dissolved in water and is added to neutralise acidic solution Moles of required are | | | | | | | |
|  | a) | 2 | b) | 3 | c) | 4 | d) | 5 |
| 265. | If equal volumes of 1 M and 1 M solutions are used to oxidise in acidic medium, then will be oxidised | | | | | | | |
|  | a) | More by | | | | | | | |
|  | b) | More by | | | | | | | |
|  | c) | Equal in both the cases | | | | | | | |
|  | d) | The data is insufficient to predict the answer | | | | | | | |
| 266. | Urea solution is one molal. Urea present in 1 kg solution is | | | | | | | |
|  | a) | 60 g | b) | 56.6 g | c) | 10.60 g | d) | 10.0 g |
| 267. | What volume of 0.2 M KOH will be required to neutralize 100 of 0.1 M using methyl red indicator (change of colour pink yellow) and then bromothymol blue indicator is added | | | | | | | |
|  | a) | 50 | b) | 100 | c) | 150 | d) | 200 |
| 268. | When a soluble lead compound is added to a solution containing orange solution | | | | | | | |
|  | a) | is precipitated | | | b) | is precipitated | | |
|  | c) | is precipitated | | | d) | None of the above is precipitated | | |
| 269. | Number of atoms in 20 g Ca is equal to number of atoms in | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 270. | If each O-atom has two equivalents, volume of one equivalent of gas at STP is | | | | | | | |
|  | a) | 22.4 L | b) | 11.2 L | c) | 5.6 L | d) | 44.8 L |
| 271. | The density of ammonia at and 5 atm pressure is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 272. | of require for complete decomposition is | | | | | | | |
|  | a) | 9.8% | b) | 4.9% | c) | 19.6% | d) | 2.45% |
| 273. | does not give blue colour with but on its reaction with , blue colour appears, can be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 274. | of neutralizes of solution to phenolphthalein end-point. The value of is | | | | | | | |
|  | a) | 0.167 M | b) | 0.133 M | c) | 0.150 M | d) | 0.05 M |
| 275. | White ppt soluble in | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 276. | is decolourised on addition of , the product is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 277. | An excess of was added to 100 mL of a solution which gives 2.14 of . Calculate the normality of solution | | | | | | | |
|  | a) | 0.2 N | b) | 0.3 N | c) | 0.6 N | d) | 1.8 N |
| 278. | A mixture is known to contain and . Before performing ring test for , the aqueous solution should be made free of . This is done by heating aqueous extract with | | | | | | | |
|  | a) | Conc. | b) |  | c) | Urea | d) | Zinc dust |
| 279. | If 0.50 mol of is mixed with 0.20 mol of the maximum number of moles of that can be formed is | | | | | | | |
|  | a) | 0.70 | b) | 0.50 | c) | 0.20 | d) | 0.10 |
| 280. | A bottle which contains of solution, absorbs 1.00 millimol of from the air. This solution is titrated with standard solution using phenolphthalein indicator. Normality of resulting solution is found as | | | | | | | |
|  | a) | 0.190 N | b) | 0.380 N | c) | 0.095 N | d) | 0.0475 N |
| 281. | In the following final result is …0.1 mole mole H atoms | | | | | | | |
|  | a) | 0 mol H atom | b) | 0.2 mol H atom | c) | 0.3 mol H atom | d) | 0.4 mol H atom |
| 282. | The largest number of molecules is in | | | | | | | |
|  | a) | 36 g of water | | | b) | 28 g of carbon monoxide | | |
|  | c) | 46 g of ethyl alcohol | | | d) | 54 g of nitrogen pentoxide | | |
| 283. | Disilane is analysed and found to contain 90.28% by weight silicon. Value of x is | | | | | | | |
|  | a) | 2 | b) | 3 | c) | 4 | d) | 6 |
| 284. | Zinc pieces can added to acidified solution of . Gas liberated can | | | | | | | |
|  | a) | Turn lead acetate paper black | | | b) | Turn lime water milky | | |
|  | c) | Give both of the above tests | | | d) | Give none of the above tests | | |
| 285. | ppt is soluble in | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 286. | of a mixture of and is neutralized by of Hence, amount of in mixture is | | | | | | | |
|  | a) | 0.2 g | b) | 0.4 g | c) | 0.6 g | d) | 1.0 g |
| 287. | 13.4 g of a sample of unstable hydrated salt was found to contain 6.3 g of . The number of molecules of water of crystalisation is | | | | | | | |
|  | a) | 5 | b) | 7 | c) | 2 | d) | 10 |
| 288. | Colourless salt colourless bead can be | | | | | | | |
|  | a) | Borax | b) | Microcosmic salt | c) | Both (a) and (b) | d) | None of these |
| 289. | Molarity of solution formed in the above question will be | | | | | | | |
|  | a) | 0.0244 M | b) | 0.0112 M | c) | 0.1500 M | d) | 0.1276 M |
| 290. | The volume strength of solution is | | | | | | | |
|  | a) | 8.4 | b) | 4.2 | c) | 16.8 | d) | 5.2 |
| 291. | Concentrated hydrochloric acid contains (by mass). The density of this solution is The molarity (conc. in ) of solution is | | | | | | | |
|  | a) | 10 M | b) | 12 M | c) | 13 M | d) | 14 M |
| 292. | 3.9 g of a mixture of aluminium and its oxide on reaction with aqueous solution of sodium hydroxide, gave 840 mL of a gas under standard conditions. Thus, aluminium content in the mixture is | | | | | | | |
|  | a) | 3.225 g | b) | 0.675 g | c) | 1.35 g | d) | 2.70 g |
| 293. | The normality and volume strength of a solution made by mixing 1.0 L each of 5.6 vol and 11.2 vol solution are | | | | | | | |
|  | a) | 1 N, 5.6 vol | b) | 1.5 N, 5.6 vol | c) | 1.5 N, 8.4 vol | d) | 1 N, 8.4 vol |
| 294. | Select the correct statement | | | | | | | |
|  | a) | Prussian blue and Turnbull’s blue are identical in structure | | | b) | decreases ionization of by common ion effect so as to precipitate only and as hydroxides | | |
|  | c) | Both (a) and (b) are correct | | | d) | None of the above is correct | | |
| 295. | 600 mL of ozonised oxygen at STP were found to weigh one gram. What is the volume of ozone in the ozonised oxygen? | | | | | | | |
|  | a) | 200 mL | b) | 150 mL | c) | 100 mL | d) | 50 mL |
| 296. | required solution in acidic medium.Thus, molarity of solution is | | | | | | | |
|  | a) | 0.12 M | b) | 0.60 M | c) | 0.024 M | d) | None of correct |
| 297. | The weight of of oxygen at NTP is | | | | | | | |
|  | a) | 0.64 g | b) | 0.96 g | c) | 0.32 g | d) | 0.16 g |
| 298. | One mole of the salt contains | | | | | | | |
|  | a) | 3 equivalents of and 4 equivalents of | | | | | | | |
|  | b) | 1 equivalent each of and | | | | | | | |
|  | c) | 3 equivalents of and 2 equivalents of | | | | | | | |
|  | d) | None of the above is correct | | | | | | | |
| 299. | A balloon blown up has a volume of 300 at . The balloon is distended to 5/6 of its maximum stretching capacity. The maximum temperature above which it will burst is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 300. | Given, that the abundances of isotopes 54Fe, 56Fe and 57Ferespectively, the atomic mass of Fe is | | | | | | | |
|  | a) | 55.85 | b) | 55.95 | c) | 55.75 | d) | 56.05 |
| 301. | If 100 of acidified is allowed to react with solution till there is a light tinge of purple colour, the volume of oxygen produced at STP is | | | | | | | |
|  | a) | 2.24 L | b) | 1.12 L | c) | 3.36 L | d) | 4.48 L |
| 302. | The nucleus of an atom consists of | | | | | | | |
|  | a) | Neutron | b) | Proton | c) | Electron | d) | Both (a) and (b) |
| 303. | An aqueous solution of 6.3 g oxalic acid dihydrate is made up to 250 mL. The volume of 0.1 N required to completely neutralize 10 mL of this solution is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 304. | Select the correct statement (s) | | | | | | | |
|  | a) | is more stable than | | | | | | | |
|  | b) | If gas is passed into the aqueous solution of mixture of and , formation of yellow ppt indicates presence of | | | | | | | |
|  | c) | and both dissolve in excess of KI forming soluble and | | | | | | | |
|  | d) | All of the above are correct statements | | | | | | | |
| 305. | Iodate ion, oxidizes to in acidic medium. If sample of solution containing 2.14 g of reacts with of solution, then final oxidation state of iodine is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 306. | 0.5 mole of is mixed with 0.2 mole of Maximum number of moles of barium phosphate formed in this reaction is | | | | | | | |
|  | a) | 0.1 | b) | 0.2 | c) | 0.3 | d) | 0.5 |
| 307. | Iodometric method can be used to estimate | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | All the above are correct sets | | |
| 308. | solution contains 10 g carbonate. The concentration of solution as carbonate is | | | | | | | |
|  | a) | 10 ppm | b) | 100 pm | c) | 1000 ppm | d) | 10000 ppm |
| 309. | Consider the following pairs,  I.  II.  III.  IV.  In which cases, law of multiple proportion is followed? | | | | | | | |
|  | a) | I, II | b) | I, II, III | c) | I, III, IV | d) | I, II, III, IV |
| 310. | gave 0.03 mole of Hence, percentage purity of is | | | | | | | |
|  | a) | 49% | b) | 50% | c) | 95% | d) | 98% |
| 311. | reduces to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 312. | Radius of water molecule is (assuming it spherical) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 313. | When microcosmic salt is heated, transparent bead is of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 314. |  | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 315. | Which pair has same percentage of carbon? | | | | | | | |
|  | a) | and | | | b) | and | | |
|  | c) | and | | | d) | and | | |
| 316. | Microcosmic salt and borax are used in the identification of cations by dry tests. They are respectively | | | | | | | |
|  | a) | and | | | b) | and | | |
|  | c) | and | | | d) | and | | |
| 317. | Sodium combines with to give two samples of sodium chloride. Their formation follows the law of | | | | | | | |
|  | a) | Gaseous diffusion | | | b) | Conservation of mass | | |
|  | c) | Reciprocal proportion | | | d) | None of these | | |
| 318. | Silver metal reacts with chlorine to yield silver chloride. If 2.00 g of Ag react with 0.657 g of empirical formula of silver chloride is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 319. | After 20 ml of 0.1 M is mixed with 10 mL of 0.2 M , the concentration of  ions is | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) | ions are completely neutralized | | | | | | | |
| 320. | In the standardization of using by iodometry, the equivalent weight of is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | Same as the molecular weight | | |
| 321. | Water gas consisting of equal volumes of CO and is produced when water vapour is passed over red hot coal. Volume of water gas produced under standard state when 3.0 kg of coal is treated for water gas is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 322. | If the equivalent weight of an element is 32, then the percentage of oxygen in its oxide is | | | | | | | |
|  | a) | 16 | b) | 40 | c) | 32 | d) | 20 |
| 323. | KI reacts with producing and . The volume of 0.2 M required to produce 0.1 mol of is | | | | | | | |
|  | a) | 4 L | b) | 2.5 L | c) | 3.8 L | d) | 5 L |
| 324. | In which mode of expression, the concentration of a solution remains independent of temperature? | | | | | | | |
|  | a) | Molarity | b) | Normality | c) | Formality | d) | Molality |
| 325. | 25.0 g of was dissolved in water containing dilute , and the volume was made up to 1.0 L. 25.0 mL of this solution required 20 mL of an N/10 solution for complete oxidation. The percentage of in the acid solution is | | | | | | | |
|  | a) | 78% | b) | 98% | c) | 89% | d) | 79% |
| 326. | Water soluble mixture White ppt.  Filtrate + water + White ppt. Mixture contains | | | | | | | |
|  | a) | only | b) | only | c) | Both (a) and (b) | d) | None of these |
| 327. | 10 g of on reaction with conc liberated 0.1 equivalent of Hence, per cent purity of is | | | | | | | |
|  | a) | 87.0 | b) | 21.75 | c) | 50.0 | d) | 43.5 |
| 328. | Assuming fully decomposed, the volume of released at STP on heating 9.85 g of (Atomic mass, Ba = 137) will be | | | | | | | |
|  | a) | 1.12 L | b) | 0.84 L | c) | 2.24 L | d) | 4.06 L |
| 329. | A gaseous mixture contains oxygen and nitrogen in the ratio of 1:4 by weight. Therefore, the ratio of their number of molecules is | | | | | | | |
|  | a) | 1:4 | b) | 1:8 | c) | 7:32 | d) | 3:16 |
| 330. | An aqueous solution of 6.3 g oxalic acid dihydrate is made upto The volume of 0.1 N required to completely neutralize of this solution is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 331. | 100 of mixture of and is neutralized by 10 of . Hence, NaOH in 100 mL solution is | | | | | | | |
|  | a) | 0.2 g | b) | 0.4 g | c) | 0.6 g | d) | None |
| 332. | Mole fraction of glucose in aqueous solution is 0.5. Hence, molality of glucose solution is | | | | | | | |
|  | a) | 55.55 | b) | 1.0 | c) | 0.055 | d) | 90.0 |
| 333. | 0.848 g aqueous solution of a mixture containing , NaOH, and an inert matter is titrated with M/2 HCl. The colour of phenolphthalein disappears when 20 mL of the acid has been added. Methyl orange is then added and 0.8 mL more of the acid is required to give a red colour to the solution. The percentage of is | | | | | | | |
|  | a) | 25 | b) | 12.5 | c) | 75 | d) | 50 |
| 334. | 10 L of hard water required 0.56 g of lime () for removing hardness. Hence, temporary hardness in ppm (part per million ) of is: | | | | | | | |
|  | a) | 100 | b) | 200 | c) | 10 | d) | 20 |
| 335. | excess of . and respectively are | | | | | | | |
|  | a) | (Nesser’s reagent), | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) | Both | | | | | | | |
|  | d) | Both | | | | | | | |
| 336. | 2.86 g of in solution is 0.2 N. Hence, is | | | | | | | |
|  | a) | 5 | b) | 10 | c) | 20 | d) | 2 |
| 337. | a colourless gas with irritating smell  green solution and aree | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 338. | Titration of a 0.7439 g sample of impure (borax) required of for reaction. In terms of percentage is | | | | | | | |
|  | a) | 46.39% | b) | 87.73% | c) | 32.15% | d) | 10.11% |
| 339. | A mixture of formic acid and oxalic acid is heated with cone . The gas produced is collected and treated with KOH solution, whereby the volume decreases by 1/6th. The molar ratio of the two acids (formic acid/oxalic acid) is | | | | | | | |
|  | a) | 4:1 | b) | 1:4 | c) | 2:1 | d) | 1:2 |
| 340. | Sulphuryl chloride reacts with water to give a mixture of and . Moles of required to neutralize the solution formed by adding 1 mol of to excess water is are | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 341. | The normality of 0.3 M phosphorous acid is | | | | | | | |
|  | a) | 0.1 | b) | 0.9 | c) | 0.3 | d) | 0.6 |
| 342. | A bivalent metal has 37.2 equivalent weight. The molecular weight of its chloride is | | | | | | | |
|  | a) | 216.6 | b) | 148.8 | c) | 145.4 | d) | 172.8 |
| 343. | If gas is passed into yellow solution | | | | | | | |
|  | a) | (orange) solution is formed | | | b) | is formed | | |
|  | c) | is precipitated | | | d) | No action | | |
| 344. | (ion exchange resin) can replace in hard water    1 L of hard water after passing through has pH=2. Hence, hardness in ppm of is | | | | | | | |
|  | a) | 200 | b) | 100 | c) | 50 | d) | 125 |
| 345. | The percentage of chlorine in is | | | | | | | |
|  | a) | 15.5 | b) | 33.3 | c) | 17.7 | d) | 47.7 |
| 346. | gives different colour with | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 347. | A student performs a titration with different burettes and finds titre values of 25.2 mL, 25.25 mL, and 25.0mL. The number of significant figures in the average titre value is | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 348. | In the reaction  1 mol of C will liberate how many moles of ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 349. | Ammonia in 0.224 g of a compound is neutralised by 30.7 mL of 0.20 M HCl. The value of in the formula is | | | | | | | |
|  | a) | 4 | b) | 5 | c) | 6 | d) | 8 |
| 350. | The decomposition of a certain mass of gave gas as STP. The mass of KOH required to completely neutralise the gas is | | | | | | | |
|  | a) | 56 g | b) | 28 g | c) | 42 g | d) | 20 g |
| 351. | If we assume that then molar mass of will be taken as | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 352. | The molarity (conc. In mol ) of solution, which has a density 1.84 g/cc at and contains 98% by weight is | | | | | | | |
|  | a) | 1.84 M | b) | 18.4 M | c) | 20.6 M | d) | 24.5 M |
| 353. | The normality of solution obtained by mixing of and of is | | | | | | | |
|  | a) | 0.067 N | b) | 0.2 N | c) | 0.133 N | d) | 0.125 N |
| 354. | What would you observe if you add with shaking excess dil. solution to solution? | | | | | | | |
|  | a) | A white ppt | | | b) | A white ppt which later dissolves | | |
|  | c) | A green ppt | | | d) | A green ppt which later dissolves | | |
| 355. | Hardness of water is measured in terms of ppm (parts per million) of It is the amount (in g) of present in In a sample of water, 10 L required 0.56 g of CaO to remove temporary hardness of Temporary hardness is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 356. | To 1 L of 1.0 M impure sample, 1.0 M NaOH solution was added and a plot was obtained as follows:    The % purity of and the slope of curve, respectively, are: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 357. | The of an element is 13. It forms an acidic oxide which with KOH forms a salt isomorphous with . The atomic weight of element is | | | | | | | |
|  | a) | 13 | b) | 26 | c) | 52 | d) | 78 |
| 358. | is 0.1 M when neutralized with Hence, it is --------- when oxidized with | | | | | | | |
|  | a) | 0.1 N | b) | 0.2 N | c) | 0.05 N | d) | 0.15 N |
| 359. | 0.106 g of completely neutralizes of Hence, normality of solution is | | | | | | | |
|  | a) | 0.05 N | b) | 0.025 N | c) | 0.10 N | d) | 0.20 N |
| 360. | In diammonium phosphate the percentage of is | | | | | | | |
|  | a) | 35.87 | b) | 46.44 | c) | 51.99 | d) | 53.78 |
| 361. | When mol of the chloride of an element Y was completely hydrolysed, it was found that the resulting solution required 20 mL of 0.1 M aqueous silver nitrate for complete precipitation of the chloride ion. Element Y could be | | | | | | | |
|  | a) | Aluminium | b) | Phosphorus | c) | Silicon | d) | Sulphur |
| 362. | The number of moles of oxygen present in one litre of air under STP conditions (it contains 21% oxygen) is | | | | | | | |
|  | a) | 0.246 mol | b) | 0.07438 mol | c) | 2.0078 mol | d) | 0.0094 mol |
| 363. | Number of atoms in increasing order in is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 364. | The weight of molecules of is | | | | | | | |
|  | a) | 4.14 g | b) | 5.14 g | c) | 6.14 g | d) | 7.14 g |
| 365. | If 10 g of is dissolved in acid and is reduced to by zinc metal, how many moles of could be reduced by the resulting solution if it is further oxidized to ions? (Atomic mass of V is 51 ) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 366. | Percentage of nitrogen can be determined by volumetric technique and the method is called | | | | | | | |
|  | a) | Duma’s method | b) | Kjeldahl’s method | c) | Hofmann’s method | d) | Victor’s method |
| 367. | A 5.0 solution of liberates 1.27 g of iodine from an acidified KI solution, the strength of in terms of volume strength is | | | | | | | |
|  | a) | 11.2 | | | | | | | |
|  | b) | 5.6 | | | | | | | |
|  | c) | 1.7 | | | | | | | |
|  | d) | 3.4 | | | | | | | |
| 368. | Soluble is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 369. | is highly soluble in all of the following except one. The exception is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 370. | The hydrogen phosphate of certain metal has formula. The formula of metal chloride is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 371. | A mixture of and required equal volumes of and separated. Molar ratio of and in the mixture is | | | | | | | |
|  | a) | 1 : 1 | b) | 1 : 5.5 | c) | 5.5 : 1 | d) | 3.1 : 1 |
| 372. | can | | | | | | | |
|  | a) | Decolourise solution | | | b) | Turn solution green | | |
|  | c) | Both (a) and (b) are correct | | | d) | None of the above is correct | | |
| 373. | A solution of required of solution for the oxidation to Hence, molarity of solution is | | | | | | | |
|  | a) | 0.015 M | b) | 0.045 M | c) | 0.030 M | d) | 0.0225 M |
| 374. | Four test tubes containing dil. and solution. Which of the following will identify | | | | | | | |
|  | a) | Dil. | b) |  | c) |  | d) |  |
| 375. | 5.3 g of is dissolved in of Unused acid required of Hence, equivalent weight of is | | | | | | | |
|  | a) | 23 | b) | 12 | c) | 24 | d) | 13 |
| 376. | 0.45 g of an acid of molecular weight 90 was neutralized by of a 0.5 N caustic potash. The basicity of an acid is | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 377. | of a blood sample (containing calcium oxalate) is dissolved in acid. It required of 0.001 M (which oxidizes oxalate to carbon dioxide) hence, ion in blood is | | | | | | | |
|  | a) | 0.200 g | b) | 0.02 g | c) | 2.00 g | d) | 0.002 g |
| 378. | Nine volumes of gaseous mixture consisting of gaseous organic compound A and just sufficient amount of oxygen required for complete combustion yielded on burning 4 volumes of , 6 volumes of water vapours, and 2 volumes of , at all volumes measured at the same temperature and pressure. If the compounds contains C, H, and N only, the molecular formula of compound is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 379. | 0.6 g is treated with and formed is passed into Unused acid is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 380. | The mass of required to produce 5.0 L at and 0.82 atm pressure from excess of oxalic acid and volume of 0.1 N NaOH required to neutralize the evolved, respectively, are | | | | | | | |
|  | a) | 7 g, 2.86 L | b) | 5 g, 1.86 L | c) | 4 g, 0.86 L | d) | None |
| 381. | In a gas S and O are 50% by mass, hence, their mole ratio is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 382. | A 4:1 molar mixture of He and is contained in vessel at 20 bar pressure. Due to a hole in the vessel the gas mixture leakes out. What is the composition of mixture effusing out initially | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 383. | andare two isotopes of chlorine. If average atomic mass is 35.5 then ration of these two isotopes is | | | | | | | |
|  | a) | 35 : 37 | b) | 1 : 3 | c) | 3 : 1 | d) | 2 : 1 |
| 384. | 1 mole is treated with 2 moles of To make the resulting mixture neutral, is added. required in this process is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 385. | A certain compound has the molecular formula If 10 g of has 5.72 g X, the atomic mass of X is | | | | | | | |
|  | a) | 32 amu | b) | 37 amu | c) | 42 amu | d) | 98 amu |
| 386. | Select the correct statement(s) | | | | | | | |
|  | a) | appears as white precipitate when reacts with | | | | | | | |
|  | b) | is unstable turning black on standing due to formation of | | | | | | | |
|  | c) | can form soluble complex with | | | | | | | |
|  | d) | All of the above are correct statements | | | | | | | |
| 387. | ion is isoelectronic of and has neutrons ( is atomic number of )  Thus, ionic mass of is | | | | | | | |
|  | a) | 70 | b) | 66 | c) | 68 | d) | 64 |
| 388. | 10 g of contains | | | | | | | |
|  | a) | 10 moles of | | | b) | 0.1 g atom of Ca | | |
|  | c) | atoms of Ca | | | d) | 0.1 of equivalent of Ca | | |
| 389. | Turnbull’s blue and Prussian’s blue respectively are  I. II.  III. IV. | | | | | | | |
|  | a) | I, II | b) | I, III | c) | III, IV | d) | IV, III |
| 390. | A compound with molecular mass 180 is acylated with to get a compound with molecular mass 390. The number of amino groups present per molecule of the former compound is | | | | | | | |
|  | a) | 2 | b) | 5 | c) | 4 | d) | 6 |
| 391. | 0.31 g of N-containing compound on reaction with gave which required Hence, % of N is | | | | | | | |
|  | a) | 45.16% | b) | 90.32% | c) | 22.58% | d) | 11.29% |
| 392. | An aqueous solution of is 5.85%. The volume in which 1 mole of it is dissolved will be | | | | | | | |
|  | a) | 1 L | b) | 10 L | c) | 5.85 L | d) | 58.5 L |
| 393. | How many moles of magnesium phosphate, will contain 0.25 mole of oxygen atoms? | | | | | | | |
|  | a) | 0.02 | b) |  | c) |  | d) |  |
| 394. | Which is the volatile compound burning with green flame? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 395. | In an experiment, 20 of 0.1 M solution of a metallic salt reacted exactly with 25 of 0.1 M solution of sodium sulphite. In the reaction, is oxidised to . If the original oxidation number of the metal in the salt was 3, what would be the new oxidation number of the metal? | | | | | | | |
|  | a) | 0 | b) | 1 | c) | 2 | d) | 4 |
| 396. | A boy drinks 500 L of 9% glucose solution. The number of glucose molecules he has consumed is [mol. Wt. of glucose = 180] | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 397. | Atomic weight of barium is 137.34. The equivalent weight of barium in used as an oxidizing agent in acid medium is | | | | | | | |
|  | a) | 137.34 | b) | 45.78 | c) | 114.45 | d) | 68.67 |
| 398. | A solution when diluted with and boiled, gives a white precipitate. On addition of excess , the volume of precipitate decreases leaving behind a white gelatinous precipitate. Identify the precipitate which dissolves in | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 399. | How many grams of phosphoric acid would be needed to neutralise 100 g of magnesium hydroxide? (The molecular weights are: and ) | | | | | | | |
|  | a) | 66.7 g | b) | 252 g | c) | 112 g | d) | 168 g |
| 400. | Dissolving 120 g of urea in 1000 g of water gave a solution of density The molarity of solution is | | | | | | | |
|  | a) | 1.78 M | b) | 2.00 M | c) | 2.05 M | d) | 2.22 M |
| 401. | This change is based on change in pH. Probable values of and can be | | | | | | | |
|  | a) | 8, 6 | | | b) | 8, 10 | | |
|  | c) | 4, 6 | | | d) | Change is independent of pH | | |
| 402. | 2 L of air formed 1915 mL of ozonised air when passed through Brodio’s apparatus. The volume of ozone formed is | | | | | | | |
|  | a) | 85 mL | b) | 170 mL | c) | 225 mL | d) | 42.5 mL |
| 403. | Aqueous solution contains and . On passing gas, there is precipitation of…. as sulphide | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 404. | In a reaction, 4 mol of electrons are transferred to 1 mol of .The possible product obtained due to reduction is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 405. | is 18 M. Hence, mass percentage and molality are | | | | | | | |
|  | a) | 18, 32.4 | b) | 98, 32.4 | c) | 98, 500 | d) | 98, 18 |
| 406. | ‘’ is a colourless salt giving following reaction | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 407. | Which cation cannot be identified by flame test? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 408. | 4 mol of a solution containing requires 1.6 mol of for the oxidation of to is acidic medium. The value of is | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 409. | A bag contains 0.32 g of oxygen. The same volume of an unknown gas A under similar conditions of temperature and pressure weight 0.26 g. The gas A is known to contain only C and H in 1:1 ratio. The molecular formula of the compound is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | CH |
| 410. | and are separated by | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 411. | For complete reaction in  2 moles each of form  which reactant is further required? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 412. | 10 L of hard water with temporary hardness required 0.56 g of lime  Temporary hardness in terms of ppm of is | | | | | | | |
|  | a) | 56 | b) |  | c) | 100 | d) | 200 |
| 413. | Atoms of the element are spherical. Each atom of the element (atomic mass 23) is at the corner of the cube and is in contact along the edge length, then edge length is (density | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 414. | Which is not soluble in ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 415. | When 0.273 g of Mg is heated strongly in a nitrogen atmosphere, 0.378 g of the compound is formed. Hence, compound formed is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 416. | In hot alkaline solution, disproportionate to and  Hence, equivalent weight of is (molecular weight ) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 417. | When a mixture consisting of 10 moles of and 15 moles of was passed over a catalyst, 8 moles of were formed. Thus, percentage yield of is | | | | | | | |
|  | a) | 80% | b) | 100% | c) | 50% | d) | 25% |
| 418. | Reactant present in excess (with extra number of moles of that reactant) in question (34) above is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 419. | Number of moles of required to oxidize 1 L of 1 M iron (II) sulphate (IV) in acidic medium is | | | | | | | |
|  | a) | 1.0 | b) | 0.8 | c) | 0.2 | d) | 0.6 |
| 420. | How many of perhydrol is required to produce sufficient oxygen which can be used to completely convert of gas to gas? | | | | | | | |
|  | a) | 10 mL | b) | 5 mL | c) | 20 mL | d) | 30 mL |
| 421. | One mole of losses 10 mol of electrons to form a new compound A. Assuming that all nitrogen appears in the new compound, what is the oxidation state of nitrogen in A? There is no change in the oxidation state of hydrogen | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 422. | An orange colour mixture changes to green on acidification. Mixture may contain | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 423. | Ionic mass of is 17. If it has 10 electrons, then number of neutrons are | | | | | | | |
|  | a) | 10 | b) | 13 | c) | 7 | d) | 17 |
| 424. | A sample of ammonium dihydrogen phosphate (I) contains 3.18 moles of hydrogen atom. The number of moles of oxygen atoms in the sample is | | | | | | | |
|  | a) | 0.265 | b) | 0.795 | c) | 1.06 | d) | 3.18 |
| 425. | 1.575 g of a dibasic acid is neutralized by of solution. Hence, molar mass of dibasic acid is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 426. | 0.6 g of urea on reaction with gave which can be neutralized by | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 427. | In the following reaction,  1 moles each of will give sulphur | | | | | | | |
|  | a) | 1 mol | b) | 3 mol | c) | 1.5 mol | d) | 2 mol |
| 428. | Moles of (potassium acid oxalate) required to reduce of in acidic medium is | | | | | | | |
|  | a) | 0.002 | b) | 0.005 | c) | 0.001 | d) | 0.007 |
| 429. | Aqueous solution of gives yellow ppt with | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 430. | When calomel reacts with , we get | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 431. | A 5.0 solution of liberates 1.27 g of iodine from an acidified KI solution. The percentage strength of is | | | | | | | |
|  | a) | 11.2 | b) | 5.6 | c) | 1.7 | d) | 3.4 |
| 432. | A certain sample of phosphate rock contains A 0.5428 g sample is analysed by precipitating and igniting the precipitate to Thus, obtained is | | | | | | | |
|  | a) | 0.8486 g | b) | 0.1424 g | c) | 0.3648 g | d) | 0.2228 g |
| 433. | gives blue colour with in ethereal layer due to formation of | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 434. | 1 g of the carbonate of a metal was dissolved in 25 of N-. The resulting liquid required 5 mL of N-NaOH for neutralisation. The of the metal carbonate is | | | | | | | |
|  | a) | 50 | b) | 30 | c) | 20 | d) | None |
| 435. | 5 g of is dissolved in 1 L of ethanol. Suppose there is no reaction between them. If the density of ethanol is then the molality of resulting solution is | | | | | | | |
|  | a) | 0.0256 | b) | 0.1056 | c) | 0.1288 | d) | 0.1476 |
| 436. | What will be the volume of a 12 M solution if it is equivalent to solution? | | | | | | | |
|  | a) | 6 L | b) | 600 L | c) | 400 L | d) | 0.36 L |
| 437. | Consider the following equilibrium  White ppt of appears on adding | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 438. | In an experiment, 6.67 g of was produced and 0.54 g Al remained unreacted. How many g atoms of Al and were taken originally ? | | | | | | | |
|  | a) | 0.07, 0.15 | b) | 0.07, 0.05 | c) | 0.02, 0.05 | d) | 0.02, 0.15 |
| 439. | The density of 1 M solution of is 1.0585 g The molality of the solution is | | | | | | | |
|  | a) | 1.0585 | b) | 1.00 | c) | 0.10 | d) | 0.0585 |
| 440. | 2 mol of and 3 mol gas are allowed to react in a 20 L flask at 400 K and after complete conversion of into , 10 L was added and temperature reduced to 300 K. pressure of the gas after reaction | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 441. | Reagent that can detect presence of is called | | | | | | | |
|  | a) | Fehling’s solution | | | b) | Nessler’s reagent | | |
|  | c) | Benedict’s solution | | | d) | Lucas reagent | | |
| 442. | Which of the following is the richest source of ammonia on a mass percentage basis? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 443. | Rest mass of an electron is Molar mass of the electron is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 444. | Yellow coloured solution of changes to light green when | | | | | | | |
|  | a) | is added | b) | is added | c) | gas is passed | d) | All true |
| 445. | can be prepared by two methods each with two steps having 100% extent  I.  II.  Which gives the better yield? | | | | | | | |
|  | a) | Only I | b) | Only II | c) | Both equal | d) | None is suitable |
| 446. | What mass of ammonium phosphate would contain 14.0 g of nitrogen? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 447. | 2 moles of 50% pure on heating form 1 mole of Thus, per cent yield of is | | | | | | | |
|  | a) | 50% | b) | 75% | c) | 80% | d) | 100% |
| 448. | How many moles of oxygen are contained in one litre of air if its volume content is 21% in standard conditions? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 449. | With , colour of the bead in sodium carbonate-bead test is | | | | | | | |
|  | a) | Red | b) | Blue | c) | Yellow | d) | Green |
| 450. | Consider the following reaction,  Nitrite + acetic acid + thiourea  Formation of the product in the above reaction can be identified by | | | | | | | |
|  | a) | when blood red coloour appears | | | b) | when blue colour appears | | |
|  | c) | when green colour appears | | | d) | when colourless solution is formed | | |
| 451. | Consider the following reaction :  If 1 mol of oxidises 1.67 mol of to , then the value of in the reaction is | | | | | | | |
|  | a) | 2 | b) | 3 | c) | 4 | d) | 5 |
| 452. | What volume of 0.1 M will be required to neutralize 200 mL of 0.2 M using methyl orange indicator to change the colour from red (acidic medium) to yellow (basic medium)? | | | | | | | |
|  | a) | 200 | b) | 400 | c) | 20 | d) | 40 |
| 453. | Certain mol of HCN is oxidized completely by 25 of . The products are and ion. When all is passed through lime water, 1 g of is obtained. The molarity of the used is | | | | | | | |
|  | a) | 1.44 M | b) | 0.72 M | c) | 0.36 M | d) | None of these |
| 454. | Nitrite interferes in the ‘ring-test’ of nitrate . Some of the following reagents can be used for the removal of nitrite  I:  II: (thiourea)  III: (sulphamic acid)  IV: Sulphanilic acid  Correct choice is | | | | | | | |
|  | a) | I, II | b) | I, II, IV | c) | I, II, III | d) | I, III, IV |
| 455. | An organic compound contains C, H, and O. If C(%): H(%) = 6:1, what is the simplest formula of the compound, given that one mole of the compound contains half as much oxygen as would be required to burn all the C and H atoms in it to and ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 456. | and can be distinguished using | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) | Both (a) and (b) | | | d) | None of the above | | |
| 457. | An unknown amino acid has 0.032% sulphur. If each molecule has one S-atom, then 1 g of this amino acid has molecules | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 458. | A colourless salt changes to yellow on heating. Salt is also soluble in as well as in dil. . Salt can be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 459. | 3 mol of a mixture of and required of 2 M solution in acidic medium. Hence, mole fraction of in the mixture is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 460. | 25 samples of distilled water, tap water, and boiled water required, respectively. 1 mL, 13 mL and 5 of soap solution to form a permanent lather. The ratio of temporary to permanent hardness in the tap water is | | | | | | | |
|  | a) | 3:2 | b) | 2:3 | c) | 1:2 | d) | 2:1 |
| 461. | A certain metal sulphide, is used extensively as a high temperature lubricant. If is 40.06% by mass sulphur, metal has atomic mass | | | | | | | |
|  | a) | 160 u | b) | 64 u | c) | 40 u | d) | 96 u |
| 462. | The equivalent weight of in the above reaction is | | | | | | | |
|  | a) | 21 | b) | 27 | c) | 38 | d) | 49 |
| 463. | (brick red ppt) is soluble in | | | | | | | |
|  | a) | or | | | b) | or | | |
|  | c) | or | | | d) | or | | |
| 464. | Mole fraction of in hard water having hardness is | | | | | | | |
|  | a) | 0.1 | b) |  | c) |  | d) | 0.035 |
| 465. | Sodium nitroprusside turns purple when it is exposed in the atmosphere of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 466. | Cationic part of chromyl chloride is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 467. | solution required of solution in acidic medium. Hence, is | | | | | | | |
|  | a) | 0.24 M | b) | 0.24 N | c) |  | d) | All correct |
| 468. | is 98% by weight of solution. Hence, it is | | | | | | | |
|  | a) | 1 molal | b) | 10 molal | c) | 50 molal | d) | 500 molal |
| 469. | If of and of react to form water, what is left at the end of the reaction? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 470. | 0.4 g polybasic acid (all the hydrogens are acidic) requires 0.5 g of NaOH for complete neutralization. The number of replaceable hydrogen atoms and the molecular weight of ‘A’ would be ( of acid=96) | | | | | | | |
|  | a) | 2, 94 | b) | 1, 95 | c) | 3, 93 | d) | 4, 92 |
| 471. | (black) obtained in group IV of salt analysis is dissolved in aqua regia, treated with an excess of and then water is added. An apple green coloured stable complex is formed. It is | | | | | | | |
|  | a) | Sodium cobaltocarbonate | | | b) | Sodium cobaltibromide | | |
|  | c) | Sodium cobalticarbonate | | | d) | Sodium cobaltobromide | | |
| 472. | -Butane is produced by monobromination of followed by Wurtz reaction. Calculate the volume of ethane at STP required to produce 55 g of -butane. The bromination takes place with 90% yield and the Wurtz reaction with 85% yield | | | | | | | |
|  | a) | 27.75 L | b) | 55.5 L | c) | 111 L | d) | 5.55 L |
| 473. | Moles of (potassium acid oxalate) required to reduce of in acidic medium (to ) is | | | | | | | |
|  | a) | 0.002 | b) | 0.005 | c) | 0.001 | d) | 0.007 |
| 474. | Number of molecules in 1 L of water is close to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 475. | For the formation of 5.00 moles of water, which reaction uses the most nitric acid? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 476. | of absorbed 11.2 millimoles of from air. Hence, new molarity of is | | | | | | | |
|  | a) | 0.1276 M | b) | 0.1500 M | c) | 0.0224 M | d) | 0.0112 M |
| 477. | For a given mixture of and volume of a given required is with phenolphthalein indicator and further required with methyl orange indicator Hence, volume of for complete reaction of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 478. | Hardness in water is Molarity of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 479. | of 0.5 M solution when made alkaline undergoes complete disproportionation into and . The resulting solution requires 45 mL of As (III) solution to reduce to . Given that As (III) is oxidised to As (V), what is the molarity of AS (III) solution? | | | | | | | |
|  | a) | 0.2 | b) | 0.1 | c) | 0.4 | d) | 0.5 |
| 480. | One mole of potassium chlorate is thermally decomposed and excess of aluminium is burnt in the gaseous product. How many mole(s) of aluminium oxide are formed? | | | | | | | |
|  | a) | 1 | b) | 1.5 | c) | 2 | d) | 3 |
| 481. | A colourless salt gives white ppt with solution and can also decolourise . Salt is decomposed by conc. forming gases | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 482. | One litre of 0.15 M and one litre of 0.3 M is given. What is the maximum volume of 0.2 M l which one can make from these two solutions. No water is added | | | | | | | |
|  | a) | 1.2 L | b) | 1.5 L | c) | 1.3 L | d) | 1.4 L |
| 483. | 10 of a solution of of 10 volume strength decolourises 100 mL of solution acidified with dil . The amount of in the given solution is ( | | | | | | | |
|  | a) | 0.282 g | b) | 0.564 g | c) | 1.128 g | d) | 0.155 g |
| 484. | The addition of to the following solutions is expected to produce a precipitate in every case but one. That one is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 485. | A mixture of and has a mass of 1.245 g. After heating to drive off the water, the mass only 0.882 g. Thus, mass per cent of is | | | | | | | |
|  | a) | 19.2% | b) | 80.8% | c) | 38.4% | d) | 71.6% |
| 486. | What mass of propane contains the same mass of carbons as contained in 1.35 g of barium carbonate, | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 487. | Molar ratio of andis 1 : 7 in Hence, their mass percentage is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 488. | Mixture containing 1 mole each of is heated strongly. formed in this process will be | | | | | | | |
|  | a) | 3.0 mol | b) | 2.5 mol | c) | 1.0 mol | d) | 1.5 mol |
| 489. | What volume of 0.2 M is required to react with 1.58 g of hypo solution In acidic medium? | | | | | | | |
|  | a) | 20 | b) | 10 | c) | 16.6 | d) | 50 |
| 490. | Percentage of Se in peroxidase anhydrous enzyme is 0.5% by weight (At. Wt. 78.4) then minimum molecular weight of peroxidase anhydrous enzyme is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 491. | (ion exchange resin) can replace in hard water  1 L of hard water after passing through has Hence, hardness in ppm of is | | | | | | | |
|  | a) | 200 | b) | 100 | c) | 50 | d) | 125 |
| 492. | White ppt of and can be separated using | | | | | | | |
|  | a) |  | | | b) | Hot water | | |
|  | c) | Both (a) and (b) | | | d) | None of these | | |
| 493. | KI gives precipitate with all the cations given | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 494. | If the dot under a question mark has a mass of how many atoms are required to make such a dot?(of carbon) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 495. | Permanent hardness is due to and is removed by the addition of  If hardness is 100 ppm amount of required to soften 10 L of hard water is | | | | | | | |
|  | a) | 2.12 g | b) | 0.106 g | c) | 10.6 g | d) | 1.06 g |
| 496. | The weight of lime obtained by heating 200 kg of 95% pure lime stone is | | | | | | | |
|  | a) | 98.4 kg | b) | 106.4 kg | c) | 112.8 kg | d) | 122.6 kg |
| 497. | 100 mL solution of (containing 4 g NaOH per litre) and 50 mL of (containing 7.3 g per litre) react as  of is formed. Thus, unreacted is | | | | | | | |
|  | a) | 0.058 g | b) | 3.66 g | c) | 10.8 g | d) | 0.63 g |
| 498. | A hydrocarbon has 3 g carbon per gram of hydrogen, hence, simplest formula is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 499. | Aqueous solution of chloride of an element containing after complete hydrolysis required solution to form Element is (Molar mass = 133.5 g ) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 500. | The normality of a solution that results from mixing 4 g of , 500 mL of 1 M , and 10.0 mL of (specific gravity 1.1, 49% by weight) is | | | | | | | |
|  | a) | 0.51 | b) | 0.71 | c) | 1.02 | d) | 0.45 |
| 501. | A metal oxide has the formula . It can be reduced by hydrogen to give free metal and water 0.2 g of the metal oxide requires 12 mg of hydrogen for complete reduction. The atomic weight of the metal is | | | | | | | |
|  | a) | 52 | b) | 104 | c) | 26 | d) | 78 |
| 502. | 1 mol of in neutral aqueous medium disproportionates to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 503. | A dark violet colour mixture in presence of dil. changes to pale yellow solution. Mixture may contain | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of correct |
| 504. | Of the following solutions the one that is acidic is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 505. | Eco-friendly reagent that can be used instead of is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 506. | 100 of ozone at STP were passed through 100 of 10 volume solution. What is the volume strength of after the reaction? | | | | | | | |
|  | a) | 9.5 | b) | 9.0 | c) | 4.75 | d) | 4.5 |
| 507. | contains 94.11% sulphur; contains 50% oxygen and contains 11.11% hydrogen. Thus, | | | | | | | |
|  | a) | Law of multiple proportion is followed | | | | | | | |
|  | b) | Law of reciprocal proportion is followed | | | | | | | |
|  | c) | Law of conservation of mass is followed | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 508. | The pH of solution if 1 mL of it is diluted to 1000 is | | | | | | | |
|  | a) | 5 | b) | 8 | c) | 7.02 | d) | 6.98 |
| 509. | Number of moles of formed when 0.535 g of is completely decomposed by is | | | | | | | |
|  | a) | 0.01 mol | b) | 5.35 mol | c) | 1.7 g | d) | 0.17 mol |
| 510. | A mixture of ethylene and excess of had a pressure of 600 mm Hg. The mixture was passed over nickel catalyst to convert ethylene to ethane. The pressure of the resultant mixture at the similar conditions of temperature and volume dropped to 400 mm Hg. The fraction of by volume in the original mixture is | | | | | | | |
|  | a) | 1/3 rd of the total volume | | | b) | 1/4 th of the total volume | | |
|  | c) | 2/3 rd of the total volume | | | d) | 1/2 of the total volume | | |
| 511. | gives white ppt with hypo changing to black after sometime. Black ppt is of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 512. | The calcium in a 0.8432 g sample is precipitated as The precipitate is washed, ignited to and found to weigh 0.3462 g. percentage of CaO in the sample is | | | | | | | |
|  | a) | 11.5% | b) | 23% | c) | 18% | d) | 46% |
| 513. | is decomposed by (density 1.825 g/cc)  Volume of required to decompose 10 g of 50% pure is | | | | | | | |
|  | a) | 1.825 mL | b) | 3.65 mL | c) | 0.9125 mL | d) | 2 mL |
| 514. | A mixture contains 1 mol each of and ions. Volume of required by the mixture in the oxidation of the given mixture is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 515. | In the following titrations indicators are  I.  II.  III.  I II III | | | | | | | |
|  | a) | Self | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 516. | 0.116 g of is neutralized by 0.074 g of Hence, protonic hydrogen in will be | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 517. | and both turn lime water milky, also turns green while is soluble in pyrogallol turning it black. These gases are to be detected in order by using these reagents in a mixture. The order is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 518. | 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 |
| 519. | The expression relating mole fraction of solute and molarity of the solution is: (where is the density of the solution in g and and are the molar masses of solvent and solute, respectively) | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 520. | A sample of contains 3.782 g of Cu. How many grams of oxygen are in this sample? (Cu = 63.5) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 521. | 10 of solution (volume strength ) required 10 mL of N/0.56 solution in acidic medium. Hence, is: | | | | | | | |
|  | a) | 0.56 | b) | 5.6 | c) | 0.1 | d) | 10 |
| 522. | In borax-bead test there is formation of transparent bead of | | | | | | | |
|  | a) | and | | | b) | and | | |
|  | c) | and | | | d) | and | | |
| 523. | reacts with 5.85 g to form (white ppt) | | | | | | | |
|  | a) | 14.35 g | b) | 0.1435 g | c) | 1.435 g | d) | 5.85 g |
| 524. | Number of mole of in 1 amu is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 525. | According to Dalton’s atomic theory, the smallest particle in which matter can exist, is called | | | | | | | |
|  | a) | An atom | b) | An ion | c) | An electron | d) | A molecule |
| 526. | Which has the maximum percentage of chlorine? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 527. | The number of moles of that will be needed to react with 1 mol of sulphite ion in acidic solution is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 528. | Calculate the number of oxygen atoms required to combine with 7.0 g of to form if 80% of is converted into products | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 529. | The amount of zinc (atomic weight = 65) necessary to produce 224 mL of by the reaction with an acid will be | | | | | | | |
|  | a) | 0.65 g | b) | 6.5 g | c) | 0.065 g | d) | 65 g |
| 530. | What volume of 0.1 M will be required to neutralise a mixture of 50 mL of 0.1 M HCl and 100 mL of 0.2 M using methyl red indicator? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 531. | Suppose elements X and Y combine to form two compounds and when 0.1 mole of former weigh 10 g while 0.05 mole of the latter weigh 9 g. What are the atomic weights of X and Y | | | | | | | |
|  | a) | 40, 30 | b) | 60, 40 | c) | 20, 30 | d) | 30, 20 |
| 532. | 40 of 0.05 M solution of sodium sesquicarbonate is titrated against 0.05 M HCl. mL of HCl is used when phenolphthalein is the indicator and mL of HCl is used when methyl orange is the indicator in two separate titrations. Hence e is | | | | | | | |
|  | a) | 80 | b) | 30 | c) | 120 | d) | None |
| 533. | A suspension containing insoluble substances and , is treated with . On filtering, the filtrate contained appreciable amounts of which one of the following groups? | | | | | | | |
|  | a) | Zinc and mercury | | | b) | Silver and iron | | |
|  | c) | Copper and mercury | | | d) | Zinc, copper and iron | | |
| 534. | A sodium hydroxide solution has of this solution has | | | | | | | |
|  | a) | 0.4 g | b) | 0.04 g | c) | 0.004 g | d) | 4 g |
| 535. | The volume strength of 1.5 N solution is | | | | | | | |
|  | a) | 4.8 | b) | 8.4 | c) | 3.0 | d) | 8.0 |
| 536. | What volume of 0.1 M is needed to oxidise 5 mg of ferrous oxalate in acidic medium ( of ferrous oxalate is 144) | | | | | | | |
|  | a) | 0.20 | b) | 0.1 | c) | 0.4 | d) | 2.08 |
| 537. | of N-, 20 of N/2 and 30 mL of N/3 are mixed together and the volume is made to 1 L. The normality of the resulting solution is | | | | | | | |
|  | a) | N/5 | b) | N/10 | c) | N/20 | d) | N/40 |
| 538. | What volume of at 273 K and 1 atm will be consumed in obtaining 21.6 g of elemental boron (atomic mass of B = 10.8) from the reduction of with | | | | | | | |
|  | a) | 89.6 L | b) | 67.2 L | c) | 44.8 L | d) | 22.4 L |
| 539. | By dissolving 1 mole each of the following acids in 1 L water, the acid which does not give a solution of 1 N strength is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 540. | To prepare a solution of concentration of of what amount of should be added in 60 mL of solution? | | | | | | | |
|  | a) | 1.8 g | b) | 0.8 g | c) | 0.18 g | d) | None of these |
| 541. | 100 of 0.01 M oxidised 100 mL in acidic medium. Volume of the same required in alkaline medium to oxidise 100 mL of the same will be ( changes to in acidic medium and to in alkaline medium) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 542. | 10 mL of 0.2 N and 30 mL of 0.1 N together exactly neutralizes 40 mL of solution of , which is also exactly neutralised by a solution in water of 0.61 g of an organic acid. What is the equivalent weight of the organic acid? | | | | | | | |
|  | a) | 61 | b) | 91.5 | c) | 122 | d) | 183 |
| 543. | The equivalent weight of is half its molecular weight when it is converted to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 544. | There is foul smell in presence of moisture with | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 545. | The best way to ensure complete precipitation from saturated of a metal ion , as its sulphide, , is to | | | | | | | |
|  | a) | Add an acid | | | b) | Increase in solution | | |
|  | c) | Raise the pH | | | d) | Heat the solution | | |
| 546. | Sucrose solution is 1 molal. Mole fraction of sucrose in the aqueous solution is | | | | | | | |
|  | a) | 0.018 | b) | 0.015 | c) | 0.036 | d) | 0.009 |
| 547. | is formed as brown ring in test. Fe in this complex has….. unpaired electrons | | | | | | | |
|  | a) | One | b) | Two | c) | Three | d) | Four |
| 548. | Metal chloride is soluble in hot water but insoluble in cold water. Select correct statement about . Thus | | | | | | | |
|  | a) | can give yellow ppt. with | | | b) | can give white ppt with | | |
|  | c) | can give yellow ppt with | | | d) | All of the above are correct statements | | |
| 549. | When reacts with  then limiting reactant is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 550. | 36.5% has density equal to 1.20 g The molarity (M) and molality (m), respectively, are | | | | | | | |
|  | a) | 15.7, 15.7 | b) | 12, 12 | c) | 15.7, 12 | d) | 12, 15.7 |
| 551. | If 1 L of at and 750 mm pressure contains molecules, the number of molecules in 2 liters of under the same conditions of temperature and pressure will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 552. | Al and react together to form according to  4 moles of (50% pure) on reaction with excess of Al form | | | | | | | |
|  | a) | 2 mol | b) | 4 mol | c) | 6 mol | d) | 8 mol |
| 553. | 10 mL of a gaseous hydrocarbon is exploded with 100 mL of oxygen. The residual gas on cooling is found to measure 95 mL of which 20 mL is absorbed by caustic soda and the remainder by alkaline pyrogallol. The formula of the hydrocarbon is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 554. | A yellow solid known to be a single compound is completely insoluble in hot water but dissolves in hot dilute to give an orange solution. When this solution is cooled, a white crystalline ppt is formed. This white ppt redissolves on heating the solution. The compound is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 555. | If 50 mL 0.1 M is mixed with 30 mL of 0.5 M solution that contains contains excess of ions, the moles of formed are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 556. | Each drop of has 0.018 mL at room temperature Number of molecules in one drop is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 557. | Per cent yield of in the following reaction is 80%  reacts with 8 g to form | | | | | | | |
|  | a) | 3.4 g | b) | 2.72 g | c) | 4.25 g | d) | 11.2 g |
| 558. | The weight of and the volume of HCl of specific gravity and 4% nature by weight, needed to produce 1.78 L of at STP. The reaction involved is: | | | | | | | |
|  | a) | 0.48 L | b) | 0.24 L | c) | 0.12 L | d) | 0.06 L |
| 559. | 0.1 g of metal combines with 46.6 mL of oxygen at STP. The equivalent weight of metal is | | | | | | | |
|  | a) | 12 | b) | 24 | c) | 6 | d) | 36 |
| 560. | 3.4 g sample solution containing by weight requires of a solution for complete oxidation under acidic condition. The normality of solution is | | | | | | | |
|  | a) | 1 N | b) | 2 N | c) | 3 N | d) | 0.5 N |
| 561. | A spherical ball of radius 7 cm contains 56% iron. If density is number of moles of Fe present approximately is | | | | | | | |
|  | a) | 10 | b) | 15 | c) | 20 | d) | 25 |
| 562. | Mass of one atom of an element is . This is equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 563. | The number of moles present in 2 L of solution is | | | | | | | |
|  | a) | 0.5 | b) | 0.1 | c) | 1 | d) | 2 |
| 564. | In an experiment, of solution of a metallic salt reacted exactly with of solution of sodium sulphite. In the reaction is oxidized to If the original oxidation number of the metal in the salt was 3, what would be the new oxidation number of the metal? | | | | | | | |
|  | a) | 0 | b) | 1 | c) | 2 | d) | 4 |
| 565. | Consider the following cases  I :  II :  III :  IV :  Percentage of carbon is identical in | | | | | | | |
|  | a) | I, II | b) | I, III | c) | I, II, III | d) | I, II, IV |
| 566. | 10 g of a sample of a mixture of and NaCl is treated to precipitate all the calcium as . This is heated to convert all the Ca to CaO and the final mass of CaO is 1.62 g. The precent by mass of in the original mixture is | | | | | | | |
|  | a) | 32.1 % | b) | 16.2 % | c) | 21.8 % | d) | 11.0% |
| 567. | The oxygen obtained from 72 kg of water is | | | | | | | |
|  | a) | 72 kg | b) | 46 kg | c) | 50 kg | d) | 64 kg |
| 568. | 100 mL of molar gives 3 L of gas under the condition when 1 mol occupies 24 L. The value of is | | | | | | | |
|  | a) | 2.5 | b) | 1.0 | c) | 0.5 | d) | 0.25 |
| 569. | of solution is mixed with of Resulting mixture contains | | | | | | | |
|  | a) |  | b) |  | c) | Both are correct | d) | None is correct |
| 570. | Temporary hardness is due to and It is removed by addition of  Mass of required to precipitate 2 g is | | | | | | | |
|  | a) | 2.00 g | b) | 0.56 g | c) | 0.28 g | d) | 1.12 g |
| 571. | is dissolved in solution. of this solution can be neutralized by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 572. | is decomposed by forming a gaseous hydrocarbon g of gives ……… mol of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 573. | In the following reaction  Limiting reactant Excess reactant | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | Equal None |
| 574. | molecules are removed from 200 mg of The moles of left are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 575. | The vapour density of a chloride of an element is 39.5. The of the elements is 3.82. The atomic weight of the element is | | | | | | | |
|  | a) | 15.28 | b) | 7.64 | c) | 3.82 | d) | 11.46 |
| 576. | (1 mole) in neutral aqueous medium disproportionate to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 577. | A gas is passed through water to form a saturated solution. The aqueous solution on treatment with silver nitrate gives a white precipitate. The saturated aqueous solution also dissolve magnesium ribbon with evolution of a colourless gas . Identify and | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 578. | 0.5 g of an organic substance containing phosphorus was heated with conc in the carius tube. The phosphoric acid thus formed was precipitated with magnesia mixture which on ignition gave a residue of 1.0 g of magnesium pyrophosphate . The percentage of phosphorous in the organic compound is | | | | | | | |
|  | a) | 55.85 % | b) | 29.72 % | c) | 19.81 % | d) | 20.5 % |
| 579. | An aqueous solution of containing excess , when treated with will precipitate only if ‘’ is | | | | | | | |
|  | a) | Ni | b) | Co | c) | Cu | d) |  |
| 580. | Which of the following does not represent redox reaction? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 581. | 1 mol of ferric oxalate is oxidized by mol of in acidic medium. Hence, the value of is | | | | | | | |
|  | a) | 1.2 | b) | 1.6 | c) | 1.8 | d) | 1.5 |
| 582. | The mass of required for neutralization of 1 mole of is | | | | | | | |
|  | a) | 70 g | b) | 35 g | c) | 30 g | d) | 95 g |
| 583. | Aluminium sulphate is slightly insoluble in water. It is converted into soluble sodium sulphate by using in the preparation of sodium carbonate extract. Moles of , required for complete conversion of 1 mole of into soluble sulphate, is | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 584. | What volume of will be required to neutralize 100 of 0.1 M using methyl red indicator to change the colour form pink (acidic medium) to yellow (basic medium?) | | | | | | | |
|  | a) | 300 | b) | 200 | c) | 100 | d) | 30 |
| 585. | A molal solution is one that contains 1 mol of a solute in | | | | | | | |
|  | a) | 1000 g of solvent | b) | 1 L of solvent | c) | 1 L of solution | d) | 22.4 L of solution |
| 586. | Number of millimoles of in of solution (assume 100% ionization) is | | | | | | | |
|  | a) | 100 | b) | 200 | c) | 300 | d) | 50 |
| 587. | are isoelectronic of Increasing order of protons in   is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 588. | Which has maximum number of H-atoms per gram of the substance? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 589. | Which is not true about | | | | | | | |
|  | a) | It is tribasic acid | | | b) | One mole is neutralized by | | |
|  | c) | is normal salt | | | d) | It disproportionate to and on heating | | |
| 590. | How many moles of ferric alum can be made from the sample of Fe containing 0.0056 g of it? | | | | | | | |
|  | a) |  | b) | mol | c) | mol | d) | mol |
| 591. | The total number of electrons in one molecular of carbon dioxide is | | | | | | | |
|  | a) | 22 | b) | 44 | c) | 66 | d) | 88 |
| 592. | In the reaction, | | | | | | | |
|  | a) | 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 fro every mole consumed | | | | | | | |
| 593. | obtained from 0.1 mol of required of 1 M hypo solution, hence, mole percentage of pure is | | | | | | | |
|  | a) | 100 | b) | 50 | c) | 25 | d) | 40 |
| 594. | 100mL of 0.01 M oxidised 100 mL in acidic medium. The volume of same required in strong alkaline medium to oxidise 100 mL of same will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 595. | Each reaction takes place to the extent of 50%. 11.2 L of at STP is obtained from using | | | | | | | |
|  | a) | 0.67 mol | b) | 1.12 mol | c) | 1.33 mol | d) | 2.66 mol |
| 596. | The oxide of an element contains 67.67% of oxygen. Equivalent weight of the element is | | | | | | | |
|  | a) | 2.46 | b) | 3.82 | c) | 4.36 | d) | 4.96 |
| 597. | If Avogadro’s number would have been instead of then mass of one atom of H would be | | | | | | | |
|  | a) | 1 u | b) |  | c) |  | d) |  |
| 598. | Which has maximum number of milliequivalents? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | Equal | | |
| 599. | Aqueous solution of can dissolve forming a soluble complex also reacts with aqueous solution giving white ppt. changing to black ppt and are | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 600. | A 0.46 g sample of required 25.0 mL of solution for its titration. The molarity of solution is | | | | | | | |
|  | a) | 0.016 | b) | 0.074 | c) | 0.032 | d) | 0.128 |
| 601. | 3 moles of a mixture of and required solution in acidic medium. Hence, mole fraction of in the mixture is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 602. | Equal weights of methane and oxygen are mixed in an empty container at . The fraction of the total pressure exerted by oxygen is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 603. | The mineral rutile is an oxide of titanium containing 39.95% oxygen and is isomorphous with cassiterite . The atomic weight of titanium is | | | | | | | |
|  | a) | 68.10 | b) | 58.10 | c) | 48.10 | d) | 38.10 |

**Multiple Correct Answers Type**

| 604. | Which of the following statements is/are correct?  For the reaction: | | | | | | | |
|  | a) | Fe is the limiting reagent | | | b) | The mass left over at the end of the reaction is 1.2 g | | |
|  | c) | The mass of Produced is 12.0 g | | | d) | is the limiting reagent | | |
| 605. | Which of the following statements is/are correct?  Commercial is prepared by heating with | | | | | | | |
|  | a) | 196.0 g of pure is required for the production of 245.0 g of conc HCl containing 40% by weight | | | | | | | |
|  | b) | 245.0 g of 80% by weight is required for the production of 365.0 g of conc. containing 40% by weight | | | | | | | |
|  | c) | 2 mol of pure is required for the production of of HCl | | | | | | | |
|  | d) | 2.5 mol of 80% is required for the production of 365.0 g of 40% HCl | | | | | | | |
| 606. | A certain compound has the molecular formula having Thus, | | | | | | | |
|  | a) | Atomic mass of is 32 | | | b) | may contain five valence electrons | | |
|  | c) | is an electropositive metal | | | d) | can be a non-metal | | |
| 607. | Which of the statements are true about the law of chemical combination? | | | | | | | |
|  | a) | Potassium combines with two isotopes of chlorine to form two samples of . Their formation follows the law of definite composition | | | | | | | |
|  | b) | Different proportions of oxygen in the varius oxidies of sulphur prove the law of multiple proportions | | | | | | | |
|  | c) | and contain 11.11% hydrogen and 5.88% hydrogen, respectively, whereas contains 50% sulphur. The above data prove the law of reciprocal proportions | | | | | | | |
|  | d) | In the decomposition of , the ratio of volumes of , and is . The above data proves the Gay Lussac law | | | | | | | |
| 608. | KCN is used in the | | | | | | | |
|  | a) | Separation of and | | | b) | Metallurgical extraction of and | | |
|  | c) | Identification of | | | d) | Treatment of cancer | | |
| 609. | Isoelectronic species are represented by pairs | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 610. | Which of the following statements are **wrong**? | | | | | | | |
|  | a) | 1.6 g of a hydrocarbon on combustion in excess of oxygen produces 1.2 of and 0.4 of . The data illustrates the law of conservation of mass | | | | | | | |
|  | b) | The product of atomic mass and specific heat of any elements is a constant and is approximately 6.4. This is known as Dulong Petit’s law | | | | | | | |
|  | c) | The atomic masses of the elements are usually fractional because they are mixtures of allotropes | | | | | | | |
|  | d) | The best standard of atomic mass is hydrogen-1.008 | | | | | | | |
| 611. | 2.0 g of a triatomic gaseous element was found to occupy a volume of 448 mL at 76 cm of Hg and 273 K. the mass of its atom is | | | | | | | |
|  | a) | 38.5 g | b) | 33.3 u | c) | 5.53g | d) | 38.5 u |
| 612. | An excellent solution for cleaning grease stains from cloth or leather consists of the following components: (80% by volume), ligroin (16%), and amyl alcohol (4%). How many mL of each should to taken to make up 80 mL of solution? | | | | | | | |
|  | a) |  | | | b) | ligroin | | |
|  | c) | of amyl alcohol | | | d) | of amyl alcohol | | |
| 613. | Which of the following have equal mass of ions in 1.0 L of each of the following solutions? | | | | | | | |
|  | a) | (density = ) | | | b) | ( | | |
|  | c) |  | | | d) |  | | |
| 614. | Zinc oxalate can be tested by | | | | | | | |
|  | a) | when white precipitate is formed which dissolves in excess of | | | | | | | |
|  | b) | which is decolourised | | | | | | | |
|  | c) | which gives white precipitate | | | | | | | |
|  | d) | which gives yellowish white precipitate | | | | | | | |
| 615. | 100 g sample of clay (containing 19% , 40% silica, and inert impurities as rest) is partially dried so as to contain  Which of the following is/are correct statements(s)? | | | | | | | |
|  | a) | The percentage of silica in it is 44.4% | | | b) | The mass of partially dried clay is 90.0 g | | |
|  | c) | The percentage of inert impurity in it is 45.6% | | | d) | The mass of water evaporated is 10.0 g | | |
| 616. | Which of the following pair of compounds illustrate the law of multiple proportions? | | | | | | | |
|  | a) | and | b) | and | c) | and | d) | and |
| 617. | When a substance reacts with water it produces a combustible gas and a solution of substance in water. When another substance reacts with this solution of , it also produces the same gas on warming but can produces gas on reaction with dilute sulphuric acid at room temperature. imparts a deep golden yellow colour to a smokeless flame of Bunsen burner. and , respectively are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 618. | Which of the following statements about the following reaction is/are **NOT** correct? | | | | | | | |
|  | a) | is oxidized to | | | | | | | |
|  | b) | is reduced to | | | | | | | |
|  | c) | The oxidation number of chromium atom changes by 3 | | | | | | | |
|  | d) | Hydrogen ions are oxidized to | | | | | | | |
| 619. | For the following balanced redox reaction    If the molecular weight of and be respectively, then | | | | | | | |
|  | a) | Equivalent weight of is | | | b) | Equivalent weight of is | | |
|  | c) | The -factor ratio of is | | | d) | None of these | | |
| 620. | The atomic number of an element is always equal to | | | | | | | |
|  | a) | Number of neutrons in the nucleus | | | b) | Half of the atomic weight | | |
|  | c) | Electrical charge of the nucleus | | | d) | Number of protons | | |
| 621. | A compound contains atoms of three elements A, B and C. if the oxidation number of A is +2, B is +5, and C is , the possible formula of the compound is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 622. | 1 mole of reacts with NaOH in solution. Select the correct statements. | | | | | | | |
|  | a) | 1 mole of NaOH will replace ion from | | | | | | | |
|  | b) | 2 moles of NaoH will replace 2 ions from | | | | | | | |
|  | c) | 3 moles of NaOH will replace ions from | | | | | | | |
|  | d) | On complete neutralisation of , the equivalent weight of | | | | | | | |
| 623. | can dissolve | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 624. | 1 g equivalent of a substance is the weight of that amount of a substance which is equivalent to | | | | | | | |
|  | a) | 0.25 mol | b) |  | c) |  | d) | 0.50 mol |
| 625. | Density of is 1 g If we have 1 then | | | | | | | |
|  | a) | It is 55.55 | | | b) | It has molecules | | |
|  | c) | It has H-atoms | | | d) | It has O-atoms | | |
| 626. | Which of the following statements is/are true if 1 mole of is completely neutralized by 40 g of NaOH? | | | | | | | |
|  | a) | and acid is monobasic | | | | | | | |
|  | b) | and acid is dibasic | | | | | | | |
|  | c) | and acid is tribasic | | | | | | | |
|  | d) | and acid does not form acid salt | | | | | | | |
| 627. | In the separation of and in 2nd group of qualitative analysis of cations tetrammine copper (II) sulphate and trammine cadmium (II) sulphate react with to form the corresponding cyanide complexes, which one of the following pairs of the complexes and their relative stabilities enables the separation of and ? | | | | | | | |
|  | a) | : less stable and  : more stable | | | | | | | |
|  | b) | : more stable and  : less stable | | | | | | | |
|  | c) | : less stable and  : more stable | | | | | | | |
|  | d) | : more stable and  : less stable | | | | | | | |
| 628. | A bulb contains 1.6 g of . It contains | | | | | | | |
|  | a) | 0.05 mol of | | | b) | molecules of | | |
|  | c) | of at STP | | | d) | of at SATP | | |
| 629. | Choose the correct statement: | | | | | | | |
|  | a) | 1 mol of ion can oxidise 5 mol of ion in acidic medium | | | | | | | |
|  | b) | 1 mol of ion can oxidise 6 mol of ion in acidic medium | | | | | | | |
|  | c) | 1 mol of can be oxidized by 1 mol of ion in acidic medium | | | | | | | |
|  | d) | 1 mol of can be oxidized by 1 mol of ion in acxidic medium | | | | | | | |
| 630. | Which of the following is/are correct  The following reaction occurs:    1.0 g of and 2.0 g of reacts | | | | | | | |
|  | a) | 0.714 g is used in the reaction | | | b) | 0.286 g is in excess | | |
|  | c) | 1.45 g of is formed | | | d) | 0.8 g is in excess | | |
| 631. | Which of the following is isomorphous with magnesium sulphate ()? | | | | | | | |
|  | a) | Green vitriol | | | b) | Potassium perchlorate | | |
|  | c) | Zinc sulphate hepta hydrate | | | d) | Blue vitriol | | |
| 632. | A colourless salt is precipitated as hydroxide on adding. precipitate dissolves in excess and precipitation occurs on adding . Colourless salt may be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 633. | 2.84 g of is dissolved in 1 L aqueous solution. Thus, | | | | | | | |
|  | a) | Resulting solution is 0.01 | | | | | | | |
|  | b) | It is neutralized to by of 0.3 M solution | | | | | | | |
|  | c) | It is neutralized to by of 0.1 M solution | | | | | | | |
|  | d) | It cannot be neutralized by basic solution | | | | | | | |
| 634. | Which of the following solution contains approximately equal hydrogen ion concentration? | | | | | | | |
|  | a) | of 0.1 M | | | b) | of 0.1 M | | |
|  | c) | of 0.1 M + 100 mL | | | d) | of 0.1 | | |
| 635. | Which of the statement are true? | | | | | | | |
|  | a) | Law of constant composition is true for all types of compounds | | | | | | | |
|  | b) | Molar volume of a gas at standard conditions is 22.4 L | | | | | | | |
|  | c) | Vapour density of a gas is twice of its molecular mass | | | | | | | |
|  | d) | Atomic masses of most elements are fractional | | | | | | | |
| 636. | In one process giving below  637.2 g of are allowed to react with 1142 g of In this | | | | | | | |
|  | a) | is the limiting reactant and is in excess | | | | | | | |
|  | b) | is in excess and is the limiting reactant | | | | | | | |
|  | c) | 1124 g of urea is formed | | | | | | | |
|  | d) | 319 g of is left unreacted | | | | | | | |
| 637. | 2 mole of a mixture of CO and requires exactly 1 litre solution of 1 NaOH for complete neutralisation. If CO present in mixture is now converted to and again the mixture is treated with NaOH, then after this conversion. | | | | | | | |
|  | a) | Moles of present initially in mixture =1 | | | | | | | |
|  | b) | 2 litre NaOH solution of 1 is more required for neutralisation | | | | | | | |
|  | c) | 2 litre solution of is required more for neutralisation | | | | | | | |
|  | d) | 56 g KOH in aqueous solution is required more for neutralization | | | | | | | |
| 638. | Which one are correct about the solution that contains 3.42 ppm and 1.42 ppm ? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 639. | Which of the following statements is/are correct?  A mixture containing 64.0 g and 64.0 g is ignited so that water is formed as follows: | | | | | | | |
|  | a) | is the limiting reagent | | | | | | | |
|  | b) | is the limiting reagent | | | | | | | |
|  | c) | The reaction mixture contains 72.0 g of and 56.0 g of unreacted | | | | | | | |
|  | d) | The reaction mixture contains 56.0 g of and 72.0 g unreacted | | | | | | | |
| 640. | Borax-bead test can be used to identify following ions | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 641. | If 100 mL of solution is mixed with 100 mL of 98% of solution , then | | | | | | | |
|  | a) | Concentration of solution becomes half | | | b) | Volume of solution becomes 200 mL | | |
|  | c) | Mass of in the solution is 98 g | | | d) | Mass of in the solution is 19.6 g | | |
| 642. | An inorganic mixture gives yellow precipitate on boiling with conc. and ammonium molybdate thus, inorganic mixture can be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 643. | A solution of is 0.2 N as an acid. Then it is | | | | | | | |
|  | a) | 0.267 N as reducing agent | | | b) | 0.6 M as an acid | | |
|  | c) | 0.067 M as an acid | | | d) | 0.067 M a reducing agent | | |
| 644. | Mass of (potassium acid oxalate) required to reduce of in acidic medium is g and to neutralize of 0.05 M is g, then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None is correct |
| 645. | A sample of water has a hardness expressed as This sample is passed through an ion exchange column and the is replaced by Select the correct statemet(s) | | | | | | | |
|  | a) | of the water after it has been so treated is 2.4 | | | b) | Every ion is replaced by one ion | | |
|  | c) | Every ion is replaced by two ions | | | d) | of the solution remains unchanged | | |
| 646. | is isoelectronic of CO and has neutrons Thus, | | | | | | | |
|  | a) | Ionic mass of is 28 | | | b) | Ionic mass of is 30 | | |
|  | c) | Atomic number of is 13 | | | d) | Atomic number of is 14 | | |
| 647. | Which of the following has three significant figures? | | | | | | | |
|  | a) | 3.70 | b) |  | c) | 1.03 | d) | 0.052 |
| 648. | Which of the following statements is/are correct? | | | | | | | |
|  | a) | is made in an electric furnace by the reaction :  16.0 g of is obtained from 9.0 g of C | | | | | | | |
|  | b) | Polyethene can be produced form as follows :    32.0 kg of produces 14.0 kg of polyethene | | | | | | | |
|  | c) | 1.435 g of is obtained from 17.75 g of by the following reaction : | | | | | | | |
|  | d) | Commercial sodium ‘hydrosulfite’ is 50% pure . It is prepard as follows :  **i.**  **ii.**  174.0 metric ton of commercial product can be made from 65.4 metric ton of Zn,with a sufficient supply of other reactants | | | | | | | |
| 649. | Which of the following statements are correct? | | | | | | | |
|  | a) | A sample of contains Ca = 40%, C = 12 %, and O = 48%. If the law of constant compostion is true, then the mass of Ca in 10 g of from another source is 4.0 g | | | | | | | |
|  | b) | 12 g of carbon is heated in vacuum and there is no change in the mass, is the best example of the law of conservation of mass | | | | | | | |
|  | c) | Air is heated at constant pressure and there is no change in mass but the volume increases, is the best example of the law of conservation of mass | | | | | | | |
|  | d) | gas was prepared by (i) heating Cu with conc , (ii) burning sulphur in oxygen, (iii) reacting sodium sulphite with dilute . It was observed that is each case, S and O combine in the ratio of 1:1. This data illustrates the law of constant composition | | | | | | | |
| 650. | g of metal displaces mL of at NTP. Eq. wt. of metal, is/are: | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 651. | Volume of a gas at NTP is The number of molecules is thus equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 652. | 2 g of oleum is diluted with water. The solution was then neutralized by 432.5 mL of 0.1 NaOH. Select the correct statements. | | | | | | | |
|  | a) | % of oleum is 105.96 | | | | | | | |
|  | b) | % of free is 26.5 in oleum | | | | | | | |
|  | c) | Equivalent of are 0.03 | | | | | | | |
|  | d) | Equivalent of | | | | | | | |
| 653. | and ions are precipitated together by addition of | | | | | | | |
|  | a) |  | b) | solution | c) |  | d) | solution |
| 654. | The melting point of a substance was quoted as , and . Which of these values would be most acceptable and which will have maximum uncertanity? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 655. | Which of the following statements is/are correct about the reaction | | | | | | | |
|  | a) | It is disproportionation reaction | | | | | | | |
|  | b) | It is a an intramolecular redox reaction | | | | | | | |
|  | c) | Cr acts as oxidant, whereas O acts as a reductant | | | | | | | |
|  | d) | acts as oxidant and reductant both | | | | | | | |
| 656. | A bivalent metal ion has equivalent mass of 12. Then | | | | | | | |
|  | a) | Equivalent mass of its oxide is 28 | | | b) | Molar mass of its oxide is 40 | | |
|  | c) | Equivalent mass of its hydride is 13 | | | d) | Molar mass of its hydride is 14 | | |
| 657. | The following reaction takes place in basic medium :    If 400 mL of M/5 chromate ion react with 500 mL of M/4 stannite ion, then which of the **following statements are correct?** | | | | | | | |
|  | a) | Chromate ion, , is the limiting reagent | | | | | | | |
|  | b) | Stannite ion, , is the limiting reagent | | | | | | | |
|  | c) | At the end of reaction, concentration of | | | | | | | |
|  | d) | At the end of reaction, concentration of M | | | | | | | |
| 658. | Select the correct statement(s) | | | | | | | |
|  | a) | and can be separated using or yellow ammonium sulphide | | | | | | | |
|  | b) | gives blue precipitate with | | | | | | | |
|  | c) | gives blood red colour with | | | | | | | |
|  | d) | is reduced to when Zn pieces are added | | | | | | | |
| 659. | An aqueous solution of glucose contains 1 mole of glucose in 1.8 L solution Thus, | | | | | | | |
|  | a) | It is 10% aqueous solution | | | b) | Its density is | | |
|  | c) | Solution contains glucose molecules per mL | | | d) | Solution contains 24 g atoms | | |
| 660. | When 0.273 g of Mg is heated strongly in a nitrogen atmosphere, a chemical reaction occurs. The product of the reaction weighs 0.378 g. empirical formula of the compound is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 661. | Which of the statement are **false**? | | | | | | | |
|  | a) | Physical quantity represented by volume is | | | | | | | |
|  | b) | The length of pencil is cms | | | | | | | |
|  | c) | The work done by a system is 5 Joules | | | | | | | |
|  | d) | Air sometimes is considered as a heterogeneous mixture due to the presence of dust particles which form a separate phase | | | | | | | |
| 662. | Aqueous solution containing 1 mole of is neutralized by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 663. | Given that the abundance of isotopes and areand respectively, the atomic mass of Fe is | | | | | | | |
|  | a) | 55.85 | b) | 55.95 | c) | 55.75 | d) | 56.05 |
| 664. | Which of the following statements is/are correct about the following reaction? | | | | | | | |
|  | a) | The equivalent weight of is (Molecular weight of ) | | | | | | | |
|  | b) | The equivalent weight of is | | | | | | | |
|  | c) | The equivalent weight of is (Molecular weight of ) | | | | | | | |
|  | d) | The equivalent weight of is | | | | | | | |
| 665. | 100 mL of 0.06 M is added to 50 mL of 0.06 M . After the reaction is complete | | | | | | | |
|  | a) | 0.003 moles of calcium oxalate will get precipitated | | | | | | | |
|  | b) | 0.003 M of excess will remain in excess | | | | | | | |
|  | c) | is the limiting reagent | | | | | | | |
|  | d) | is the excess reagent | | | | | | | |
| 666. | Which of the following are isoelectronic of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 667. | Which of the following statements is/are correct? | | | | | | | |
|  | a) | Chloropicrin can be made cheaply for use as an insecticide by the following reaction: | | | | | | | |
|  | b) | In a rocket motor fueled with butane , 0.1 mol of butane requires 14.56 L of at STP for complete combustion | | | | | | | |
|  | c) | A portable hydrogen generator utilises the reaction:  of would produce 2.24 L of at STP | | | | | | | |
|  | d) | In the Mond process for purifying nickel, the volatile nickel carbonyl is produced by the reaction  . 58.7 g of Ni utilises 89.6 L of CO at standard conditions | | | | | | | |
| 668. | The molar mass of haemoglobin is about 65000 g/mol. Haemoglobin contains 0.35% Fe by mass. Thus, iron atoms present in haemoglobin molecule are | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 669. | Acidified solution changes to green | | | | | | | |
|  | a) | When gas is passed into it | | | b) | When is added to it | | |
|  | c) | When is added to it | | | d) | When is added to it | | |
| 670. | of is mixed with of solution. Resulting solution has | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 671. | We have select correct the alternate(s) | | | | | | | |
|  | a) | There are equal number of moles of each reactant | | | | | | | |
|  | b) | Total number of atoms in | | | | | | | |
|  | c) | Total number of H-atoms are in the ratio of | | | | | | | |
|  | d) | Total number of C-atoms in that of N-atoms in that of O-atoms in | | | | | | | |
| 672. | 20 of is reacted completely with acidified solution. 40 mL of solution was required to oxidise the completely. Also, 2.0 mL of the same solution required 5.0 of a solution to reach  equivalence point. Which of the following statements is/are correct? | | | | | | | |
|  | a) | The solution is 5 M | | | | | | | |
|  | b) | The volume strength of is 56 V | | | | | | | |
|  | c) | The volume strength of is 112 V | | | | | | | |
|  | d) | If 40 of 5 M/8 is further added to the 10 mL of above solution the volume strength of the resulting solution is changed to 16.8 V | | | | | | | |
| 673. | 0.1 mol of (in acidic medium) can | | | | | | | |
|  | a) | Oxidise 0.5 mol of | | | b) | Oxidise 0.166 molof | | |
|  | c) | Oxidise 0.25 mol of | | | d) | Oxidise 0.6 mol of | | |
| 674. | Avogadro’s number is the number of molecules present in | | | | | | | |
|  | a) | 32 g of oxygen | | | b) | 1 g molecule of a substance | | |
|  | c) | 22.4 L if a gas at NTP | | | d) | None of the above | | |
| 675. | 100 of 0.2 M solution is completely neutralised by a standard solution of M/4  Which of the following is/are wrong? | | | | | | | |
|  | a) | The volume of required is 160 mL | | | | | | | |
|  | b) | The volume of required is 80 mL | | | | | | | |
|  | c) | The normality of is 0.4 N | | | | | | | |
|  | d) | It is a redox reaction | | | | | | | |
| 676. | Which of the following statements is/are correct about the reaction? | | | | | | | |
|  | a) | The number of moles of required to oxidise 6 mol of to and is 11 mol | | | | | | | |
|  | b) | The number of moles of used in the reaction is 62 | | | | | | | |
|  | c) | The number of moles of formed in the reaction is 11 | | | | | | | |
|  | d) | The number of moles of formed in the reaction is 11 | | | | | | | |
| 677. | What volume of 0.1 M in acidic medium required for complete oxidation of 100 mL of 0.1 M and 100 of 0.1 M ferric oxalate separately | | | | | | | |
|  | a) | 60 of with | | | b) | 40 of with | | |
|  | c) | 40 of with ferric oxalate | | | d) | 120 of with ferric oxalate | | |
| 678. | Three different solutions of oxidizing agents , and is titrated separately with 0.19 g of . The molarity of each oxidising agent is 0.1 M and the reactions are:  i.  ii.  iii.  (molecular weight of , and )  Which of the following statements is/are correct? | | | | | | | |
|  | a) | All three oxidising agents can act as self-indicators | | | | | | | |
|  | b) | Volume of used is minimum | | | | | | | |
|  | c) | Volume of used is maximum | | | | | | | |
|  | d) | Weight of used in the titration is maximum | | | | | | | |
| 679. | Which of the statements are correct? | | | | | | | |
|  | a) | Physical quantity represented by work in joule is kg | | | | | | | |
|  | b) | Physical quantity represented by force in newton is kg | | | | | | | |
|  | c) | Physical quantity represented by work in joule is kg | | | | | | | |
|  | d) | Physical quantity represented by force in newton is kg | | | | | | | |
| 680. | Nessler’s reagent is used for the test of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 681. | Which of the following have same significant figures? | | | | | | | |
|  | a) | 0.070 | b) | 0.70 | c) | 7.0 | d) | 70 |
| 682. | The molar mass of haemoglobin is about 65000 g Every haemoglobin contains 4 iron atoms. Thus, | | | | | | | |
|  | a) | Iron content in haemoglobin is 0.35% by mass | | | | | | | |
|  | b) | 1 mole of haemoglobin contains 56 g iron | | | | | | | |
|  | c) | 1 mole of haemoglobin contains 224 g iron | | | | | | | |
|  | d) | If iron content is increased to 0.56%, molar mass of haemoglobin would be higher than 65000 g | | | | | | | |
| 683. | A mixture of moles of and is titrated separately with and  , to reach at equivalence point  Which of the following statements is/are correct | | | | | | | |
|  | a) | Moles of and are and | | | b) | Moles of and is: and | | |
|  | c) | -factors of with and respectively, are 1 and 2 | | | d) | -factors of with and , respectively, are 2 and 1 | | |
| 684. | 18 of 1.0 M solution undergoes complete disproportionation in basic medium to and . Then the resulting solution requires 45 mL of solution to reduce to . is oxidized to . Which statements are correct? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) | Molarity of | | | d) | Molarity of | | |
| 685. | Precipitation of cations a sulphide can be done by | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 686. | Which of the following relationships are wrong? | | | | | | | |
|  | a) | 1 atm =760 cm Hg | | | b) | 1 eV = 1.6021 | | |
|  | c) |  | | | d) | 1 dyne N | | |
| 687. | 100 of M/10 in acidic medium can be oxidized completely with | | | | | | | |
|  | a) | 100 of 1 M solution | | | b) | of 1 M solution | | |
|  | c) | 25 of 1 M solution | | | d) | 75 of 1 M solution | | |
| 688. | Which of the following relations are correct? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 689. | Which of the following statements is/are correct?  **i**. 21.0 of lithium reacts with 32.0 g of  **ii**. 3.9 g of K reacts with 4.26 g of  [Atomic weight of Li = 7 and K = 39 of and) | | | | | | | |
|  | a) | In reaction (i), is in excess | | | b) | 45.0 g of is formed is reaction (i) | | |
|  | c) | In reaction (ii), is in excess | | | d) | 7.45 g if KCl is formed is reaction (ii) | | |
| 690. | Which of the following statements is/are correct?  1.0 g mixture of and glass beads liberate 0.22 g of upon treatment with excess of HCl. Glass does not react with    [of, [Atomic weight of ] | | | | | | | |
|  | a) | The weight of in the original mixture is | | | | | | | |
|  | b) | The weight of calcium in the original mixture is | | | | | | | |
|  | c) | The weight of percent of calcium in the original mixture is Ca | | | | | | | |
|  | d) | The weight percent of Ca in the original mixture is Ca | | | | | | | |
| 691. | If 0.80 mole of and 146 g of react then, | | | | | | | |
|  | a) | 0.80 mole of is formed | | | b) | 0.80 mole of remains unreacted | | |
|  | c) | is completely reacts | | | d) | is the limiting reactant | | |
| 692. | Which of the following statements is/are correct in the following reaction | | | | | | | |
|  | a) | The equivalent weight of is M/40  (molecular weight of ) | | | | | | | |
|  | b) | The equivalent weight of is M/3  (molecular weight of ion) | | | | | | | |
|  | c) | -factor for the conversion of to is zero | | | | | | | |
|  | d) | -factor for the conversion of to is 30 | | | | | | | |
| 693. | In which of the following pairs, 10 g of each have an equal number of molecules? | | | | | | | |
|  | a) | and | b) | and | c) | and | d) | and |
| 694. | 1 L sample of impure water containing sulphide ion is made ammoniacal and is titrated with 300 of 0.1 M solution. Which of the following statements is/are correct about the above reaction? | | | | | | | |
|  | a) | The strength of in water is 0.51 | | | | | | | |
|  | b) | The strength of in water is 5.1 | | | | | | | |
|  | c) | The concentration of in water in ppm is 510 | | | | | | | |
|  | d) | The concentration of in water in ppm is 51 | | | | | | | |
| 695. | Which of the following is/are correct?  100 mL of 3.0 M reacts with excess of according to the equation : | | | | | | | |
|  | a) | 1.5 mol of is formed | | | b) | 3 mol of is formed | | |
|  | c) | 45.6 g of is obtained | | | d) | 4.56 g of is obtained | | |
| 696. | g of requires 100 mL of M/5 in a titration in a solution having  Which of following is/are correct? | | | | | | | |
|  | a) | The value of is 1.7 g | | | b) | The value of is 0.34 g | | |
|  | c) | changes to | | | d) | changes to | | |
| 697. | In which of the reactions, oxygen is an oxidant | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 698. | Which of the following statements are correct? | | | | | | | |
|  | a) | French chemist A. Lavoisier is called the father of chemistry and proposed the law of conservation of mass | | | | | | | |
|  | b) | French chemist Joseph Proust proposed the law of definite proportions | | | | | | | |
|  | c) | Dalton proposed the law of multiple proportions | | | | | | | |
|  | d) | Richter proposed the law of reciprocal proportions | | | | | | | |
| 699. | A sample of metal contains atoms and has mass of 82.29 g. Select the correct statements for this case | | | | | | | |
|  | a) | Atomic mass of the metal is 197 | | | | | | | |
|  | b) | Number of moles present in the given amount is 0.42 | | | | | | | |
|  | c) | The probable metal is a coin metal | | | | | | | |
|  | d) | It is natural occurring metal | | | | | | | |
| 700. | Which is/are correct about | | | | | | | |
|  | a) | It contains 0.25 mole of | | | | | | | |
|  | b) | It contains 0.75 mole of H-atoms | | | | | | | |
|  | c) | It contains total of 1.0 mole of N and H atoms | | | | | | | |
|  | d) | It contains molecules of | | | | | | | |
| 701. | Which quantity is/are independent of temperature? | | | | | | | |
|  | a) | Molarity | b) | Mole fraction | c) | % by weight | d) | Molality |
| 702. | Permanent hardness is due to and of and and is removed by adding  Which of the following statements is/are correct? | | | | | | | |
|  | a) | If hardness is 100 ppm , the amount of required to soften 10 L of hard water is 10.6 g | | | | | | | |
|  | b) | If hardness is 100 ppm , the amount of required to soften 10 L of hard is 10.6 g | | | | | | | |
|  | c) | If hardness is 420 ppm , the amount of required to soften 10 L of hard water is 53.0 g | | | | | | | |
|  | d) | If hardness is 420 ppm , the amount of required to soften 10 L of hard water is 5.3 g | | | | | | | |
| 703. | A solution is M in and in Thus | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 704. | Which of the following statements is/are correct about 6.8 % strength of ? | | | | | | | |
|  | a) | Its normality is 4 N | | | b) | Its molarity is 2 M | | |
|  | c) | Its volume strength is 22.4 V | | | d) | Volume strength | | |
| 705. | Among the following groupings which represents the collection of isoelectronic species? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 706. | can be prepared by following reactions:  **i**.  **ii**.  **iii**.  (Atomic weight of K, Cl, and O are 39, 35.5 and 16) | | | | | | | |
|  | a) | The amount of required to prepare 277 g of by above series of by above series of reaction is 568 g | | | | | | | |
|  | b) | The volume of KOH in litres used by , if KOH is 1.5 M, is 1.067 L | | | | | | | |
|  | c) | The amount of required to prepare 200 g of by above series of reaction is 284 g | | | | | | | |
|  | d) | The volume of KOH in litres used by , if KOH is 1.5 M, is 10.67 L | | | | | | | |
| 707. | Which of the following may contain one proton and one neutron? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 708. | and behave as acids as well as reducing agents. Which are correct statements? | | | | | | | |
|  | a) | Equivalent weight of and are equal to their molecular weights when behaving as reducing agents | | | | | | | |
|  | b) | of 1 M solution of each is neutralized by equal volumes of | | | | | | | |
|  | c) | of 1 N solution of each is neutralized by equal volumes of | | | | | | | |
|  | d) | of 1 M solution of each is oxidized by equal volumes of | | | | | | | |
| 709. | Which of the following is/are correct?  The following reaction occurs :  106.0 g of reacts with 109.5 g of | | | | | | | |
|  | a) | The is in excess | | | | | | | |
|  | b) | 117.0 g of is formed | | | | | | | |
|  | c) | The volume of produced at 1 bar and 273 K is 22.7 L | | | | | | | |
|  | d) | The volume of produced at 1 bar and 298 K is 24.7 L | | | | | | | |
| 710. | Which of the following statements is/are correct? | | | | | | | |
|  | a) | 21.2 g sample of impure is dissolved and reacted with a solution of , the weight of precipitate of is 10.0 g. The % purity of is 50% | | | | | | | |
|  | b) | The percentage purity of is 60% | | | | | | | |
|  | c) | The number of moles of | | | | | | | |
|  | d) | The number of moles of forms is 0.1 mol | | | | | | | |
| 711. | Which of the statements are true?  Where is the molecular weight of the respective compounds | | | | | | | |
|  | a) | The equivalent weight of is | | | | | | | |
|  | b) | The equivalent weight of is | | | | | | | |
|  | c) | The equivalent weight of is | | | | | | | |
|  | d) | The equivalent weight of potash alum is | | | | | | | |
| 712. | 2.0 g of an element is reacted with aqueous solution containing and to yield and thus liberated is absorbed in 200of . The excess acid required 10 mL of 1.5 M for complete neutralisation  Which of the following statements is/are correct? | | | | | | | |
|  | a) | The atomic weight of X is 100 g | | | b) | The equivalent weight of X is 50 g | | |
|  | c) | The equivalent weight of X is 25 g | | | d) | The atomic weight of X is 200 g | | |
| 713. | Which of the following have same significant figures? | | | | | | | |
|  | a) |  | b) |  | c) | 7.50 | d) | 0.75 |
| 714. | Which of the following statements is/are **wrong**?  The following reactions occur:  **i.**  **ii.**  1.24 g of reacts with 8.0 g of | | | | | | | |
|  | a) | is the limiting quantity | | | b) | is the limiting quantity | | |
|  | c) | Mass of obtained is 2.2 g | | | d) | Mass of obtained is 2.84 g | | |
| 715. | The simplest formula of a compound containing 50% of element (atomic weight 10) and 50% of element (atomic weight 20) is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 716. | For the given aqueous reaction which of the statement (s) is (are) true? | | | | | | | |
|  | a) | The first reaction is a redox reaction | | | | | | | |
|  | b) | White precipitate is | | | | | | | |
|  | c) | Addition of filtrate to starch solution gives blue colour | | | | | | | |
|  | d) | White precipitate is solution in solution | | | | | | | |
| 717. | and differ in | | | | | | | |
|  | a) | Atomic number | b) | Number of neutrons | c) | Number of electrons | d) | Atomic mass |
| 718. | Two bulbs and contains 16 g and 16 g , respectively. Which of the statements are true? | | | | | | | |
|  | a) | Both bulbs contain same number of atoms | | | | | | | |
|  | b) | Both bulbs contain different number of atoms | | | | | | | |
|  | c) | Both bulbs contain same number of molecules | | | | | | | |
|  | d) | Bulb A contains molecules while bulb B contains molecnles. ( Avogadro’s number) | | | | | | | |
| 719. | Consider the following reactions:  What volume of 0.2 M solution is required to produce enough to completely react with liberated due to decomposition of 1.225  (Molecular weight of  ) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 720. | of 1.44% solution of pure in dil. is oxidized by Then volume of required is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 721. | 100 mL of 0.8 NaOH are used to neutralised 100 mL solution obtained by passing 2.70 g in water. Select the correct statement. | | | | | | | |
|  | a) | The solution of has 0.2 and 0.4 HCl | | | | | | | |
|  | b) | The volume ratio of used for and HCl is 1 : 2 | | | | | | | |
|  | c) | The volume ratio of used for and HCl is 1 : 1 | | | | | | | |
|  | d) | Molarity of solution is 0.1 | | | | | | | |
| 722. | Which of the following reactions is/are not intermolecular redox reaction? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 723. | 10.78 g of in solution is 0.40 N. Thus, this acid | | | | | | | |
|  | a) | Has been neutralized to | | | | | | | |
|  | b) | Has been neutralized to | | | | | | | |
|  | c) | Has been neutralized to | | | | | | | |
|  | d) | Has been neutralized to | | | | | | | |
| 724. | Which of the following statements is/are correct?  The following reaction occurs:  108.0 g of Al and 213.0 g of was heated to initiate the reaction. (of MnO = 71, atomic weight of Al = 13) | | | | | | | |
|  | a) | Al is present is excess | | | b) | is present is excess | | |
|  | c) | 54.0 g of Al is required | | | d) | 159.0 g of is in excess | | |
| 725. | A solution of solute contains 40% by weight of solution. 800 g of this solution was cooled when 100 g of solute is precipitated. Thus, percentage composition of the remaining solution is | | | | | | | |
|  | a) | 31.4% | b) | 20.0% | c) | 23.0% | d) | 24.0% |
| 726. | can be used to test | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 727. | Equal weights of X (atomic weight = 36) and Y (atomic weight = 24) are reacted to form the compound , which of the following is/are correct? | | | | | | | |
|  | a) | X is the limiting reagent | | | b) | Y is the limiting reagent | | |
|  | c) | No reactant is left over | | | d) | Mass of formed is double the mass of X taken | | |
| 728. | In diammonium hydrogen phosphate, percentage as | | | | | | | |
|  | a) |  | b) |  | c) | P is maximum | d) | N is maximum |
| 729. | When 100 of 0.1 M and 400 mL of 0.2 M and 500 of 0.3 are mixed, then in the resulting solution | | | | | | | |
|  | a) | The molarity of | | | | | | | |
|  | b) | The molarity of | | | | | | | |
|  | c) | The molarity of | | | | | | | |
|  | d) | The molarity of and M | | | | | | | |
| 730. | Select the correct statements(s): | | | | | | | |
|  | a) | One mole of electrons weigh 0.55 mg | | | | | | | |
|  | b) | The number of atoms present in a molecule of gas is called atomicity | | | | | | | |
|  | c) | is monobasic acid | | | | | | | |
|  | d) | is a salt | | | | | | | |
| 731. | Which of the following statement is/are correct?  Excess of is bubbled into 1.0 L of 0.1 M solution | | | | | | | |
|  | a) | 9.55 of is produced | | | b) | The concentration of ions is 0.2 M | | |
|  | c) | The concentration of ions is 0.1 M | | | d) | 95.5 g is produced | | |
| 732. | Which of the following statements is/are correct? | | | | | | | |
|  | a) | The reaction:  of Bi in produces 48.5 g of bismuth nitrate  (Atomic weight Bi = , of ) | | | | | | | |
|  | b) | 4.0 g of by mass is required to react with of Bi | | | | | | | |
|  | c) | The volume of NO gas produced at STP (1 bar, 273 K) is 0.227 L | | | | | | | |
|  | d) | The volume of NO gas produced at SATP (1 bar, 298 K) is 0.247 L | | | | | | | |
| 733. | Which of the following statements is/are correct?  20.0mL of 6.0 M is mixed with 50.0 mL of , and 30mL of water is added | | | | | | | |
|  | a) | The concentration of  remaining in solution is 0.8 M | | | | | | | |
|  | b) | The concentration of remaining in solution is 1.2 M | | | | | | | |
|  | c) | The concentration of remaining in solution is 1.0 M | | | | | | | |
|  | d) | 80 mmoles of  is in excess | | | | | | | |
| 734. | Mole fraction of ethanol in ethanol-water system is 0.25. Thus, it has | | | | | | | |
|  | a) | 25% ethanol by weight of solution | | | b) | 75% water by weight of solution | | |
|  | c) | 46% ethanol by weight of solution | | | d) | 54% water by weight of solution | | |
| 735. | Which of the statements are true? | | | | | | | |
|  | a) | Brass is an element | | | b) | Dry ice is a mixture | | |
|  | c) | Aerated drink, e.g., coca cola, is a mixture | | | d) | Diesel is a mixture | | |
| 736. | Which of the following statements is/are correct? | | | | | | | |
|  | a) | Mass of needed to make up 100 mL of an aqueous solution of concentration 27.0 mg of per mL is 33.3 g  of atomic weight of ) | | | | | | | |
|  | b) | Mass of needed to prepare 1.0 L solution containing 26.0 g per litre is 133.25 g. (Atomic weight of Cr = 52 g) | | | | | | | |
|  | c) | Mass of needed to prepare 100 mL of a solution containing 80 mg per mL is 8.0 g | | | | | | | |
|  | d) | Mass of per mL of solution needed for solution of in water containing 20% by weight (density = 0.8 g ) is 0.16 g | | | | | | | |
| 737. | A solution containing and ions is titrated with 20 mL of M/4 solution in acidic medium. The resulting solution is treated with excess of KI after neutralisation. The evolved is then absorbed is 25 mL of M/10 hypo solution  Which of the following statements are correct? | | | | | | | |
|  | a) | The difference of the number of m mol of and ions in the solution is 10 m mol | | | | | | | |
|  | b) | The difference of the number of m mol of and ions in the solution is 22.5 m mol | | | | | | | |
|  | c) | The equivalent weight of ions in the titration with KI is equal to the atomic weight of | | | | | | | |
|  | d) | The equivalent weight of KI in the titration is M/2 (M=Molecular weight of KI) | | | | | | | |
| 738. | The hardness of water due to is 122 ppm. Select the correct statement (s) | | | | | | | |
|  | a) | The hardness of water in terms of is 200 ppm | | | | | | | |
|  | b) | The hardness of water in terms of is 100 ppm | | | | | | | |
|  | c) | The hardness of water in terms of is 222 ppm | | | | | | | |
|  | d) | The hardness of water in terms of is 95 ppm | | | | | | | |
| 739. | Which one is not correct about | | | | | | | |
|  | a) | 2 mole of VO reacts completely with 5 mole of | | | | | | | |
|  | b) | 1 mole of VO reacts completely with 1.5 mole of | | | | | | | |
|  | c) | Eq. weight of and of is | | | | | | | |
|  | d) | Eq. weight of and is | | | | | | | |
| 740. | A mixture containing one mole of and two mole of will be neutralised by: | | | | | | | |
|  | a) | 1 mole KOH | b) | 2 mole | c) | 4 mole KOH | d) | 2 mole KOH |
| 741. | 11.2 g of mixture of (volatile) and gave 28.7 g of white ppt with excess of solution. 11.2 g of same mixture on heating gave a gas that on passing into solution gave 14.35 g of white ppt. Hence, | | | | | | | |
|  | a) | Ionic mass of is 18 | | | b) | Mixture has equal mole fraction of | | |
|  | c) | are in the molar ratio | | | d) | Ionic mass of is 10 | | |
| 742. | andbehave as acids as well as reducing agents. Which of the following are correct statements? | | | | | | | |
|  | a) | Equivalent weights of and are equal to their molecular weights when acting as reducing agents | | | | | | | |
|  | b) | Equivalent weights of and are equal to half their molecular weights when acting as reducing agents | | | | | | | |
|  | c) | 100 of 1 M solution of each is neutralized by equal volumes of 1 N | | | | | | | |
|  | d) | 100 of 1 M solution of each is oxidized by equal volumes of 1 M | | | | | | | |
| 743. | 56.0 g KOH, 138.0 g and 100.0 g is dissolved in water and the solution is made 1 L. 10of this stock solution is titrated with . Which of the following statements is/are correct? | | | | | | | |
|  | a) | When phenolphthalein is used as an indicator from the very beginning, the titre value of will be 60 mL | | | | | | | |
|  | b) | When phenolphthalein is used as an indicator from the very beginning, the titre value of will be | | | | | | | |
|  | c) | When methyl orange is used as an indicator from the very beginning, the titre value of will be | | | | | | | |
|  | d) | When methyl orange is used as an indicator after the first end point, the titre value of will be | | | | | | | |
| 744. | Which of the following is/are correct about the redox reaction? | | | | | | | |
|  | a) | 1 mol of is oxidized by 8 mol of | | | | | | | |
|  | b) | The above redox reaction with the change of pH from 4 to 10 will have an effect on the stoichiometry of the reaction | | | | | | | |
|  | c) | Change of pH from 4 to 7 will change the nature of the product | | | | | | | |
|  | d) | At ions are oxidised to | | | | | | | |
| 745. | Which of the following solutions contains same molar concentration? | | | | | | | |
|  | a) | 166 g. KI/L solution | | | b) | 33.0 g in solution | | |
|  | c) | 25.0 g in solution | | | d) | 27.0 mg per mL solution | | |

**ACTIVE SITE TUTORIALS**

**Date :** 20-08-2019 **TEST ID: 516**

**Time :** 37:15:00 **CHEMISTRY**

**Marks :** 2377

1.SOME BASIC CONCEPTS OF CHEMISTRY

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1) a 2) a 3) a 4) b**  **5) c 6) a 7) a 8) d**  **9) b 10) c 11) b 12) a**  **13) c 14) b 15) c 16) a**  **17) b 18) c 19) a 20) b**  **21) a 22) b 23) a 24) a**  **25) b 26) a 27) b 28) a**  **29) a 30) d 31) b 32) c**  **33) d 34) c 35) c 36) b**  **37) b 38) b 39) a 40) c**  **41) d 42) c 43) d 44) b**  **45) b 46) c 47) d 48) a**  **49) d 50) d 51) b 52) c**  **53) a 54) a 55) a 56) b**  **57) a 58) b 59) b 60) a**  **61) d 62) c 63) a 64) a**  **65) a 66) a 67) c 68) d**  **69) a 70) a 71) a 72) a**  **73) c 74) a 75) b 76) b**  **77) c 78) a 79) b 80) c**  **81) b 82) d 83) d 84) c**  **85) c 86) a 87) b 88) d**  **89) c 90) a 91) d 92) d**  **93) a 94) d 95) c 96) b**  **97) b 98) b 99) b 100) d**  **101) a 102) a 103) a 104) b**  **105) c 106) a 107) a 108) b**  **109) a 110) a 111) c 112) b**  **113) a 114) d 115) a 116) c**  **117) b 118) a 119) b 120) d**  **121) c 122) d 123) c 124) d**  **125) a 126) b 127) b 128) a**  **129) a 130) d 131) c 132) c**  **133) c 134) d 135) c 136) c**  **137) c 138) a 139) c 140) d**  **141) b 142) b 143) c 144) c**  **145) d 146) d 147) d 148) a**  **149) a 150) a 151) c 152) c**  **153) c 154) c 155) c 156) c**  **157) d 158) a 159) a 160) a**  **161) a 162) d 163) b 164) a**  **165) a 166) d 167) b 168) c**  **169) b 170) c 171) d 172) a**  **173) b 174) b 175) d 176) d**  **177) b 178) b 179) d 180) d**  **181) b 182) a 183) d 184) a**  **185) d 186) a 187) a 188) a**  **189) d 190) a 191) a 192) c**  **193) c 194) b 195) b 196) d**  **197) b 198) b 199) a 200) a**  **201) a 202) a 203) c 204) b**  **205) a 206) b 207) d 208) c**  **209) b 210) c 211) a 212) d**  **213) d 214) c 215) b 216) c**  **217) c 218) c 219) b 220) c**  **221) d 222) d 223) b 224) d**  **225) c 226) c 227) c 228) c**  **229) d 230) c 231) b 232) c**  **233) b 234) b 235) c 236) b**  **237) c 238) a 239) a 240) d**  **241) b 242) a 243) b 244) a**  **245) d 246) c 247) d 248) b**  **249) d 250) d 251) b 252) d**  **253) c 254) b 255) a 256) d**  **257) a 258) d 259) d 260) c**  **261) c 262) a 263) c 264) a**  **265) a 266) b 267) b 268) b**  **269) b 270) c 271) a 272) c**  **273) a 274) d 275) b 276) b**  **277) c 278) c 279) d 280) c**  **281) a 282) a 283) d 284) a**  **285) c 286) b 287) b 288) c**  **289) b 290) a 291) b 292) b**  **293) c 294) c 295) a 296) a**  **297) d 298) a 299) d 300) b**  **301) a 302) d 303) a 304) d**  **305) d 306) a 307) d 308) d**  **309) d 310) a 311) b 312) c**  **313) a 314) b 315) a 316) b**  **317) d 318) c 319) c 320) b**  **321) b 322) d 323) b 324) d**  **325) c 326) c 327) d 328) a**  **329) c 330) a 331) b 332) a**  **333) d 334) b 335) a 336) d**  **337) a 338) c 339) a 340) d**  **341) d 342) c 343) a 344) a**  **345) b 346) d 347) c 348) d**  **349) c 350) a 351) a 352) b**  **353) d 354) b 355) a 356) b**  **357) d 358) d 359) a 360) d**  **361) d 362) d 363) b 364) a**  **365) a 366) b 367) a 368) c**  **369) a 370) d 371) c 372) c**  **373) b 374) b 375) a 376) b**  **377) d 378) b 379) c 380) a**  **381) b 382) b 383) c 384) a**  **385) a 386) d 387) a 388) b**  **389) c 390) c 391) a 392) a**  **393) b 394) b 395) c 396) c**  **397) b 398) a 399) c 400) c**  **401) a 402) b 403) b 404) b**  **405) c 406) b 407) d 408) c**  **409) a 410) c 411) a 412) d**  **413) a 414) a 415) a 416) c**  **417) a 418) d 419) d 420) a**  **421) c 422) b 423) a 424) c**  **425) a 426) c 427) c 428) b**  **429) c 430) a 431) d 432) d**  **433) a 434) a 435) b 436) d**  **437) c 438) a 439) b 440) d**  **441) b 442) d 443) c 444) d**  **445) c 446) a 447) a 448) d**  **449) c 450) a 451) a 452) a**  **453) d 454) c 455) b 456) c**  **457) a 458) c 459) d 460) d**  **461) d 462) d 463) a 464) b**  **465) b 466) c 467) c 468) d**  **469) d 470) d 471) c 472) b**  **473) b 474) b 475) c 476) a**  **477) d 478) a 479) c 480) a**  **481) b 482) b 483) b 484) c**  **485) a 486) c 487) c 488) d**  **489) b 490) a 491) a 492) c**  **493) a 494) a 495) d 496) b**  **497) a 498) a 499) a 500) a**  **501) c 502) a 503) a 504) a**  **505) b 506) a 507) b 508) d**  **509) d 510) a 511) d 512) b**  **513) d 514) b 515) c 516) b**  **517) c 518) a 519) b 520) d**  **521) d 522) c 523) c 524) d**  **525) a 526) d 527) a 528) b**  **529) a 530) d 531) a 532) a**  **533) d 534) b 535) b 536) a**  **537) d 538) b 539) a 540) a**  **541) b 542) c 543) b 544) c**  **545) c 546) a 547) c 548) d**  **549) b 550) d 551) c 552) a**  **553) d 554) b 555) c 556) b**  **557) b 558) b 559) a 560) b**  **561) c 562) b 563) c 564) c**  **565) d 566) a 567) d 568) a**  **569) c 570) b 571) d 572) a**  **573) b 574) a 575) b 576) a**  **577) c 578) a 579) d 580) a**  **581) a 582) a 583) c 584) c**  **585) a 586) b 587) c 588) a**  **589) a 590) b 591) a 592) d**  **593) a 594) d 595) a 596) b**  **597) a 598) d 599) a 600) b**  **601) a 602) a 603) c 1) a,b,c 2) a,b,c,d 3) a,b,d 4) b,c,d**  **5) a,b 6) a,b,c 7) c,d 8) b,c**  **9) a,b,d 10) c,d 11) a,b,c,d 12) a,c**  **13) a,b,d 14) a 15) b,d 16) a,b**  **17) c,d 18) a,b 19) a, b, d 20) b,c**  **21) a,b 22) a,b 23) a, d 24) b**  **25) a,b,c,d 26) a,b,c,d 27) a,b,c 28) a,c**  **29) a,c 30) b,c 31) c,d 32) d**  **33) a,c,d 34) c, d 35) a, c 36) b,c**  **37) b,c,d 38) b,d 39) a,b 40) a,c**  **41) b 42) a,c 43) a, c 44) a,b,c**  **45) a,b 46) a,d 47) a, b, c 48) a**  **49) a, b, c 50) b,d 51) a,b 52) b,c,d**  **53) b,c 54) a,c,d 55) a,b,c 56) a,b,c,d**  **57) b 58) b,c 59) a 60) b**  **61) a,c 62) a,c,d 63) a,b,d 64) a,b,c**  **65) d 66) a,c,d 67) a,c,d 68) a,b,c**  **69) a,b,d 70) a,b,c 71) a,b,c 72) b,c,d**  **73) a,b,c,d 74) a,d 75) a,b,d 76) a,b**  **77) c 78) a,b,c,d 79) a,c,d 80) a,c**  **81) b,c 82) a,c 83) a,b,c 84) a,b**  **85) a,b,c,d 86) a,b,c,d 87) a,b,d 88) a,b,c,d**  **89) a,b,c 90) c,d 91) a,c 92) a,c**  **93) b,c,d 94) b,c,d 95) a,b,c,d 96) a,b,c,d**  **97) a,b,c,d 98) b, c, d 99) a,d 100) a,c,d**  **101) a,b,c,d 102) d 103) a,d 104) c**  **105) a,c,d 106) a,b,c,d 107) a,c 108) a,b,c,d**  **109) a,b 110) a,b,c 111) b,c,d 112) b**  **113) a,c,d 114) b,d 115) a,d 116) b**  **117) b 118) a, c 119) b,c,d 120) a,c**  **121) a,c 122) a 123) a,c,d 124) c,d**  **125) a,b 126) a,b,c 127) a, b, c, d 128) a,b**  **129) b,c,d 130) a,b,c,d 131) c,d 132) c,d**  **133) a,b,c,d 134) a,c 135) b,d 136) b, c, d**  **137) b, c 138) a,b 139) b,d 140) b,c,d**  **141) b,c,d 142) a,c,d** | | | | |

**ACTIVE SITE TUTORIALS**

**Date :** 20-08-2019 **TEST ID: 516**

**Time :** 37:15:00 **CHEMISTRY**

**Marks :** 2377

1.SOME BASIC CONCEPTS OF CHEMISTRY

|  |
| --- |
| **: HINTS AND SOLUTIONS :** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | **(a)**  and are isotopes. Thus, they resemble very closely in their chemical properties | | | | | | | |
| 2 | **(a)**  mol of mol of | | | | | | | |
| 3 | **(a)**  KOH +  ( mmol) ( mmol)  **i.**  **ii**. and  KOH mmoles | | | | | | | |
| 4 | **(b)**  68 g 22.4 L (at STP)  Mass of in 1.5 N solution of N  g  So, volume strength of 1.5 N solution | | | | | | | |
| 7 | **(a)** | | | | | | | |
| 8 | **(d)**  taken  unreacted  reacted  Thus,  Thus, empirical formula is or | | | | | | | |
| 9 | **(b)**  Total moles solution  Thus, molarity | | | | | | | |
| 10 | **(c)**  I.  II.  conc. charred  mass  III.  brown fumes  IV.  Bleaching agent | | | | | | | |
| 12 | **(a)**  1 eq if Y = 1 eq of | | | | | | | |
| 13 | **(c)** | | | | | | | |
| 14 | **(b)** | | | | | | | |
| 15 | **(c)**  Mole  Ratio: 1:7 | | | | | | | |
| 16 | **(a)**  and are isomorphous  of of Se | | | | | | | |
| 17 | **(b)**  Upto stage I-monobasic acid  II-dibasic acid | | | | | | | |
| 18 | **(c)**    mL | | | | | | | |
| 19 | **(a)**  Let the volume be | | | | | | | |
| 20 | **(b)** | | | | | | | |
| 21 | **(a)**  decolourises  Thus, is    burns with blue flame    milk | | | | | | | |
| 23 | **(a)**  is in the limiting a quantity and every 1 mole of gives equal moles of hence, formed | | | | | | | |
| 24 | **(a)**  Total weight of alcohol and water  Volume of mixture =  Change in volume = (  % change in volume | | | | | | | |
| 25 | **(b)**  (a)  millimole  millimoles  (b) millimoles  (c) | | | | | | | |
| 26 | **(a)**  has structure | | | | | | | |
| 27 | **(b)**  **i.**  **ii**. | | | | | | | |
| 28 | **(a)** | | | | | | | |
| 29 | **(a)**  Volume of at STP  22400 mL of at STP = 1 mole = 2 Eq of  22.4 mL of  of  of metal | | | | | | | |
| 30 | **(d)**  Balance the equation : | | | | | | | |
| 31 | **(b)**  green | | | | | | | |
| 32 | **(c)**  Thus, resulting solution is basic containing and unreacted KOH  formed used  millimoles  mol in or 0.2 L solution | | | | | | | |
| 33 | **(d)**  Weight of reacted  7.1 g g of metal  35.5 g 28 g of metal | | | | | | | |
| 35 | **(c)**  of of | | | | | | | |
| 36 | **(b)**  is soluble in hence not precipitated | | | | | | | |
| 37 | **(b)**  red ppt  Soluble  deep blue  crystalline ppt | | | | | | | |
| 38 | **(b)**  (orange)  dark brown | | | | | | | |
| 39 | **(a)**  Methyl orange indicator indicates complete ionisation of bit first steep ionization of    **First case:**  mL  **Second case:**  mL mL | | | | | | | |
| 40 | **(c)**  laughing gas | | | | | | | |
| 41 | **(d)** | | | | | | | |
| 42 | **(c)**  1 mol  Total number of g ions | | | | | | | |
| 44 | **(b)**    of | | | | | | | |
| 45 | **(b)**  purple/violet | | | | | | | |
| 46 | **(c)**  precipitated by | | | | | | | |
| 47 | **(d)**  Normality of “” volume | | | | | | | |
| 48 | **(a)**  Substance I C O  27.27 72.73  Mole : 2.2725 4.5456  Ratio : 1 : 2  Substance II 52.94 47.06  Mole : 4.11 2.94  Ratio : 1.5 1.0  3 : 1 | | | | | | | |
| 49 | **(d)**  -factor=6  Mohr’s salt,  -factor=1  Mole ratio is reverse of -factor ratio. Therefore, one mole of dichromate required=6 moles of Mohr’s salt. | | | | | | | |
| 50 | **(d)** | | | | | | | |
| 51 | **(b)**  0.1 mol=2.24 L at STP | | | | | | | |
| 52 | **(c)**  Atomic weight of element  Molecular formula of its oxide  Hence, molecular weight of oxide | | | | | | | |
| 53 | **(a)**  = 1 mol of = 2 Eq of  = 1/2 mol of = 1 Eq of  of  Weight of metallic carbonate that would produce 1 g equivalent or 22 g or 11.2 L of at STP would be its  of metallic carbonate =  of metal = of of  **Alternatively** :  22400 mL = 1 mol of = 2 Eq  11200 mL of  of of  of  of ofof | | | | | | | |
| 54 | **(a)** | | | | | | | |
| 55 | **(a)**  Used  of equivalent  equivalent  equivalent of  equivalent mass of | | | | | | | |
| 56 | **(b)**  Gas is (laughing gas)  Molar mass=44  g  Thus, gas is | | | | | | | |
| 57 | **(a)**  Any factor that is volume independent, is temperature independent | | | | | | | |
| 58 | **(b)**  **i**.  **ii**.  e., m Eq of of | | | | | | | |
| 59 | **(b)**  Let B is the original base  of  of base Acidity | | | | | | | |
| 60 | **(a)**  and are precipitated in acidic medium | | | | | | | |
| 61 | **(d)**  Refer concept application exercise 3.2 Q 3(a) | | | | | | | |
| 62 | **(c)**  Final reaction is  2 mol 2 mol  46 g 80 g  80 g is from = 46 g Na  4 g is from = 2.3 g Na | | | | | | | |
| 63 | **(a)**  is oxidized to by which is reduced to | | | | | | | |
| 64 | **(a)**  Mass of one atom of  If atomic mass  Then mass of one atom | | | | | | | |
| 65 | **(a)**  Ore of iron is which is a mixture of . In , Fe is in +3 state which is reduced to +2 state  (In , Fe is in +2 state)  Fe in +2 state (from and ) is equivalent of    of  =5 of  g of or  g  Again  g of  168 g 232 g of | | | | | | | |
| 66 | **(a)**  Increase in molar concentration | | | | | | | |
| 67 | **(c)** | | | | | | | |
| 68 | **(d)**  no colour    Prussian blue  bluish white ppt  reddish brown  bluish white | | | | | | | |
| 69 | **(a)**  from  orange red fumes | | | | | | | |
| 70 | **(a)**  1N of volume strength | | | | | | | |
| 71 | **(a)**  of | | | | | | | |
| 72 | **(a)**  With phenolphthalein indicator, does not react with whereas with is 50% reaction(Half titre value of  With methyl orange indicator, reacts completely with and with is 100% reaction  But of is added after has reacted upto , i.e., half titre value of  Full litre value of Half titre value of  Volume of required complete reaction of | | | | | | | |
| 73 | **(c)**  glass | | | | | | | |
| 74 | **(a)**  Moles Pressure  **i.**  Pressure of  **ii.** | | | | | | | |
| 76 | **(b)**  X : 50% Y : 50%  X : Y = 5 : 2.5 = 2:1, hence | | | | | | | |
| 77 | **(c)**  32 208 g  required by 0.072 g sulphur to be precipitated as  Thus, volume of solution | | | | | | | |
| 78 | **(a)**  Iron oxide  Oxygen lost as  Iron   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Element | Amount | % | Mole | Ratio | | Iron (56) | 0.4224 g | 77.73 | 1.39 | 1 | | Oxygen (16) | 0.1210 g | 22.26 | 1.39 | 1 |   Thus, | | | | | | | |
| 79 | **(b)**  If atomic weight  Then % of | | | | | | | |
| 80 | **(c)**  Volume of in 100 mL of ozonised  (dissolved in turpentine)  Volume of in 1 L of ozonised  Volume of in  Weight of 900 mL of at STP =  Weight of 100 mL of at STP  = 0.214 g  Now 100 mL of at STP weighs = 0.214 g  22400 mL of at STP weighs =  = 47.94 g  Molecular weight of g | | | | | | | |
| 81 | **(b)**  Thus, mass of 1 L compound  22.4 L compound has mass  Thus, molar mass  Let molecular formula  Thus, | | | | | | | |
| 82 | **(d)**  10% acetic acid = 10 g in  Conc. in mol | | | | | | | |
| 83 | **(d)**  conc  Yellow | | | | | | | |
| 84 | **(c)**  This is a special case of buffer  That is  thus, at this point  It means 50% of is converted into  Thus, required | | | | | | | |
| 85 | **(c)**  yellow | | | | | | | |
| 86 | **(a)**  Solute present in 800 g solution  Solute precipitated = 100 g  Solute left = 220 g  Total weight of solution  700 g solution has solute = 220 g  100 g solution has solute | | | | | | | |
| 87 | **(b)**  mEq of  10 mEq mEq of  Weight of g  Weight of impure g | | | | | | | |
| 90 | **(a)**  of  of ( factor=2) | | | | | | | |
| 91 | **(d)**  2 mol 1 mol  Given = 1 mol  Thus, 100% yield | | | | | | | |
| 92 | **(d)**  From (III) 2 mol of are formed from = 1 mol pure or 2 mol with 50% yield  From (II) required by 2 mol mol  From (I) 2 mol are formed from mol mol Ca if yield is 50% | | | | | | | |
| 93 | **(a)**  In both cases, the same volume of hydrogen is evolved for the same amount of zinc reacted | | | | | | | |
| 95 | **(c)**  Weight of | | | | | | | |
| 96 | **(b)** | | | | | | | |
| 97 | **(b)**  Normality of oxalic acid molarity  Normality of molarity  milliequivalent  (a)  milliequivalents, thus false  (b)  milliequivalent  Thus, true | | | | | | | |
| 98 | **(b)** | | | | | | | |
| 99 | **(b)**  1 mol 2 mol 44 g  16 g 64 g  Given 16 g 48 g = 1.5 mol?  Thus, is the limiting reactant  give | | | | | | | |
| 100 | **(d)**  Mass of water in 1 L steam g  Volume of 0.06 g water = | | | | | | | |
| 101 | **(a)**  [3 mol 2 mol 6 mol 1mol]  Given mol of andmol of  To find the limiting reagent  2 mol of mol of  0.2 mol of mol of  is the limiting reagent  mol ofmol of  0.2 mol of mol of | | | | | | | |
| 102 | **(a)**  attacks glass | | | | | | | |
| 103 | **(a)**  [] | | | | | | | |
| 104 | **(b)**  One equivalent magnesium oxide  Since, equivalent mass of  Hence, equivalent mass of  Also, equivalent mass of chlorine  Hence equivalent mass of magnesium chloride | | | | | | | |
| 105 | **(c)**  of mL of 0.1 M mL of 0.2 M  (methyl orange indicated 100% reaction of and )  0.2 M | | | | | | | |
| 106 | **(a)**  gives residue  2.76 g gives 2.16 g residue (silver) | | | | | | | |
| 107 | **(a)**  i.  ii.  of mEq of | | | | | | | |
| 108 | **(b)**  1 mol 3 mol 2 mol  1 volume 3 volume 2 volume  combine with  combine with | | | | | | | |
| 109 | **(a)**  of g  of  of  of  Let g of andof  of mEq of HCl  and  % of | | | | | | | |
| 110 | **(a)**  Let the formula of oxide  Atomic weight | | | | | | | |
| 111 | **(c)**  soluble | | | | | | | |
| 113 | **(a)**  Oxidising power is in order  formed also oxidizes to | | | | | | | |
| 114 | **(d)** | | | | | | | |
| 115 | **(a)**  soluble | | | | | | | |
| 116 | **(c)** | | | | | | | |
| 117 | **(b)**  Thus, ratio of O that combines with | | | | | | | |
| 118 | **(a)**  In oxidised to and is nuetralised  (as )  N | | | | | | | |
| 119 | **(b)**  both are yellow | | | | | | | |
| 120 | **(d)**  **Mass Moles Ratio**  Thus, | | | | | | | |
| 121 | **(c)**  Thus, | | | | | | | |
| 122 | **(d)** | | | | | | | |
| 123 | **(c)**  = 552 = 432  552 g silver carbonate give silver = 432 g  2.76 g of silver carbonate give silver | | | | | | | |
| 125 | **(a)**  Dibasic acid    Strength of dibasic acid = 6 g  mEq of acid = of | | | | | | | |
| 126 | **(b)**  in  Thus, atomic mass of g  In  g  g | | | | | | | |
| 127 | **(b)**  There are 54 electrons. Hence, ionic species is | | | | | | | |
| 129 | **(a)**  2 mol 1 mol  2 mol 22.4 L  1 mol 11.2 L  1 mol is required | | | | | | | |
| 130 | **(d)**  mEq | | | | | | | |
| 131 | **(c)** | | | | | | | |
| 132 | **(c)**    Therefore, according to equation (iv)  2 mol of mol of  Eq of  1 mol of of | | | | | | | |
| 133 | **(c)**  is limiting reagent, so one mole will give mol or 0.25 mole of | | | | | | | |
| 134 | **(d)**  Total moles | | | | | | | |
| 135 | **(c)** | | | | | | | |
| 136 | **(c)**  Change in O.N. = 6 units  Thus, 1 mol equivalents | | | | | | | |
| 137 | **(c)**  deep brown  white ppt | | | | | | | |
| 138 | **(a)**  is not affected by heating  Residue | | | | | | | |
| 139 | **(c)**  (water)(solvent) | | | | | | | |
| 140 | **(d)** | | | | | | | |
| 141 | **(b)** | | | | | | | |
| 142 | **(b)**  Molality =  = 80.26 g per | | | | | | | |
| 144 | **(c)**  and remain unchanged but due to dilution (in equal volumes), molar concentration of each is halved  Also, mixture is basic | | | | | | | |
| 146 | **(d)**  Mass of water in salt  Mass of anhydrous salt  Thus,  Thus, salt is | | | | | | | |
| 147 | **(d)**    (factor =28) (electrons lost/mol) | | | | | | | |
| 148 | **(a)**  reacts with  taken  solution | | | | | | | |
| 149 | **(a)**  mol  1 mol = 24 L under given condition  is from = 2 moles  is from solution  Thus, molarity of | | | | | | | |
| 150 | **(a)** | | | | | | | |
| 151 | **(c)**  Use formula  Solve for : | | | | | | | |
| 152 | **(c)** | | | | | | | |
| 153 | **(c)**  1 mol 3 mol  Volume of 1 mole carbon monoxide  1 mole of ferric oxide is reduced by moles of CO | | | | | | | |
| 155 | **(c)**  is light sensitive | | | | | | | |
| 156 | **(c)** | | | | | | | |
| 157 | **(d)**  With phenolphthalein indicator: does not react with whereas reacts upto stage (50% reaction)  mL  With methyl orange indicator: reacts completely with and with is 100% reaction. But of is added after has reacted upto . (i.e, half life value of )  Full titre value of Half titre value of  = Full titre value of mL  Full titre value of | | | | | | | |
| 159 | **(a)**  of metal chloride = ofof  47.5 g of metal chloride Weight of metal  0.475 g of metal chloride | | | | | | | |
| 160 | **(a)**  1 mol of = 22400 mL = 2 Eq of  1 Eq of = 11200 mL  of  [Let the weight of A be g; weight of B = 0.5 – ]  of A + Eq of B = Eq of  % of A =  % of B = 60% | | | | | | | |
| 161 | **(a)** | | | | | | | |
| 162 | **(d)**  in 10 g sample  Thus | | | | | | | |
| 163 | **(b)**  12 g 22.4 L  22.4 L CO from = 12 g C  11.2 L CO from = 6 g C | | | | | | | |
| 164 | **(a)** | | | | | | | |
| 165 | **(a)** | | | | | | | |
| 166 | **(d)**  Gas turns red litmus blue. It is basic in nature. Thus, | | | | | | | |
| 167 | **(b)**  liberates of at STP  liberates | | | | | | | |
| 168 | **(c)**  4 g sulphur is in 100 g compound, hence 32 g sulphur is in compound | | | | | | | |
| 169 | **(b)**  white ppt  soluble | | | | | | | |
| 170 | **(c)**  are not amphoteric | | | | | | | |
| 171 | **(d)**  Ore of is (pyrolusite)  Excess of of  Orof  Total  Reacted  of  or of  of | | | | | | | |
| 172 | **(a)**  oxidises to which gives blue colour with starch | | | | | | | |
| 173 | **(b)**  Thus, is the limiting reagent | | | | | | | |
| 174 | **(b)**  1 mol 22.4 L  Actual = 11.2 L  Thus, 50%  1 mol 40 g  Thus, 100%  2 mol 18 g  1 mol 9g  Actual = 4 g  Thus 44.4%  1 mol 2 mol  Actual = 1 mol  Thus, 50% | | | | | | | |
| 175 | **(d)**  Let and are volumes required | | | | | | | |
| 177 | **(b)**  solution  solution | | | | | | | |
| 178 | **(b)**  = 76.0 mm of Hg | | | | | | | |
| 179 | **(d)**    Here, is the limiting reagent  1 mmol mmol  2.5 mmol mmol | | | | | | | |
| 180 | **(d)**  Volatile component is  molecules  atoms thus, (c)is correct  Thus, (a) is correct  Thus, (b) is correct | | | | | | | |
| 181 | **(b)**  (dibasic acid)  Thus, neutralized by  (diacid base) | | | | | | | |
| 182 | **(a)** | | | | | | | |
| 183 | **(d)**  40 g 98 g  1 g eq. 1 g eq.  Only 1 H is neutralized  Hence, eq. wt. = mol. wt. = 98 | | | | | | | |
| 184 | **(a)**    l  First find the limiting reagent  3 mmol of of  5 mmol of Pb  **So is the limiting reagent**  **i.** 3 mmol of 3 mmol of  5 mmol of  **ii.** Species left in the solution are and  **To calculate the concentration of :**  Intitial  Reacted  Left  Total volume  Concentration  **iii.** To calculate the concentration of :  of of  of  Concentration | | | | | | | |
| 185 | **(d)**  Reaction (a) is neutralization reaction and reaction (c) is decomposition reaction | | | | | | | |
| 187 | **(a)**  1 mol 1.5 mol  232 g 240 g  ? 0.40 g  required by | | | | | | | |
| 188 | **(a)**  is formed which forms Prussian blue with  Prussian blue | | | | | | | |
| 189 | **(d)**  1 ‘V’ (volume strength of ) | | | | | | | |
| 190 | **(a)**  replaces | | | | | | | |
| 191 | **(a)**  1 mol 1 mol 1 mol  0.5 mol 1 mol 0.5 mol | | | | | | | |
| 192 | **(c)**  is | | | | | | | |
| 193 | **(c)**  2 mol 1 mol  22.4 L  1 mol 11.2 L 0.5 mol | | | | | | | |
| 194 | **(b)**  Number of neutrons = number of electrons in  **Electrons** (atomic number)  Thus, increasing order of atom number is | | | | | | | |
| 195 | **(b)**  salts are highly, soluble | | | | | | | |
| 196 | **(d)**  g parts per million | | | | | | | |
| 197 | **(b)**    **In I** (acidic)  **In II (basic)** | | | | | | | |
| 198 | **(b)**  % mass of | | | | | | | |
| 199 | **(a)**  decolourise | | | | | | | |
| 200 | **(a)**  1mol is obtained from 2 mol of  0.25 mol is obtained from  =0.50 mol of (100% pure)  =1.00 mol (if 50% pure) | | | | | | | |
| 201 | **(a)**  Since two H-atoms are replaced | | | | | | | |
| 202 | **(a)**  Change in O.N. = 1 unit  Normality = Molarity | | | | | | | |
| 203 | **(c)**  insoluble | | | | | | | |
| 204 | **(b)**  Total | | | | | | | |
| 206 | **(b)**  Mass of one atom  Mass of atoms    Thus, number of moles in 32 g | | | | | | | |
| 207 | **(d)**  g glucosemol glucose  Withdrawn  Left | | | | | | | |
| 208 | **(c)**  solution has  solution has | | | | | | | |
| 209 | **(b)**  100 g 22.4  20 g | | | | | | | |
| 210 | **(c)**  Iron (III) Sulphate (IV) is  Thus, percentage of O is maximum out of total molar mass of | | | | | | | |
| 211 | **(a)**  4:2:1    Ratio of H and S in  Ratio of H and O in  Ratio of S and O in  Thus, law of reciprocal proportion is followed  Thus, I and II both | | | | | | | |
| 212 | **(d)**  Each has one neutralisable | | | | | | | |
| 213 | **(d)**  Total required  Let volume of 0.1 N  Then, | | | | | | | |
| 214 | **(c)**  Thus,  (since is neutralized)  as an acid  oxidised by  Let  of of | | | | | | | |
| 215 | **(b)**  at STP  But formed at STP  Thus, | | | | | | | |
| 216 | **(c)**  10 g glucose is in  glucose is in | | | | | | | |
| 217 | **(c)**  (residue) | | | | | | | |
| 218 | **(c)**  blue | | | | | | | |
| 219 | **(b)** | | | | | | | |
| 220 | **(c)**  Moles or molecules of | | | | | | | |
| 221 | **(d)**  Eq of = Eq of carbonates of metals  1 mol of mol of  44 g of of  1.10 g of of  % of = 50%  % of one metal = 15%  % of another metal | | | | | | | |
| 222 | **(d)** | | | | | | | |
| 223 | **(b)**  black ppt  orange solution | | | | | | | |
| 225 | **(c)**  Same empirical formula, it means ratio of atoms is identical. Hence, they differ in molecular weight | | | | | | | |
| 226 | **(c)**  Mol. ratio  Molecules | | | | | | | |
| 227 | **(c)** | | | | | | | |
| 228 | **(c)**  **Molar mass 0.01 mol** | | | | | | | |
| 229 | **(d)**  (a)  Liberated is estimated by (hypo) taken in burette  Thus, true  (b) (in burette)  Thus, true  (c)  Thus, true | | | | | | | |
| 231 | **(b)**  Specific heat Atomic weight = 6.4  (Dulong and Petit law)  Atomic weight =  Atomic weight = valency = 25.6  Valency  (Valency is always a whole number) | | | | | | | |
| 232 | **(c)** | | | | | | | |
| 233 | **(b)**  Thus, change in oxidation number of is 3. Thus, changes to | | | | | | | |
| 234 | **(b)**      potassium cobaltinitrite  (yellowish orange pH) | | | | | | | |
| 236 | **(b)** | | | | | | | |
| 237 | **(c)** | | | | | | | |
| 238 | **(a)**  Mol  Thus, | | | | | | | |
| 239 | **(a)**  Only oxidised | | | | | | | |
| 240 | **(d)**  black white  red  blue | | | | | | | |
| 241 | **(b)**  Addition of shifts equilibrium in backward side releasing ions | | | | | | | |
| 243 | **(b)**  a dibasic acid)  a dibasic acid) | | | | | | | |
| 244 | **(a)**  Atoms of the same element having same atomic numbers but different mass numbers are called isotopes | | | | | | | |
| 246 | **(c)**  Equivalent mass of | | | | | | | |
| 247 | **(d)**  For water vapours,  Mass  The density of liquid water is 1 g  So, the volume occupied by water is | | | | | | | |
| 248 | **(b)**  Mg + 2HCl (monobasic acid)  Let of acid = of H + of acid redical  of salt ofofof acid radical  of acid of H + of acid radical | | | | | | | |
| 249 | **(d)**  If carbon content is 69.98 g then molar mass  If carbon content is then molar mass is | | | | | | | |
| 250 | **(d)** | | | | | | | |
| 251 | **(b)**    of mEq of  Excess mEq of in 25 mL  Excess of in 250  of used  of | | | | | | | |
| 252 | **(d)**  kg of electrons contain  of electron will contain | | | | | | | |
| 253 | **(c)**  =0.1 mol C  =0.2 mol C  =0.3 mol C | | | | | | | |
| 255 | **(a)**  white ppt  Filtrate contains and gives cherry red ppt with DMG | | | | | | | |
| 256 | **(d)**    Blue in ethereal layer | | | | | | | |
| 257 | **(a)** | | | | | | | |
| 258 | **(d)**  Thus, II, III | | | | | | | |
| 260 | **(c)** | | | | | | | |
| 261 | **(c)**  black (Hg)  red | | | | | | | |
| 262 | **(a)** | | | | | | | |
| 263 | **(c)**  Assume medium to be dilute alkaline:    [Although it should have been mentioned clearly but if it as strongly alkaline, it is not possible to solve. Check yourself]    Weight purity =75.95% | | | | | | | |
| 264 | **(a)**  1 mol 1 mol 2 mol  Thus, total required = 2 mol | | | | | | | |
| 265 | **(a)**    and 1 mol mol  so, will oxidise more to | | | | | | | |
| 266 | **(b)**  One molal urea solution means 1 kg water has 60 g urea  Thus, total mass of one molal solution = 1060 g  1060 g solution has urea = 60 g | | | | | | | |
| 267 | **(b)**  Methyl red indicates the first step ionization of . Bromothymol blue indicates the second step ionization of . i.e.,    **First case:** When methyl red is added (change of    **Second case:** When bromothymol blue is added    mL  Total volume | | | | | | | |
| 268 | **(b)**  yellow | | | | | | | |
| 269 | **(b)** | | | | | | | |
| 270 | **(c)**  equivalents oxygen  Volume of 1 mole  Volume of 1 equivalent | | | | | | | |
| 271 | **(a)** | | | | | | | |
| 272 | **(c)**  100 g 98 g  10 g 9.8 g  has | | | | | | | |
| 273 | **(a)**  is oxidized to by  gives blue colour with  Prussian blue | | | | | | | |
| 274 | **(d)**  Phenolphthalein end-point indicates 50% neutralization of to stage | | | | | | | |
| 275 | **(b)** | | | | | | | |
| 276 | **(b)**  cyanogen | | | | | | | |
| 277 | **(c)**      (valency factor = 3) | | | | | | | |
| 278 | **(c)** | | | | | | | |
| 279 | **(d)**  [3 mol 2 mol 6 mol 1mol]  Given mol of andmol of  To find the limiting reagent  2 mol of mol of  0.2 mol of mol of  is the limiting reagent  mol ofmol of  0.2 mol of mol of | | | | | | | |
| 280 | **(c)**  Moles of intialy  absorbed millimol  Thus, reacted  formed  unreacted  Thus, required by for phenolphthalenin end-point  Equivalent of equivalents  Moles of required by 0.002 equivalents for phenolphthalein end-point  (50% reaction is indicated upto )  Total | | | | | | | |
| 281 | **(a)**  Thus, | | | | | | | |
| 282 | **(a)**  The number of molecules in 36 g of water is  The number of molecules in 28 g of CO is  The number of molecules in 46 g of is  The number of molecules in 54 g of is | | | | | | | |
| 283 | **(d)**   |  |  |  |  | | --- | --- | --- | --- | | Element | % | Mole | Ratio | | Si | 90.28 | 3.11 | 1 | |  | 9.72 | 9.72 | 3 |   thus | | | | | | | |
| 284 | **(a)**  black | | | | | | | |
| 286 | **(b)**  remains unreacted | | | | | | | |
| 287 | **(b)**  Weight of salt = 13.4 g  Weight of = 6.3 g  Weight of anhydrous salt  Moles of anhydrous salt =  Moles of  0.05 mol of anhydrous salt mol of  1 mol of anhydrous salt | | | | | | | |
| 288 | **(c)**  borax  Coloured bead  Transparent bead  Coloured bead | | | | | | | |
| 289 | **(b)**  formed absorbed | | | | | | | |
| 290 | **(a)**  Normality of ‘’ volume  = “8.4”volume | | | | | | | |
| 291 | **(b)**  As in 78 | | | | | | | |
| 292 | **(b)**  1 mol 1.5 mol  27 g 33.6 L at STP  gas are from  gas are from | | | | | | | |
| 293 | **(c)**  Normalities of two solutions are 1 N and 2 N  Normality of mixture N  Volume strength mol | | | | | | | |
| 295 | **(a)**  Let the volume of  Volume of present =  22400 mL of andwill weight 48 g and 32 g respectively  The weight of mL of  The weight of of  Total weight of ozonised | | | | | | | |
| 296 | **(a)** | | | | | | | |
| 298 | **(a)**  1 mol 3 mol 2 mol  3 mol 3 equivalents of  2 mol 4 equivalents of | | | | | | | |
| 299 | **(d)**  Maximum capacity mL  If volume is more than 360, it will burst  K C | | | | | | | |
| 300 | **(b)**  Average atomic weight | | | | | | | |
| 301 | **(a)**  Volume of at STP volume strength  mL of at STP  (Since 1 N=5.6 volume strength; 2 N =11.2 volume strength of )  Volume of produced by mL  Same volume of will be peoduced by mL  Total volume of L | | | | | | | |
| 302 | **(d)**  Nucleus consists of proton and neutron and molar mass = neutron + proton | | | | | | | |
| 303 | **(a)**  The normality of oxalic acid dehydrate is  [ for ]  (acid) = (base)  or  or | | | | | | | |
| 305 | **(d)**  Oxidation state of L in  Equivalent of  Equivalent of | | | | | | | |
| 306 | **(a)**  3 mol 2 mol 1 mol  Given, 0.5 mol 0.2 mol 0.1 mol  Thus, is the limiting reactant giving 0.1 mol | | | | | | | |
| 307 | **(d)**  Any oxidizing agent that can oxidize to which can be estimated by hypo, can be determined by iodometric titration | | | | | | | |
| 308 | **(d)** | | | | | | | |
| 309 | **(d)**  Thus, in all cases law of multiple proportion is followed. | | | | | | | |
| 310 | **(a)**  is obtained from  Impure sample  Thus, purity | | | | | | | |
| 311 | **(b)** | | | | | | | |
| 312 | **(c)**  Volume of one spherical molecule | | | | | | | |
| 313 | **(a)**  bead | | | | | | | |
| 314 | **(b)**  soluble  yellow ppt | | | | | | | |
| 315 | **(a)**  Same empirical formulae | | | | | | | |
| 317 | **(d)**  There are two types of formed. They differ in molar masses due to different isotopes of | | | | | | | |
| 318 | **(c)**   |  |  |  |  | | --- | --- | --- | --- | | Element | % | Mole | Ratio | | Ag | 2.00 | 0.0185 | 1 | |  | 0.657 | 0.0185 | 1 |   Thus, | | | | | | | |
| 319 | **(c)**    of | | | | | | | |
| 320 | **(b)** | | | | | | | |
| 321 | **(b)**  12 g  3.0 kg = 3000 g  12 g coal give  3000 g coal give = 11200 L | | | | | | | |
| 322 | **(d)**  Equivalent weight of element  And that of oxygen  Thus, one equivalent of oxide | | | | | | | |
| 323 | **(b)**  Since the -factor of is not known, the problem is solved by mole concept by balancing the equation    Add other ions, ,, and to both sides to balance the equation. Net redox equation is | | | | | | | |
| 324 | **(d)**  Molarity, normality, and formality are calculated against the volume of the solution. The volume of the solution changes with change in temperature; therefore, these quanities do not remain constant with temperature  The molality of a solution remains independent of temperature because it involves only mass, which is independent of temperature | | | | | | | |
| 325 | **(c)** | | | | | | | |
| 327 | **(d)**  in 10 g sample  Thus, 43.5% pure | | | | | | | |
| 328 | **(a)**  On decomposition liberates as  22.4 L at STP  197 g of give at STP  will give | | | | | | | |
| 329 | **(c)**   |  |  |  | | --- | --- | --- | |  |  |  | | Weight ratio | 1 | 4 | | Moles ratio |  |  | | Molecules ratio |  |  | | Molecules ratio | 7 | 32 | | | | | | | | |
| 331 | **(b)**  does not react  =0.4 g per 100 mL | | | | | | | |
| 332 | **(a)**  Mole fraction of glucose  Hence, mole fraction of water  Thus, moles of water moles of glucose  Thus, water  **Direct Method** | | | | | | | |
| 333 | **(d)**  Let and are the mEq of NaOH and respectively  **Phenolphthalein as indicator:**  of of of  …(i)  **Methyl orange as indicator:**  …(ii)  Weight of g | | | | | | | |
| 334 | **(b)**  Temporary hardness is due to ofand  in  in  in | | | | | | | |
| 335 | **(a)**  () | | | | | | | |
| 336 | **(d)**  Molar mass of  Since,  Hence, normality molarity | | | | | | | |
| 337 | **(a)**    green | | | | | | | |
| 338 | **(c)**  (borax) behaves like a weak base  Based on reaction :  of  ofof | | | | | | | |
| 339 | **(a)**  Let mol of HCOOH and mol of      Total moles of  Total moles of  According to the question :  **Alternatively :**  Mole fraction of | | | | | | | |
| 340 | **(d)** | | | | | | | |
| 341 | **(d)**    Only hydrogens attached to oxygen and contribute to basicity are replacable. From the structures it is clear that phosphours acid, , is dibasic  Normality = Molarity Basicity (for an acid) | | | | | | | |
| 342 | **(c)**  Equivalent weight of  Thus, molar mass of  Thus, molar mass of | | | | | | | |
| 343 | **(a)**  orange | | | | | | | |
| 344 | **(a)** | | | | | | | |
| 347 | **(c)**    = 25.15 = 25.2 mL  Number of significant figure is 3. | | | | | | | |
| 348 | **(d)**  Balance the reaction:  1 mol liberates mol | | | | | | | |
| 349 | **(c)**  of Zn  = 136.30 + 17  (17 + 36.30) g of compound contains = mole of  0.224 g compound =  mol of eq of  Eq of = Eq of HCl  (as the choice given) | | | | | | | |
| 350 | **(a)**  Weight of of gas at STP  KOH required for complete neutralization of 22 g of | | | | | | | |
| 352 | **(b)**  solution solution has  solution has | | | | | | | |
| 353 | **(d)**  For mixing acidic solutions, resultant normality | | | | | | | |
| 354 | **(b)**  white ppt soluble | | | | | | | |
| 355 | **(a)**  56 g 200 g  0.56 g 2.00 g in 10 L water  has  Thus, | | | | | | | |
| 356 | **(b)**  **i.** Moles of  Moles of  Moles of reacted with NaOH  % purity of  **ii.** For slope  Slope | | | | | | | |
| 357 | **(d)**  and are isomorphous  Valency of S and M should be same = 6  Atomic weight = Valency | | | | | | | |
| 358 | **(d)**  neutralises  oxidises  Thus, | | | | | | | |
| 359 | **(a)**  equivalent  equivalents | | | | | | | |
| 360 | **(d)**  Thus, | | | | | | | |
| 361 | **(d)**  ( valency of )  (others have ) | | | | | | | |
| 362 | **(d)**  Air contains 21% of  Volume of oxygen  Number of moles of oxygen present in 0.21 L at NTP | | | | | | | |
| 363 | **(b)**   |  |  |  |  | | --- | --- | --- | --- | | **Number of moles in** | | **Molecules** | **Atoms** | |  | 0.1 |  |  | |  | 0.1 |  |  | |  | 0.1 |  |  | | | | | | | | |
| 364 | **(a)**  Weight of (Avogadro’s number) =  of  = 1 mol of  Weight of molecules of | | | | | | | |
| 365 | **(a)**    (against ) mEq  [] | | | | | | | |
| 366 | **(b)**  In Kjeldahl’s method, N-containing compound is decomposed by and liberated is estimated by acid by titration | | | | | | | |
| 367 | **(a)**  of  of  mEq of of  volume strength  volume strength | | | | | | | |
| 368 | **(c)**  soluble | | | | | | | |
| 370 | **(d)**  Thus, metal is divalent forming | | | | | | | |
| 371 | **(c)**  Let  And  Let volume of each titre  Moles of used  And equivalent moles of used    Thus, in mixture used  And in mixture moles  Equivalent of Equivalent of  Equivalent of which is oxidized to Equivalent of which is reduced to | | | | | | | |
| 372 | **(c)**  colourless  green | | | | | | | |
| 373 | **(b)** | | | | | | | |
| 374 | **(b)**  yellow ppt | | | | | | | |
| 375 | **(a)**  is a monovalent cation  Thus, equivalent weight of  Let unused be | | | | | | | |
| 376 | **(b)**  Equivalents of used  Moles of acid  If basicity of acid  Then equivalents of acid | | | | | | | |
| 377 | **(d)** | | | | | | | |
| 378 | **(b)**        Formula | | | | | | | |
| 379 | **(c)**  0.6 g=0.01 mol 0.02 mol  2 mol 1 mol  0.02 mol 0.01 mol  = 0.02 equiv.  equivalent in  0.02 equivalent in  unused | | | | | | | |
| 380 | **(a)**    and mol mol g Eq  (acidic)  L | | | | | | | |
| 381 | **(b)**  Mass Moles Ratio | | | | | | | |
| 382 | **(b)**  moles  Molar composition effusing = 8:1  Weight composition effusting  % of He | | | | | | | |
| 383 | **(c)** | | | | | | | |
| 384 | **(a)**  1 mol 1 mol 1 mol 1 mol  Given, 1 mol 2 mol  Thus, unreacted  formed = 1 mol  1mol 2 mol  1 mol 2 mol  Thus, total required by 1mol (formed) and 1 mol (unreacted) = 4 mol | | | | | | | |
| 385 | **(a)** | | | | | | | |
| 386 | **(d)**  black  excess | | | | | | | |
| 387 | **(a)**  thus, | | | | | | | |
| 388 | **(b)**  of  Moles of in  atom | | | | | | | |
| 389 | **(c)**  Turnbull’s blue  Prussian’s blue | | | | | | | |
| 390 | **(c)**    Since each group displace one H atom in the reaction of one mole of  with one group, the molecular mass increases with 42 units.Since the mass increases by hence the number of | | | | | | | |
| 391 | **(a)**  Where, normality of acid required to neutralize  volume of acid | | | | | | | |
| 392 | **(a)** | | | | | | | |
| 393 | **(b)**  8 moles of O-atom are contained in 1 mole  Hence, 0.25 mole of O-atom is contained in | | | | | | | |
| 394 | **(b)**  Ethyl borate formed in flame test of borate is volatile | | | | | | | |
| 395 | **(c)**  of salt of | | | | | | | |
| 396 | **(c)**  Glucose in solution  molecules | | | | | | | |
| 397 | **(b)**  (and not ) is involved as an oxidizing agent and reduced to hence | | | | | | | |
| 399 | **(c)** | | | | | | | |
| 400 | **(c)**  Total mass of solution | | | | | | | |
| 401 | **(a)**  pH > 7  pH < 7 | | | | | | | |
| 402 | **(b)**  There is a reduction of 1 volume  When reduction in volume = 1, then volume of  Volume of air =  Volume of ozonised air  Reduction in volume  when reduction is 1 volumevolume of = 2  when reduction is | | | | | | | |
| 403 | **(b)**  and ions are precipitated as and in acidic medium when gas is passed. This medium is provided by hydrolysis of their chlorides  as is not precipitated in medium on passing gas | | | | | | | |
| 404 | **(b)**    Change in oxidation number | | | | | | | |
| 405 | **(c)**  Density = 1.8 g/mL  Molarity = 18 M = 18 mol in 1 L solution  1000 mL solution has  1000 mL = (1800 g) solution has  by mass % (by weight of solution)  Or (solvent)  2 g solvent has  solvent has  Thus, 98%, 500 molal | | | | | | | |
| 406 | **(b)** | | | | | | | |
| 408 | **(c)**  (undergoes oxidation)  Number of released in oxidation | | | | | | | |
| 409 | **(a)**  Moles of in bag A = 0.32/32 = 0.01 mol  Same volume of unknown gas = 0.01 mol  0.01 mol of unknown gas A = 0.26 g  1 mol of unknown gas A =  of unknown gas A = 26 g  Empirical formula = CH  Empirical formula weight = 12 + 1 = 13 g  Molecular formula | | | | | | | |
| 410 | **(c)**  is oxidized to (soluble) by . is not affected  Soluble (yellow) | | | | | | | |
| 411 | **(a)**  Thus, is required further | | | | | | | |
| 412 | **(d)**  hard water has  hard water has  Thus, hardness part per million (in ppm) of | | | | | | | |
| 413 | **(a)**  Edge length    Volume of the spherical atom | | | | | | | |
| 415 | **(a)**  Mass of  Mass of magnesium and nitrogen compound  Thus, nitrogen combined   |  |  |  |  | | --- | --- | --- | --- | |  | **Mass** | **Mole** | **Mole ratio** | |  |  |  |  | | N |  |  |  |   Thus, | | | | | | | |
| 416 | **(c)**    Net equivalent weight | | | | | | | |
| 417 | **(a)**  2 mol 1 mol 2 mol  For 10 mol 5 mol 10 mol  For 30 mol 15 mol 30 mol  If is taken, required is 5 mol, forming 10 mol  But actual formed = 8 mol  Thus, percentage yield of | | | | | | | |
| 418 | **(d)**  required by 0.2 mol of  Thus, in excess | | | | | | | |
| 419 | **(d)**  Iron (II) sulphate (IV) is  Note In IUPAC nomenclature O.N. have been placed after element  is oxidized to and is oxidized to by in acidic medium  1 L of 1 M  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Thus, | | | | | | | |
| 420 | **(a)**  Perhydrol means 30% solution of  decomposes as  Volume strength of 30% solution is 100, that means 1 mL of this solution on decomposition gives 100 mL oxygen  2 L 1 L 2 L  Since, of oxygen is obtained by of  of oxygen will be obtained by  of | | | | | | | |
| 421 | **(c)** | | | | | | | |
| 422 | **(b)**  green | | | | | | | |
| 423 | **(a)**  has 10 electrons  Thus, protons  Thus, | | | | | | | |
| 424 | **(c)**  Oxidation number of P in phosphate (I)  Thus, anion is :  Thus, salt is  (Ammonium hypophosphite) | | | | | | | |
| 425 | **(a)**  Milliequivalents of  milliequivalent of dibasic acid  (equivalent weight ) | | | | | | | |
| 426 | **(c)**  1 mol 2 mol  0.6 g = 0.01 mol | | | | | | | |
| 427 | **(c)**  2 mol 1 mol 3 mol  Given 1 mol 1 mol ?  Thus, is the limiting reactant forming 1.5 mol S | | | | | | | |
| 428 | **(b)**  2mol of mol of | | | | | | | |
| 430 | **(a)**  calomel | | | | | | | |
| 431 | **(d)**  of  of  mEq of of  of  of | | | | | | | |
| 432 | **(d)**  1 mol 1 mol  142 g 222 g  in the mineral  Thus, obtained | | | | | | | |
| 434 | **(a)**  Total  Excess  used  of HCl = mEq of carbonate  of carbonate | | | | | | | |
| 435 | **(b)**  Volume of ethanol  Mass of ethanol | | | | | | | |
| 436 | **(d)** | | | | | | | |
| 438 | **(a)**  Moles of produced =  Excess of Al  g atom or moles of Al taken = 0.05 + 0.02 = 0.07  g atom or moles of taken | | | | | | | |
| 439 | **(b)**  Use formula  Solve for : | | | | | | | |
| 440 | **(d)**  left =1 mol  formed = 2 mol but dissolved in ; hence pressure is due to only. Hence, volume of the flask is 10 L since 10 L is added | | | | | | | |
| 442 | **(d)** | | | | | | | |
| 443 | **(c)**  Rest mass of electron  mass of one mole of electrons | | | | | | | |
| 444 | **(d)**  (a)  Light green  (b) solution is acidic due to hydrolysis  Zinc pieces added liberate H (nascent) in situ and reduces to  (c) | | | | | | | |
| 445 | **(c)**  Both represent same net reaction,  Thus, equal yield in both | | | | | | | |
| 446 | **(a)** | | | | | | | |
| 447 | **(a)**  Given, 2 mol of 50% pure = 1 mol  Instead of 2 mol we get only 1 mol,  Thus, % yield is 50% | | | | | | | |
| 448 | **(d)**  Oxygen content in 1 L at STP | | | | | | | |
| 450 | **(a)**  blood red | | | | | | | |
| 451 | **(a)**    of | | | | | | | |
| 452 | **(a)**  Methyl orange indicator indicates the first step ionization of  mL | | | | | | | |
| 453 | **(d)** | | | | | | | |
| 454 | **(c)**  decompose to | | | | | | | |
| 455 | **(b)**  Molar ratio of  Formula of compound,  From the question  Formula: | | | | | | | |
| 456 | **(c)**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Black ppt No ppt  Purple colour No colour | | | | | | | |
| 457 | **(a)**  Ifg sulphur then molar mass  Thus, molar mass  molecules | | | | | | | |
| 458 | **(c)** | | | | | | | |
| 459 | **(d)**    Only will be oxidised by  of of  of mol of | | | | | | | |
| 460 | **(d)**  Distilled Tap Boiled  [No hardness]  (Volume of soaps solution)  Volume of soap solution used effectively in tap water  Temporary + Permanent hardness  Volume of soap solution used effectively in boiled water  Permanent hardenss  Temporary + Permanent hardness =12 mL  Permanent hardness =  Temporary hardness = | | | | | | | |
| 461 | **(d)** | | | | | | | |
| 462 | **(d)** | | | | | | | |
| 464 | **(b)** | | | | | | | |
| 465 | **(b)**  nitroprusside purple | | | | | | | |
| 466 | **(c)**  cation | | | | | | | |
| 467 | **(c)**  Molarity = normality  Equivalent weight = molar weight  Normality molarity | | | | | | | |
| 468 | **(d)**  98% by weight of solution means  (solution) = 100 g  in mol | | | | | | | |
| 469 | **(d)**  Thus, | | | | | | | |
| 470 | **(d)**  Acid=Base  and | | | | | | | |
| 471 | **(c)** | | | | | | | |
| 472 | **(b)**    58 g of -butane of at STP  58 g of -butane = 58.56 L  55 g of -butane = 55.5 L | | | | | | | |
| 474 | **(b)** | | | | | | | |
| 475 | **(c)**  C) Ratio of per mol of  A)  B)  C)  D) | | | | | | | |
| 476 | **(a)**  required by 0.0112 mol  unreacted  Thus, | | | | | | | |
| 477 | **(d)**  Methyl orange indicates complete neutralization of and white phenolphthalein indicates only 50% reaction of to stage only. Let volume of given required for complete neutralization of  And for  For phenolphthalein indicator  For methyl orange (further titration)  Volume for | | | | | | | |
| 478 | **(a)**  parts per million  per  mol per  mol per | | | | | | | |
| 479 | **(c)** | | | | | | | |
| 480 | **(a)**  1 mol of mol of | | | | | | | |
| 481 | **(b)**  Salt contains  white ppt  decolourises | | | | | | | |
| 482 | **(b)**  Since no water added, so volume of solution cannot exceed 2 L. So, less concentrated solution should be taken in its total volume  Only the small portion of more concentrated solution is to be mixed, so that the total concentrated is less than ()  Let L of 0.3 M solution is mixed  Total volume =  L  Final molarity = 0.2 M  0.3 + 0.15 = 0.2 (1 + )  = 0.5 L  Maximum volume = 1 + 0.5 = 1.5 L | | | | | | | |
| 483 | **(b)**  Volume of at STP mL ‘V’=100 mL  of at  of of  Eq of  g  ( of in acidic medium )  **Alternate method:**  of ’10 ’ of :  5.6 ‘’ of N  10 ‘’ of N  of N  of of  Strength of  5.64 g of mL  In 100 mL of , the amount of  g | | | | | | | |
| 484 | **(c)**  insoluble  soluble | | | | | | | |
| 485 | **(a)**  Mass loss is due to  Let  Water  1 mol 5 mol  249.5 g 90 g | | | | | | | |
| 486 | **(c)** | | | | | | | |
| 487 | **(c)**  Moles  Mass  Per cent | | | | | | | |
| 488 | **(d)**  1 mol 1 mol  2 mol 1 mol  1 mol 0.5 mol  Total | | | | | | | |
| 489 | **(b)**  mL | | | | | | | |
| 490 | **(a)**  Suppose molecular weight of enzyme  0.5% by weight means in 100 g of enzyme wt. of Se = 0.5 g  x g of enzyme wt.. of  Hence, | | | | | | | |
| 491 | **(a)**  Every ion is replaced by two ions | | | | | | | |
| 492 | **(c)**  Insoluble in hot soluble  Water  Soluble in hot water | | | | | | | |
| 494 | **(a)** | | | | | | | |
| 495 | **(d)**  106 g 100 g  Hardness in  Hardness in  required  required | | | | | | | |
| 496 | **(b)** | | | | | | | |
| 497 | **(a)**  = | | | | | | | |
| 498 | **(a)**  Amount Moles Ratio  Thus, simplest formula is | | | | | | | |
| 499 | **(a)**    But required  Thus,  Thus, chloride is  Thus, is | | | | | | | |
| 500 | **(a)**  4 g of mole = 100 mmol  or  mEq of  Total acid  Acid left  Total volume  Normality of solution | | | | | | | |
| 501 | **(c)**      Since used is 6 m mol, used should be 2 mmol  Mol of  moles | | | | | | | |
| 502 | **(a)**  Remember it as a fact; in neutral medium, (potassium magnanate) disproportions as follows:  On balancing, we get: | | | | | | | |
| 503 | **(a)**  is reduced to by which is oxidized to | | | | | | | |
| 504 | **(a)**  acidic | | | | | | | |
| 506 | **(a)**  …(i)  …(ii)  …(iii)  From equations (i) and (ii), we inter that of at STP will produce 100 mL of molecular as such and 100 mL of oxygen molecule after reaction with  This new volume of of molecular oxygen after reaction with is contributed equally by and . Thus, of oxygen have been contributed by  Again, we know  Volume of Volume strength of  =Volume of at STP  mL of ’10 ’ mL of at STP  After utilization of of , according to equation(iii), the balance mL of at are still retainable by 100 mL of  Hence volume strength of after reaction  Volume strength | | | | | | | |
| 507 | **(b)**  combines with  Hence, 1 g H combines with = 16g S  combine with  Hence, 1 g O combines with = 1 g S  g H combines with  1 g H combine with = 8 g O  Thus, law of reciprocal proportion is followed | | | | | | | |
| 508 | **(d)**  Concentration of in 1 mL  Concentration of in M  (pH=6.98) | | | | | | | |
| 509 | **(d)** | | | | | | | |
| 510 | **(a)**  Let mol of  mol of    After reaction    [Total reacted]  left =  of total volume | | | | | | | |
| 511 | **(d)**  black | | | | | | | |
| 512 | **(b)**  56 g 100 g  ? 0.3462 g  Pure in the mineral | | | | | | | |
| 513 | **(d)** | | | | | | | |
| 514 | **(b)**  Only requires  Let volume of  Then moles of | | | | | | | |
| 515 | **(c)**  I :  Blue colour no colour with  With  (Oxidized by  Thus, when oxidation is complete, there is no blue colour with used externally  II :  Every drop of is converted into white ppt of Any additional drop of gives red ppt. with  III :  oxidises and itself reduced to (colourless); when oxidation is complete, any additional drop of imparts its own colour ( is thus self-indicator)  Thus, I :  II :  III : | | | | | | | |
| 516 | **(b)**  equivalent  equivalent | | | | | | | |
| 517 | **(c)**    Thus, order is | | | | | | | |
| 518 | **(a)**  Mixture contains 0.02 moles ofand 0.02 molesofwas prepared in 2L of solution. So, the concentration of in solution are 0.01 mol/L and 0.01 mol/L respectively. During the reaction with(excess), AgBr is precipitated as follows  0.01 mol/L (excess) soluble 0.01 mol/L  Hence, number of moles of =0.01  On addition of excess is precipitated as follows  0.01 mol/L (excess) 0.01 mol/L soluble ‘’  Hence, number of moles of 0.01  Thus, the number of moles of and are 0.01 and 0.01 respectively. | | | | | | | |
| 519 | **(b)**  Let the volume of solution = 1 L  Weight of solution  Number of moles of solute in 1 L solution = M  (weight of solute)  (weight of solvent) = Weight of solution Weight of solute  Number of moles of solvent | | | | | | | |
| 520 | **(d)**  Every 1 mole of salt has | | | | | | | |
| 521 | **(d)**    ‘ volume’ has normality | | | | | | | |
| 522 | **(c)** | | | | | | | |
| 523 | **(c)**  Thus, is the limiting reactant  formed | | | | | | | |
| 524 | **(d)** | | | | | | | |
| 525 | **(a)**  By Dalton’s theory, atom is the smallest particle | | | | | | | |
| 526 | **(d)**  In all cases value of  Smaller the value of larger the percentage of Cl | | | | | | | |
| 527 | **(a)** | | | | | | | |
| 528 | **(b)**  Initial mol of  Moles of converted =  2 mol  0.2 mol = 0.3 mol (1 mol = 2 oxygen atom) | | | | | | | |
| 529 | **(a)** | | | | | | | |
| 530 | **(d)**  Methyl red indicates complete ionisation of and first step ionisation of  **First case:**  mL  **Second case:**  Total volume | | | | | | | |
| 531 | **(a)**  **i.**  0.1 mol of = 10 g  1 mol of = 100 g  **ii.**  0.05 mol of  1 mol of  Solve for and | | | | | | | |
| 532 | **(a)**  0.05 M N  40 L of 0.1 of  (For complete reaction)of For 50% reaction =of  With phenolphthalein mL  of 0.05 of  With methyl orange, mL  mL | | | | | | | |
| 533 | **(d)**  On adding and are precipitated. Filtrate will contain and | | | | | | | |
| 534 | **(b)** | | | | | | | |
| 535 | **(b)**  68 g 22.4 L (at STP)  Mass of in 1.5 N solution of N  g  So, volume strength of 1.5 N solution | | | | | | | |
| 536 | **(a)**  of | | | | | | | |
| 537 | **(d)**  or  = Final volume = 1L | | | | | | | |
| 538 | **(b)**  of | | | | | | | |
| 539 | **(a)**  is a tribasic acid | | | | | | | |
| 540 | **(a)**  Concentration in terms of g/mL is given as  Mass of | | | | | | | |
| 542 | **(c)**  of of of NaOH ( g organic acid)  of of of organic acid | | | | | | | |
| 543 | **(b)**  In (a)  In (b)  In (c) ,  In (d)  In (b), the change in oxidation number is  Therefore, the answer is (b) | | | | | | | |
| 544 | **(c)**  Foul smell | | | | | | | |
| 545 | **(c)**  On increasing pH, decreases, hence increases making precipitation of as S | | | | | | | |
| 546 | **(a)**  Sucrose = 1 molal = 1 mol in 1000 g  Moles of water  Mole of sucrose = 1  Total moles | | | | | | | |
| 547 | **(c)**  Reaction and appearance of ring is due to charge transfer   |  |  |  |  |  | | --- | --- | --- | --- | --- | | ⥮ |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | ⥮ | ⥮ |  |  |  |   Three unpaired electrons  **Note** Presence of three unpaired electrons is confirmed by magnetic moment of Fe which is BM | | | | | | | |
| 548 | **(d)**  is soluble in hot water  yellow ppt  white ppt  yellow ppt | | | | | | | |
| 549 | **(b)**  reacts with  But taken  Thus, is the limiting reactant | | | | | | | |
| 550 | **(d)** | | | | | | | |
| 551 | **(c)**  Under similar conditions of temperature and pressure, equal volume of gas contains equal number of molecules  molecules  molecules | | | | | | | |
| 552 | **(a)**  From reaction stoichiometry  1 mol gives  Thus, mol pure give | | | | | | | |
| 553 | **(d)**  Volume absorbed by KOH = Volume of  Volume of    Volume obsorbed by alkaline pyrogallol = volume of  Excess of  Total  Volume of reacted  Formula of hydrocarbon | | | | | | | |
| 554 | **(b)**  orange | | | | | | | |
| 555 | **(c)**  Balance the equation :    Given :    is the limiting reagent  5 mmol of gives  15 mmol of gives  mol | | | | | | | |
| 556 | **(b)** | | | | | | | |
| 557 | **(b)** | | | | | | | |
| 558 | **(b)**  Moles 0.08  g g | | | | | | | |
| 559 | **(a)**  1 mol of = 4 eq. of O  of = 4 eq. of O  of  = 0.00832 eq.  Equivalent of metal = Equivalent of O | | | | | | | |
| 560 | **(b)**  100 g sample solution contains g of  3.4 g of solution contains  Weight of  of | | | | | | | |
| 561 | **(c)**  pure Fe content  Thus, moles of Fe | | | | | | | |
| 562 | **(b)**  Mass of one atom  Thus, atomic mass | | | | | | | |
| 564 | **(c)**  is oxidized to (change in O.N. = 2)  milliequivalents of  milliequivalents of  millimol (given)  Thus, decrease in O.N. of should be 1  So that 5 millimol = 5 milliequivalents  Thus, new O.N. of metal = 2 | | | | | | | |
| 565 | **(d)**  Percentage is irrespective of amount given  Thus, I, II and IV | | | | | | | |
| 566 | **(a)**  Let weight of  1 mol 1 mol 1 mol  Mol of  g  % of | | | | | | | |
| 568 | **(a)**  (g) | | | | | | | |
| 569 | **(c)**  millimoles  millimoles  1 mol 1 mol 1 mol 2 mol  Initial 100 millimol 200 millimol  Final 0 100 millimol 100 millimol 200 milliomol  Thus, resulting solution has  millimoles of millimoles of  millimoles in 200 mL solution  millimoles  Thus, (a), (b) true | | | | | | | |
| 570 | **(b)** | | | | | | | |
| 571 | **(d)**  mol in 100 mL  (being diacid base)  milliequivalent  (a) milliequivalent  (b) milliequivalent  (c) milliequivalent  (d) milliequivalent | | | | | | | |
| 572 | **(a)**  1mol propyne  8.4 g 1 mol | | | | | | | |
| 575 | **(b)**  of metal chloride  = 79.0  Valency of metal =  Atomic weight of element =  Atomic weight | | | | | | | |
| 576 | **(a)** | | | | | | | |
| 577 | **(c)** | | | | | | | |
| 578 | **(a)**    of | | | | | | | |
| 580 | **(a)**  In basic medium, changes to (no change in oxidation number) | | | | | | | |
| 581 | **(a)**  is not affected | | | | | | | |
| 582 | **(a)**  2 mol 1 mol  1 mol 0.5 mol (pure)  Thus, required | | | | | | | |
| 583 | **(c)**  Insoluble 1 : 3 soluble | | | | | | | |
| 584 | **(c)**  Methyl red indicates first step ionization of    (-factor=1)  mL | | | | | | | |
| 585 | **(a)**  A molal solution is one that contains 1 mol of a solute in 1000 g or kg of the solvent. | | | | | | | |
| 586 | **(b)**  Millimoles of millimoles of | | | | | | | |
| 587 | **(c)**  Number of electrons in  **Electrons Electrons in neutral species = proton**  Thus, increasing order of proton is | | | | | | | |
| 588 | **(a)**  **H-atoms per gram** | | | | | | | |
| 589 | **(a)**  is monobasic acid | | | | | | | |
| 590 | **(b)**  Moles of Fe mol  1 mol of alum = 2 mol of Fe  2 mol of Fe = 1 mol of alum | | | | | | | |
| 591 | **(a)**  In one molecule of the number of electrons is 6 + 8 + 8 = 22 | | | | | | | |
| 592 | **(d)**  6 mol  at STP are produced from 6 moles HCl  Hence, at STP are produced from 1 mole HCl | | | | | | | |
| 593 | **(a)**  of  Hence, 100% pure | | | | | | | |
| 594 | **(d)**  In acidic medium : of meq of  …(i)  In basic medium: of of    …(ii)  From equations (i) and (ii), we get | | | | | | | |
| 595 | **(a)**  Adding reactions,  L at STP) are formed from  are formed from  if yield is 100%  if yield is 50% | | | | | | | |
| 596 | **(b)**  Oxygen  Metal  Thus, 67.67 g oxygen combine with metal  Hence, 8 g oxygen combine with | | | | | | | |
| 597 | **(a)**  A new Avogadro’s number | | | | | | | |
| 598 | **(d)**  Concentration have been taken in normality (g equivalent )  Hence, | | | | | | | |
| 599 | **(a)** | | | | | | | |
| 600 | **(b)** | | | | | | | |
| 601 | **(a)**  Only is oxidized  Thus, 1 mol is in mixture of 3 mol of and  Mole fraction of | | | | | | | |
| 602 | **(a)**  Let 32 g of each be present  Moles of  Moles of  Moles fraction of  Which is same as the fraction of pressure | | | | | | | |
| 603 | **(c)**  Both are isomorphous  of  ofof oxygen  100 g of | | | | | | | |
| 604 | **(a,b,c)**  Moles of  Moles of Fe required  **a.** Given mol of Fe = 0.15. Hence Fe is the limiting reagent and no Fe will remain after the reaction  **b.** Weight of required = (0.15 mol Fe)  = 3.6 g required  Weight of in excess =  in excess  **c.** Weight of produced = (0.15 mol Fe)  **d.** is not the limiting reagent | | | | | | | |
| 605 | **(a,b,c,d)**  **a.** Weight of  2 mol  Weight of  **b.** Weight of  **c.** Mole of pure  **d.** Mole of | | | | | | | |
| 607 | **(b,c,d)**  Self explanatory | | | | | | | |
| 610 | **(c,d)**  (c) isotopes  (d) C-12 | | | | | | | |
| 611 | **(b,c)**  Mass of 22400 of gas  Atomic mass  Hence, mass of one atom | | | | | | | |
| 612 | **(a,b,d)**  **a.** Volume of  **b.** Volume of ligroin  **c.**  Wrong  **d.** Volume of amyl alcohol | | | | | | | |
| 613 | **(c,d)**  Use,  **a.**  **b.**  **c.**  (  **d.** | | | | | | | |
| 615 | **(a,c)**  Silica Impurities  in original clay] 40 19  after partial drying]  On heating, only water evaporates from clay, whereas silica and impurities are left as it is. Therefore, % ratio of silica and impurities remains unchanged, i.e.,  of impurities after partial drying  Mass of evaporated | | | | | | | |
| 616 | **(a,b,d)**  Self explanatory | | | | | | | |
| 618 | **(b,d)**  Since is reduced to , so must be oxidized to  Oxidation number of Cr in is +6 and +3 in . So change in oxidation number=3. Hence statement (b)and (d)are wrong | | | | | | | |
| 621 | **(a,b)**  The possible formula be  As compound is neutral, so  By hit and trial, we get: and  So, compound is or | | | | | | | |
| 628 | **(a,b,c,d)**  **a.** Moles of  **b.** Molecules of  **c.** Volume of at STP  **d.** at SATP | | | | | | | |
| 629 | **(a,b,c,d)**  **a**. of    **b**.  1 mol  **c**. Find factor of    mEq of    **d**. (not a redox reaction)  1 mol  -factor of  of  of | | | | | | | |
| 630 | **(a,b,c)**  Weight of needed  needed  Since there is 2.0 g present, is the limiting quantity  **a.** Weight of used  used  **b.** Weight of excess or formed  present) (0.714 g used)  = 0.286 g formed  **c.** Weight of formed  **d.** Wrong | | | | | | | |
| 631 | **(a,c)**  The substances which have same composition of atoms and similar crystal structures are called isomorphous to each other,  All are isomorphous | | | | | | | |
| 634 | **(c,d)**  **a.** mmol  **b.** mmol  **c.**  (factor) = 10 mmol  **d.** = 10 mmol | | | | | | | |
| 635 | **(d)**  **a.** Not applicable if the elements exists in different isotopes which may be involved in the formation of compound  **b.** At 1 atm, molor volume  **c.** ,  **d.** Due to existence of isotopes | | | | | | | |
| 639 | **(b,c)**  1 mol of requires = 2 mol of  2 mol of requires  Since is present in excess, therefore, is the limiting reagent  **a.** Wrong  **b.** So, is the limiting reagent  **c.** 2 mol of moles of moles of left mol Mixture contains = (72 g )  **d.** Wrong | | | | | | | |
| 641 | **(b,d)**  100 mL of 1  Mass of  Concentration of each component becomes half of the initial value | | | | | | | |
| 647 | **(a,b,c)**  Leading zero or the zero placed to the left of the number are never significant. Thus, 0.052 has two significant figures. | | | | | | | |
| 648 | **(a,b)**  **a.**    Moles of  Weight of  **b.** Weight of  **c.** ofof  Weight of  Hence, (c) is wrong  **d.** (Atomic weight of of)  Weight of pure  = 174 metric ton  Weight of 50% pure  = 348 metric ton  Hence, (d) is wrong | | | | | | | |
| 649 | **(a,d)**  Self explanatory | | | | | | | |
| 654 | **(a,b)**  Acceptable value  Maximum uncertainty | | | | | | | |
| 655 | **(b,c,d)**    It changes to +3 in  (reduction)(acts as oxidant)  Whereas O in changes to  (oxidation) (acts of reductant)  So, acts as oxidant and reductant both  and also it is intramolecular redox reaction since in , both Cr and O undergoes oxidation and reduction reaction | | | | | | | |
| 657 | **(a,c,d)**    Given :  i. | | | | | | | |
| 661 | **(b,c)**  b. 5 cm (not cms)  c. 5 joules (not Joules) | | | | | | | |
| 664 | **(a,c)** | | | | | | | |
| 665 | **(a,c,d)**  **is the limiting reagent**  mmol  mmol of left  (left) =  Hence, option (b) is wrong | | | | | | | |
| 667 | **(a,b,c)**  **a.**    Volume ofat  **b.**    Volume of at STP  **c.**    Mol of  Volume of at STP  **d.**  1 mol 4 mol  Volume of CO at standard conditions  = 97.6 L  Hence, (d) is wrong | | | | | | | |
| 672 | **(a,b,d)**  **i**. of  …(i)  **a**. of of  …(ii)  Therefore, substituting the in equation (i)  **b**. 1 N V  V  **d**.  (final) N  The volume strength of V | | | | | | | |
| 673 | **(a,b,c)**  **a**.  (0.5 mol)  mEq of  **b**.  l)  of  **c**.  (0.25 mol)  of  **d**. being an oxidizing agent cannot be oxidized | | | | | | | |
| 674 | **(a,b,c)**  According to Avogadro’s hypopthesis,  32 g of oxygen contains 6.02 molecules.  1 g molecule of a substance contains atoms  And 1 mole of any gas occupies 22.4 L or 22400 mL of  Volume at NTP or STP conditions. | | | | | | | |
| 675 | **(b,c,d)**    It is an acid-base titration  of mEq of | | | | | | | |
| 676 | **(a,b,c,d)**  i.  (oxidation)  (oxidation)    Number of moles of formed  Number of moles of formed  Total number of ion in reactant =62  Total number of ion in product  Rest 11 mol of ion in the reactant react with 11/ 2 mol of ion to give 11 mol of  Net redox reaction is: | | | | | | | |
| 677 | **(a,d)**    Case II: | | | | | | | |
| 678 | **(a,b,d)**  All three are self indicator s i.e., they do not need any indicator for titration  i. of of  ii. of of    Also,  Weight of g  Weight of  Weight of g | | | | | | | |
| 679 | **(a,b)**  Self explanatory | | | | | | | |
| 683 | **(a,c)**  and both reacts with as reducing agent only. ( factor for both=2)  **With :**  of Eq of Eq of  moles of  Moles of  **With KOH:** Only reacts with KOH as acid base titration, factor=1 (one ion)  of of  of  Moles of KOH  Moles of and KOH are: and  -factor of with KOH and and 2  -factor of with and KOH=2 and 2 | | | | | | | |
| 684 | **(b,c)**    of | | | | | | | |
| 686 | **(a,b,c)**  1 atm torr = 760 mm Hg = 76 cm Hg  1 eV J  kg  or  1 dyne | | | | | | | |
| 687 | **(a,b)**    a.  of  of  b. of  of  c. of  d. of | | | | | | | |
| 688 | **(a,b,c,d)**  All correct | | | | | | | |
| 689 | **(a,b,c,d)**  Moles of Li = mol  Moles of  **a.** Since (3.0 mol Li) mol of is required, therefore ) = 0.25 mol of is in excess. Hence, Li is the limiting reagent  **b.** Weight of formed  **c.** Moles of K  Moles of  Since mol of is required. Therefore, mol of is in excess. Hence K is the limiting reagent  **d.** Weight of formed  of | | | | | | | |
| 690 | **(a,b,d)**  **a.** Weight of  **b.** Moles of moles of Ca  Weight of  **d.** of  Hence, (c) is wrong | | | | | | | |
| 692 | **(a,b,c)**    …(ii)  Add equations (i) and (ii), we get  II. Reduction: | | | | | | | |
| 693 | **(c,d)**  Equal number of molecules are present when moles are same. For the same mass the molecular weight has to be same  Hence ofof  ofof | | | | | | | |
| 694 | **(a,c)**  of of mEq of | | | | | | | |
| 695 | **(a,c)**  **a.** mmoles of  of  **b.** Wrong  **c.** Weight of  **d.** Wrong | | | | | | | |
| 696 | **(b,c,d)**    g | | | | | | | |
| 698 | **(a,b,c,d)**  All correct | | | | | | | |
| 702 | **(a,d)**  of  of  i. ...(i)  ii. ...(ii)  iii. in  Moles of , required= Moles of  in  in  Therefore, moles of required  in  Similarly, for 100 ppm of  iv. ...(i)  v. …(ii)  vi. in  Moles of requied  of  in  in  Moles of required | | | | | | | |
| 704 | **(a,b,c,d)**  **a**.  **b**.  **c**. ‘V’  **d**. Volume strength | | | | | | | |
| 706 | **(a,d)**  1 mol mol  Moles of  Moles of KOH | | | | | | | |
| 709 | **(a,b,c,d)**  Moles of  Moles of mol  **a.** Since for 1 mol of mol of HCl is required. So, HCl is in excess  Therefore, is the limiting quantity  **b.** Weight of formed  **c.** 1 mol of of at  **d.** 1 mol of mol of at | | | | | | | |
| 710 | **(a,c)**  ofof  of  **a.** moles of  moles of moles of moles of  Weight of  **b.** Wrong  **c.** Correct  **d.** moles of | | | | | | | |
| 711 | **(a,b,c,d)**  **a.** Valency factor  **b.** Valency factor  **c.** Valency factor  **d.** valency factor | | | | | | | |
| 712 | **(a,b)**    or  of (total) ( factor)  of ( factor)=15  of reacted of  of ( factor=1)  5  Using mol concept: 1 of mmol of X  5 of mmol of X  of  of  Since factor for | | | | | | | |
| 713 | **(a,b,c)**  Three | | | | | | | |
| 714 | **(b,c,d)**  In reaction (i), moles of required  mol  Since there is more present than required  **a.** Therefore, is the limiting quantity  **b.** Wrong  **c.**  0.01 mol of produces = 0.01 mol of  Hence, (c) is wrong  d.  weight of produced  Hence, (d) is wrong | | | | | | | |
| 718 | **(a,d)**  **a.** Number of atoms  **b.** Number of atoms  **c.** **i**. Number of molecules  **ii**. Number of melecules  (d) is correct | | | | | | | |
| 719 | **(b)**  **i**.    **ii**.  iii.  mmoles of required=36 | | | | | | | |
| 722 | **(b,c,d)**  Self explanatory | | | | | | | |
| 724 | **(a,c)**  Moles of Al =  Moles of mol  **a.** Since 2 mol of Al requires 3 mol of , therefore Al is in excess  **b.** Wrong  **c.** Weight of Al required  **d.** Weight of Al of excess = | | | | | | | |
| 727 | **(c,d)**  (Let ‘’ g of X and Y taken)    Initial moles]  Final moles]  Since both X and Y are completely consumed, there is no liming reagent  Moles of  Weight of Weight of X | | | | | | | |
| 729 | **(a,b,c)**  Total volume | | | | | | | |
| 731 | **(a,b)**  Mol of  **a.** Weight of  **b.** Concentration of  (c) and (d) are wrong | | | | | | | |
| 732 | **(b,c,d)**  **a.** Moles of  Weight of bismuth nitrate = (0.01 mol Bi)    Hence, (a) is wrong  **b.** Weight of  **c.** Molar volume of gas at STP (1 bar, 273 K)=  Volume of NO gas =  **d.** Molar volume of gas at SATP (1 bar, 298 K) =  Volume of NO gas | | | | | | | |
| 733 | **(a,b,c,d)**  mmoles of  mmoles of    Total volume  **a.**  **b.**  **c.**  **d.** mmoles of  left | | | | | | | |
| 735 | **(c,d)**  (a) and (b) are compound. (c) and (d) are mixture | | | | | | | |
| 736 | **(a,b,c,d)**  **a.** Weight g in 100 mL of solution  2 mol mol of  **b.** moles of  Weight of mol  **c.** Weight of  **d.** Weight of | | | | | | | |
| 737 | **(a,c)**    of  mmoles of  ii (hypo)    of  of  of  mmoles of  Difference in mmoles of and | | | | | | | |
| 738 | **(b,d)**  Since 2 mol of is present. So there should be one mole each of and to have equal hardness  of,  of in  ofofof  of  of  of  Hence, answer is (b) and (d) | | | | | | | |
| 742 | **(b,d)**  : As acid,  As reducing agent,  : As acid,  As reducing agent,  On reaction with  and :both are acting as reducing agents with same factor of 2  ofmEq of  of mEq of | | | | | | | |
| 743 | **(b,c,d)**  of KOH/L mL solution  of mL solution  of mL solution  **b**. **With phenolphthalein:**  **c. With methyl orange:**  of of of of  N  **d. With methyl orange after the first end point:**  N | | | | | | | |
| 744 | **(b,c,d)**  **a**.    **b**. pH changes from 4 to 10 (acidic to strongly basic)    Hence with change of pH from 4 to 10, will change the stoichiometry of reaction and also changes the product  **c**. pH changes from 4 to 7 (acidic to neutral medium)    Hence it will also effect the stoichiometry of reaction and nature of product  **d**. | | | | | | | |
| 745 | **(a,c,d)**  **a.**  **b.**  **c.**  **d.** | | | | | | | |