**ACTIVE SITE TUTORIALS**

**Date :** 23-07-2019 **TEST ID: 140**

**Time :** 07:02:00 **CHEMISTRY**

**Marks :** 1688

8.REDOX REACTIONS

**Single Correct Answer Type**

| 1. | Which among the following shows maximum oxidation state? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 2. | A substance, that by its sharp colour change indicates the completion of reaction is known as : | | | | | | | |
|  | a) | Acid | b) | Base | c) | Indicator | d) | None of these |
| 3. | In the reaction, , the number of electrons that must be added to the right is: | | | | | | | |
|  | a) | 4 | b) | 3 | c) | 2 | d) | 1 |
| 4. | A solution of is reduced to The normality of solution is 0.6. The molarity is: | | | | | | | |
|  | a) | 1.8 | b) | 0.6 | c) | 0.1 | d) | 0.2 |
| 5. | In the reaction of and the later acts as : | | | | | | | |
|  | a) | Oxidising agent | | | | | | | |
|  | b) | Reducing agent | | | | | | | |
|  | c) | Bleaching agent | | | | | | | |
|  | d) | Both oxidising and bleaching agent | | | | | | | |
| 6. | Of the following reactions, only one is a redox reaction. Identify this reaction. | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 7. | Reductants are substances which : | | | | | | | |
|  | a) | Show an increase in their oxidation number during a change | | | | | | | |
|  | b) | Lose electrons during a change | | | | | | | |
|  | c) | Reduce others and oxidise themselves | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 8. | In the equation, The equivalent weight of stannous chloride (molecular weight = 190) will be : | | | | | | | |
|  | a) | 190 | b) | 95 | c) | 47.5 | d) | 154.5 |
| 9. | The oxoacid which acts both as oxidising and reducing agent is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 10. | Oxidation state of oxygen is −1 in the compound : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 11. | When sulphur dioxide is passed in an acidified solution, the oxidation state of sulphur is changed from | | | | | | | |
|  | a) | 4 to 0 | b) | 4 to 2 | c) | 4 to 6 | d) | 6 to 4 |
| 12. | Reduction is a process which involves : | | | | | | | |
|  | a) | Electronation | | | | | | | |
|  | b) | Addition of hydrogen or removal of oxygen | | | | | | | |
|  | c) | Addition of metal or removal of non-metal | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 13. | The number of electrons lost or gained during the change is | | | | | | | |
|  | a) | 2 | b) | 4 | c) | 6 | d) | 8 |
| 14. | A group of methods of quantitative chemical analysis involving the measurement of volume of reacting substance is known as : | | | | | | | |
|  | a) | Gravimetric analysis | b) | Volumetric analysis | c) | Both (a) and (b) | d) | None of the above |
| 15. | Which one of the following reaction is possible at anode? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 16. | The anion nitrate is converted into ammonium ion. The equivalent mass of nitrate ion in the reaction would be: | | | | | | | |
|  | a) | 6.20 | b) | 7.75 | c) | 10.5 | d) | 21.0 |
| 17. | WI ich acts as a reducing agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 18. | What weight of is needed to convert 5 g into | | | | | | | |
|  | a) | 4.13 g | b) | 24.8 g | c) | 6.2 g | d) | 10.2 g |
| 19. | When is passed in acidified potassium dichromate solution, the oxidation state of S is changed from : | | | | | | | |
|  | a) | + 4 to 0 | b) | +4 to +2 | c) | +4 to +6 | d) | +6 to +4 |
| 20. | Among the properties given below, the set of properties shown by ion towards metal species is :  1. Reducing; 2. Oxidising ; 3. Complexation | | | | | | | |
|  | a) | 1, 3 | b) | 1, 2, 3 | c) | 1, 2 | d) | 2, 3 |
| 21. | Solution of sodium metal in liquid is strongly reducing due to the presence of : | | | | | | | |
|  | a) | Sodium atoms | b) | Solvated electrons | c) |  | d) | Sodium amide |
| 22. | Oxidation numbers of Fe in are : | | | | | | | |
|  | a) | +2 and +3 | b) | +1 and +2 | c) | +1 and +3 | d) | None of these |
| 23. | It is found that V forms a double salt isomorphous with Mohr’s salt. The oxidation number of V in this compound is : | | | | | | | |
|  | a) | + 3 | b) | + 2 | c) | + 4 | d) | −4 |
| 24. | is a good oxidising agent in different medium changing to        Changes in oxidation number respectively are | | | | | | | |
|  | a) | 1,3,4,5 | b) | 5,4,3,2 | c) | 5,1,3,4 | d) | 2,6,4,3 |
| 25. | The oxidation number of Ba in barium peroxide is : | | | | | | | |
|  | a) | +2 | b) | −1 | c) | +4 | d) | +6 |
| 26. | Strongest reducing agent among the following is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 27. | The eq. wt. of as reductant, in the reaction, | | | | | | | |
|  | a) |  | b) | (Mol. wt.)/2 | c) | (Mol. wt.)/6 | d) | (Mol. wt.)/8 |
| 28. | When Fe metal is rusted then Fe is : | | | | | | | |
|  | a) | Oxidised | b) | Reduced | c) | Hydrolysed | d) | Precipitated |
| 29. | The value of in is | | | | | | | |
|  | a) | 5 | b) | 4 | c) | 2 | d) | 3 |
| 30. | In nitric oxide (NO), the oxidation state of nitrogen is : | | | | | | | |
|  | a) | −2 | b) | +1 | c) | −1 | d) | +2 |
| 31. | Reaction of acidified with ferrous oxalate gives oxidation products containing : | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 32. | How many litre a 0.5 solution of an oxidising agent are reduced by 2 litre of 2.0 solution of a reducing agent? | | | | | | | |
|  | a) | 8 litre | b) | 4 litre | c) | 6 litre | d) | 7 litre |
| 33. | In which of the following oxygen shows1 oxidation state? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 34. | The coefficients of in the redox reaction, in the balanced form respectively are | | | | | | | |
|  | a) | 5, 1, 6 | b) | 1, 5, 6 | c) | 6, 1, 5 | d) | 5, 6, 1 |
| 35. | Which compound shows highest oxidation number for chlorine? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 36. | The number of ion oxidised by one mole of ions is : | | | | | | | |
|  | a) | 1/5 | b) | 2/3 | c) | 5 | d) | 3/2 |
| 37. | The oxidation number and covalency of sulphur in the sulphur molecule are respectively : | | | | | | | |
|  | a) | 0 and 2 | b) | + 6 and 8 | c) | 0 and 8 | d) | +6 and 2 |
| 38. | The equivalent weight of iron in would be : | | | | | | | |
|  | a) | 18.6 | b) | 28 | c) | 56 | d) | 11 |
| 39. | Oxidation number of carbon in carbon suboxide is : | | | | | | | |
|  | a) |  | b) |  | c) | +4 | d) |  |
| 40. | Volumetric estimation of using hypo as intermediate solution along with KI solution and starch as indicator is an example of : | | | | | | | |
|  | a) | Redox titration | b) | Acid-base titration | c) | Precipitation titration | d) | None of these |
| 41. | Oxidation state of oxygen in is | | | | | | | |
|  | a) |  | b) | +2 | c) |  | d) |  |
| 42. | Which reaction indicates the oxidising behavior of ? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 43. | contains carbon in the oxidation state: | | | | | | | |
|  | a) | +5 | b) | +1 | c) | +4 | d) | zero |
| 44. | Oxidation state of oxygen atom in potassium superoxide is : | | | | | | | |
|  | a) | −1/2 | b) | Zero | c) | +1/2 | d) | −2 |
| 45. | Which of the following reaction involves oxidation and reduction? | | | | | | | |
|  | a) |  | | | b) | HBr +Ag | | |
|  | c) |  | | | d) |  | | |
| 46. | The number of mole of oxalate ions oxidized by one mole of ion is: | | | | | | | |
|  | a) | 1/5 | b) | 2/5 | c) | 5/2 | d) | 5 |
| 47. | The number of mole of that will be needed to react completely with one mole of ferrous oxalate in acidic solution is : | | | | | | | |
|  | a) | 3/5 | b) | 2/5 | c) | 4/5 | d) | 1 |
| 48. | Equivalent mass of when it is converted to in acid medium : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 49. | The eq. wt. of in , is: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 50. | What volume of 3 molar is needed to oxidise 8 g of to ? , gets converted to NO : | | | | | | | |
|  | a) | 8 mL | b) | 16 mL | c) | 32 mL | d) | 64 mL |
| 51. | Which ordering of compounds is according to the decreasing order of the oxidation state of nitrogen? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | NO, |
| 52. | The oxidation states of iodine in and are respectively | | | | | | | |
|  | a) | +1,+3,+7 | b) | +7,+7,+3 | c) | +7,+7,+7 | d) | +7,+5,+3 |
| 53. | In which reaction acts as a reducing agent? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 54. | In the reaction ; act as : | | | | | | | |
|  | a) | Oxidising agent | b) | Reducing agent | c) | Dehydrating agent | d) | None of these |
| 55. | Oxidants are substances which : | | | | | | | |
|  | a) | Show a decrease in their oxidation number during a change | | | | | | | |
|  | b) | Gain electrons during a change | | | | | | | |
|  | c) | Oxidise others and reduce themselves | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 56. | One gas bleaches the colour of the flowers by reduction while the other by oxidation. The gases are : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 57. | 5 g of a sample of bleaching powder is treated with excess acetic acid and KI solution. The liberated required 50 mL of hypo. The percentage of available chlorine in the sample is : | | | | | | | |
|  | a) | 3.55 | b) | 7.0 | c) | 35.5 | d) | 28.2% |
| 58. | The oxidation number of iodine in is : | | | | | | | |
|  | a) | +5 | b) | −5 | c) | −1 | d) | +1 |
| 59. | The eq. wt. of in , | | | | | | | |
|  | a) | its mol. wt. | b) | mol. wt./3 | c) | mol. wt./4 | d) | None of these |
| 60. | Moles of required for decolorizing 1 mole of acidified are : | | | | | | | |
|  | a) | 1/2 | b) | 3/2 | c) | 5/2 | d) | 7/2 |
| 61. | Oxidation number of sulphur in Caro’s acid is | | | | | | | |
|  | a) | +6 | b) | +4 | c) | +8 | d) | +7 |
| 62. | The equivalent weight of a reductant or an oxidant is given by : | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 63. | In presence of dil. . The equivalent weight of is : | | | | | | | |
|  | a) | 1/5 of its molecular weight | | | | | | | |
|  | b) | 1/6 of its molecular weight | | | | | | | |
|  | c) | 1/10 of its molecular weight | | | | | | | |
|  | d) | 1/2 of its molecular weight | | | | | | | |
| 64. | Respiration is : | | | | | | | |
|  | a) | Oxidation | b) | Reduction | c) | Both (a) and (b) | d) | None of these |
| 65. | The above equation balances when | | | | | | | |
|  | a) | = 2, b = 4, c = 6 and | | | | | | | |
|  | b) | and | | | | | | | |
|  | c) | and | | | | | | | |
|  | d) | and | | | | | | | |
| 66. | Which of the following shows highest ox, no. in combined state? | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 67. | The oxidation number of sulphur in is : | | | | | | | |
|  | a) | +2 | b) | +6 | c) | +7 | d) | +14 |
| 68. | In the following reaction  If one mole of oxidises 2.5 moles of then the value of is | | | | | | | |
|  | a) | 5 | b) | 3 | c) | 4 | d) | 2 |
| 69. | What volume of solution is required to oxidise (in acid solution) a solution containing 10 g of ? (mol.wt.of = 152) | | | | | | | |
|  | a) | 65.78 mL | b) | 134 mL | c) | 35 mL | d) | 33.5 mL |
| 70. | Bleaching action of chlorine in presence of moisture is : | | | | | | | |
|  | a) | Reduction | b) | Oxidation | c) | Hydrolysis | d) | substitution |
| 71. | A mixture of potassium chlorate, oxalic acid and sulphuric acid and sulphuric acid is heated. During the reaction which element undergoes maximum change in the oxidation number? | | | | | | | |
|  | a) | Cl | | | | | | | |
|  | b) | C | | | | | | | |
|  | c) | S | | | | | | | |
|  | d) | H | | | | | | | |
| 72. | Stannous chloride gives a white precipitate with a solution of mercuric chloride. In this process mercuric chloride is : | | | | | | | |
|  | a) | Oxidized | | | | | | | |
|  | b) | Reduced | | | | | | | |
|  | c) | Converted into a complex compound containing and | | | | | | | |
|  | d) | Converted into a chloro complex of | | | | | | | |
| 73. | In the titration of Hypo in presence of KI, which statement is wrong? | | | | | | | |
|  | a) | It is iodometric titration | | | | | | | |
|  | b) | with starch gives blue colour | | | | | | | |
|  | c) | is reduced to white during redox change | | | | | | | |
|  | d) | The solution before titration, on addition of KI appears blue | | | | | | | |
| 74. | Manganese acts as strongest oxidising agent in the oxidation state | | | | | | | |
|  | a) | +7 | b) | +2 | c) | +4 | d) | +5 |
| 75. | The value of in the reaction    will be | | | | | | | |
|  | a) | 2 | b) | 3 | c) | 6 | d) | 7 |
| 76. | In a reaction 4 mole of electrons are transferred to one mole of when it acts as an oxidant. The possible reduction product is : | | | | | | | |
|  | a) | (1/2) mole | b) | (1/2) mole | c) | 1 mole of | d) | 1 mole |
| 77. | The oxidation number of phosphorus in is : | | | | | | | |
|  | a) | +3 | b) | +2 | c) | −3 | d) | +5 |
| 78. | In the equation ,  the oxidation number of Cr changes from | | | | | | | |
|  | a) | 6 to 4 | b) | 6 to 3 | c) | 8 to 4 | d) | 4 to 3 |
| 79. | Oxidation numbers of P in of in and that of in are respectively : | | | | | | | |
|  | a) |  | b) | +5, +6 and +6 | c) | +3, +6 and +5 | d) | +5, +3 and +6 |
| 80. | In alkaline condition reacts as follows,    Therefore, its equivalent weight will be : | | | | | | | |
|  | a) | 31.6 | b) | 52.7 | c) | 79.0 | d) | 158.0 |
| 81. | Oxidation number of S in | | | | | | | |
|  | a) | +6 | b) | +3 | c) | +2 | d) |  |
| 82. | Which of the following is redox reaction? | | | | | | | |
|  | a) | ⟶ | | | | | | | |
|  | b) | + KI ⟶ | | | | | | | |
|  | c) | ⟶ | | | | | | | |
|  | d) | + ⟶ | | | | | | | |
| 83. | In which of the following compounds, the oxidation number of iodine is fractional? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 84. | The oxidation number of Cl in is : | | | | | | | |
|  | a) | +5 | b) | −5 | c) | +3 | d) | −3 |
| 85. | The oxidation number of oxygen in is | | | | | | | |
|  | a) | 3,2 | b) | 1,0 | c) | 0,1 | d) | 0.33,1 |
| 86. | In the reaction*,*  Equivalent weight of iodine will be equal to: | | | | | | | |
|  | a) | Its molecular weight | | | | | | | |
|  | b) | 1/2 of its molecular weight | | | | | | | |
|  | c) | 1/4 of its molecular weight | | | | | | | |
|  | d) | Twice the molecular weight | | | | | | | |
| 87. | The maximum oxidation number of transition metals may be: | | | | | | | |
|  | a) | +4 | b) | +6 | c) | +8 | d) | +10 |
| 88. | The ratio of amounts of needed to precipitate all the metal ions from 100 mL 1 and 100 mL of 1 is : | | | | | | | |
|  | a) | 1 : 2 | b) | 2 : 1 | c) | Zero | d) | infinite |
| 89. | Oxidation state of sulphur in and | | | | | | | |
|  | a) | 4 and 6 | b) | 3 and 5 | c) | 2 and 2.5 | d) | 6 and 6 |
| 90. | Number of ions and mole of ions present in 1 litre of acidified solution respectively are : | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) | and 0.04 | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) | and 200 | | | | | | | |
| 91. | Conversion of to is : | | | | | | | |
|  | a) | Reduction of S | b) | Oxidation of S | c) | Dissociation | d) | None of these |
| 92. | Which change requires a reducing agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 93. | In the reaction, The eq.wt. of and are respectively equal to : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 94. | Which acts as reducing agent as well as oxidising agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 95. | When gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chlorine changes from : | | | | | | | |
|  | a) | Zero to −1 and zero to +3 | | | | | | | |
|  | b) | Zero to +1 and zero to −3 | | | | | | | |
|  | c) | Zero to +1 and zero to −5 | | | | | | | |
|  | d) | Zero to −1 and zero to +5 | | | | | | | |
| 96. | Which of the following is not a redox reaction? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 97. | The difference in the oxidation numbers of the two types of sulphur atoms in is | | | | | | | |
|  | a) | 4 | b) | 5 | c) | 6 | d) | 7 |
| 98. | A compound contains atoms The oxidation number of is +2, is +5 and is −2. The possible formula of the compound is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 99. | The equivalent weight of in the reaction, is : | | | | | | | |
|  | a) | 49 | b) | 95 | c) | 45 | d) | 59 |
| 100. | What is the ox. no. of in | | | | | | | |
|  | a) | +4 | b) | +6 | c) | +2 | d) | +8 |
| 101. | The stable oxidation states of | | | | | | | |
|  | a) | +2, +3 | b) | +3, +7 | c) | +2, +7 | d) | +3, +5 |
| 102. | 25 mL of 0.50 solution is added to 50 mL of 0.20 in acidic solution. Which of the following statements is true? | | | | | | | |
|  | a) | 0.010 mole of oxygen is liberated | | | | | | | |
|  | b) | 0.005 mole of are left | | | | | | | |
|  | c) | 0.030 g atom of oxygen gas is evolved | | | | | | | |
|  | d) | 0.0025 mole does not react with | | | | | | | |
| 103. | Oxidation number of carbon in is : | | | | | | | |
|  | a) | +2 | b) | −2 | c) | +1 | d) | +3 |
| 104. | The oxidation state of in is : | | | | | | | |
|  | a) | Zero | b) | +4 | c) | +8 | d) | +2 |
| 105. | is the molecular weight of The equivalent weight of when it is converted into is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 106. | Oxidation number of Mn in and are respectively: | | | | | | | |
|  | a) | + 7 and +2 | b) | +6 and +2 | c) | +5 and +2 | d) | +2 and +6 |
| 107. | Which is the best description of behaviour of bromine in the reaction given below? | | | | | | | |
|  | a) | Proton accepted only | | | b) | Both oxidised and reduced | | |
|  | c) | Oxidised only | | | d) | Reduced only | | |
| 108. | The oxidation number of P in is : | | | | | | | |
|  | a) | +1 | b) | +3 | c) | −3 | d) | +5 |
| 109. | is used as : | | | | | | | |
|  | a) | Oxidising agent | b) | Reducing agent | c) | A mordant | d) | Water softner |
| 110. | The brown ring complex has ox.no. of Fe : | | | | | | | |
|  | a) | +1 | b) | +2 | c) | +3 | d) | +4 |
| 111. | The oxidation state of Fe in Fe3O4 is | | | | | | | |
|  | a) | +3 | b) | 8/3 | c) | +6 | d) | +2 |
| 112. | In the reactions; , the element oxidized is/ are : | | | | | | | |
|  | a) | As only | b) | S only | c) | N only | d) | As and S both |
| 113. | The eq. wt. of in the reaction, (unbalanced) is : | | | | | | | |
|  | a) | 52.7 | b) | 158 | c) | 31.6 | d) | None of these |
| 114. | ions are converted to ions by a suitable reactant. The equivalent mass of and are : | | | | | | | |
|  | a) | 7.75, 2.25 | b) | 7.75, 7.75 | c) | 2.25, 7.75 | d) | 2.25, 2.25 |
| 115. | Oxidation number of chlorine in is : | | | | | | | |
|  | a) | +1 | b) | −1 | c) | −7 | d) | +7 |
| 116. | Iodine has +7 oxidation state in : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 117. | The violent reaction between sodium and water is an example of : | | | | | | | |
|  | a) | Reduction | | | | | | | |
|  | b) | Oxidation | | | | | | | |
|  | c) | Redox reaction | | | | | | | |
|  | d) | neutralisation reaction | | | | | | | |
| 118. | Oxidation number of Fe in is : | | | | | | | |
|  | a) | +2 | b) | +3 | c) | +4 | d) | +1 |
| 119. | One mole of acidified on reaction with excess KI will liberate………mole(s) of | | | | | | | |
|  | a) | 6 | b) | 1 | c) | 7 | d) | 3 |
| 120. | In the preparation of chlorine from acts as : | | | | | | | |
|  | a) | Reducing agent | b) | oxidising agent | c) | Catalytic agent | d) | Dehydrating agent |
| 121. | What volume of measured at standard conditions will be formed by the action of 100 mL of 0.5 on hydrogen peroxide in an acidic solution? The skeleton equation for the reaction is, | | | | | | | |
|  | a) | 0.12 litre | b) | 0.28 litre | c) | 0.56 litre | d) | 1.12 litre |
| 122. | Which quantities are conserved in all oxidation-reduction reactions? | | | | | | | |
|  | a) | Charge only | | | b) | Mass only | | |
|  | c) | Both charge and mass | | | d) | Neither charge nor mass | | |
| 123. | Which substance serves as a reducing agent in the following reaction, | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 124. | Which of the following chemical reactions depicts the oxidising behaviour of ? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 125. | In the aluminothermic process, aluminium acts as : | | | | | | | |
|  | a) | An oxidising agent | b) | A flux | c) | A reducing agent | d) | A solder |
| 126. | In the reaction, the substance that oxidizes is, | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 127. | The oxidation number of sulphur in respectively are : | | | | | | | |
|  | a) | 0, +1 and −2 | b) | +2, +1 and −2 | c) | 0, +1 and +2 | d) | −2, +1 and −2 |
| 128. | Maximum oxidation state is present in : | | | | | | | |
|  | a) | and | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) | and | | | | | | | |
|  | d) |  | | | | | | | |
| 129. | With which element oxygen shows positive oxidation state in its compounds? | | | | | | | |
|  | a) | Na | b) | Cl | c) | N | d) | F |
| 130. | What is the oxidation number of chlorine in ? | | | | | | | |
|  | a) | +5 | b) | +3 | c) | +4 | d) | +2 |
| 131. | solution reacts with as,  A solution of used in the above reaction contained 15 g of per litre. The normality of the solution would be : | | | | | | | |
|  | a) | 0.40 | b) | 0.20 | c) | 0.60 | d) | 0.80 |
| 132. | In sodium hydride, oxidation state of sodium is : | | | | | | | |
|  | a) | Zero | b) | +1 | c) | −1 | d) | +2 |
| 133. | The oxidation number of xenon in is | | | | | | | |
|  | a) | Zero | b) | 2 | c) | 4 | d) | 3 |
| 134. | Which is not a redox reaction? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 135. | In | | | | | | | |
|  | a) | Oxidant | b) | Reductant | c) | Both (a) and (b) | d) | None of these |
| 136. | Millimole of a solute in a solution can be given by : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | Both (b) and (c) |
| 137. | The oxidation number of carbon in is : | | | | | | | |
|  | a) | +2 | b) | +3 | c) | +4 | d) | +1 |
| 138. | What is the oxidation state of P in | | | | | | | |
|  | a) | +1 | b) | +2 | c) | +3 | d) |  |
| 139. | Oxidation state of +1 for phosphorus is found in : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 140. | Oxidation number of S in is : | | | | | | | |
|  | a) | Zero | b) | +1 | c) | +2 | d) | +3 |
| 141. | In which reaction the underlined substance has been reduced? | | | | | | | |
|  | a) | Carbon monoxide + copper oxide ⟶ carbon dioxide + copper | | | | | | | |
|  | b) | Copper oxide + hydrochloric acid ⟶ water + copper chloride | | | | | | | |
|  | c) | Steam + iron ⟶ hydrogen + iron oxide | | | | | | | |
|  | d) | Hydrogen + iron oxide ⟶ water + iron | | | | | | | |
| 142. | The decomposition of to and on heating is an example of : | | | | | | | |
|  | a) | Intermolecular redox change | | | | | | | |
|  | b) | Intramolecular redox change | | | | | | | |
|  | c) | Disproportionation or auto redox change | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 143. | Mohr’s salt is oxidised to ……. in presence of acidized . | | | | | | | |
|  | a) |  | b) |  | c) | Fe | d) | None of these |
| 144. | Fluorine is a strong oxidising agent because : | | | | | | | |
|  | a) | It has several isotopes | | | | | | | |
|  | b) | It is very small and has 7 electrons in valency shell | | | | | | | |
|  | c) | Its valency is one | | | | | | | |
|  | d) | It is the first member of the halogen series | | | | | | | |
| 145. | In the conversion of to , the oxidation number of Br changes from | | | | | | | |
|  | a) | Zero to +5 | b) | +1 to +5 | c) | Zero to 3 | d) | +2 to +5 |
| 146. | The oxidation number of Cr in is | | | | | | | |
|  | a) | +3 | b) | +5 | c) | +6 | d) | 0 |
| 147. | An indicator used for redox reaction is itself : | | | | | | | |
|  | a) | Either an oxidant or a reductant | | | | | | | |
|  | b) | Neither an oxidant nor a reductant | | | | | | | |
|  | c) | Acid or base | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 148. | reacts with to give and Moles of liberated by 1 mole of in this reaction are : | | | | | | | |
|  | a) | 2.5 | b) | 1.25 | c) | 4.5 | d) | 1.75 |
| 149. | In the following reaction, | | | | | | | |
|  | a) | P is only oxidized | | | b) | P is only reduced | | |
|  | c) | P is both oxidized as well as reduced | | | d) | None of the above | | |
| 150. | Oxidation number of P in is : | | | | | | | |
|  | a) | +3 | b) | +4 | c) | +5 | d) | +6 |
| 151. | In the conversion of to the oxidation number of chromium : | | | | | | | |
|  | a) | Increases | b) | Remains the same | c) | Decreases | d) | None of these |
| 152. | In which of the following, the oxidation number of oxygen has been arranged in increasing order? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) | None of these | | |
| 153. | Oxidation number of sodium in sodium amalgam is : | | | | | | | |
|  | a) | +2 | b) | +1 | c) | −2 | d) | zero |
| 154. | The apparatus in which standard solution is prepared is known as : | | | | | | | |
|  | a) | Measuring flask | b) | Round bottom flask | c) | Burette | d) | None of these |
| 155. | is used as ……. Indicator for titrations. | | | | | | | |
|  | a) | Self | b) | External | c) | Internal | d) | Not an |
| 156. | The oxidation number of N in is : | | | | | | | |
|  | a) | −2 | b) | +3 | c) | +2 | d) | −3 |
| 157. | Which can act as oxidant? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 158. | What weight of is needed to convert 5 g of iodine into iodic acid according to the reaction, | | | | | | | |
|  | a) | 12.4 g | b) | 24.8 g | c) | 0.248 g | d) | 49.6 g |
| 159. | In which acts as oxidant, while reacting with : | | | | | | | |
|  | a) | Acidified | b) | Acidified | c) |  | d) | Acidified |
| 160. | and reduce , can reduce and can reduce: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 161. | Equivalent mass of in its reaction with is equal to : | | | | | | | |
|  | a) | Molar mass | b) | Molar mass / 2 | c) | Molar mass / 3 | d) | Molar mass / 4 |
| 162. | Which of the following change represents a disproportionation reaction(s)? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 163. | Oxidation number of ‘N’ in (hydrazoic acid) is | | | | | | | |
|  | a) |  | b) |  | c) | 0 | d) |  |
| 164. | Cerric ammonium sulphate and potassium permanganate are used as oxidising agents in acidic medium for oxidation of ferrous ammonium sulphate to ferric sulpahte. The ratio of number of moles of cerric ammonium sulphate required per mole of ferrous ammonium sulphate to the number of moles of required per mole of ferrous ammonium sulphate, is | | | | | | | |
|  | a) | 5.0 | b) | 0.2 | c) | 0.6 | d) | 2.0 |
| 165. | Eq.wt. of in, is : | | | | | | | |
|  | a) | 3.4 | b) | 17 | c) | 8.5 | d) | None of these |
| 166. | Carbon is in the lowest oxidation state in : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 167. | When the ion acts as an oxidant in acidic aqueous solution the ion How many mole of would be oxidised to by one of ions? | | | | | | | |
|  | a) | 2/3 | b) | 3/2 | c) | 2 | d) | 3 |
| 168. | 100 mL of 0.1 *M* solution of a reductant is diluted to 1 litre, which of the following changes? | | | | | | | |
|  | a) | Molarity | b) | Millimole | c) | Milliequivalent | d) | None of these |
| 169. | If is passed through an acidified solution, the colour of the solution : | | | | | | | |
|  | a) | Will remain unchanged | | | | | | | |
|  | b) | Will change to deep red | | | | | | | |
|  | c) | Will change to dark green | | | | | | | |
|  | d) | Will change to dark brown | | | | | | | |
| 170. | Ozone tails mercury. The reaction is ….of . | | | | | | | |
|  | a) | Reduction | b) | Oxidation | c) | Substitution | d) | None of these |
| 171. | The oxidation number of in is : | | | | | | | |
|  | a) | +3 | b) | +2 | c) | +1 | d) | zero |
| 172. | In the reaction, The eq.wt. of is equal to its : | | | | | | | |
|  | a) | mol. wt. | b) | mol. wt./8 | c) | mol. wt./6 | d) | None of these |
| 173. | The eq. wt. of as an oxidising agent in acid medium is : | | | | | | | |
|  | a) | (mol. wt.)/2 | b) | (2 × mol. wt.)/3 | c) | (mol. wt.)/3 | d) | (mol. wt.)/6 |
| 174. | Which reaction involves neither oxidation nor reduction? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 175. | The number of equivalent per mole of used in its oxidation to is : | | | | | | | |
|  | a) | 3 | b) | 6 | c) | 4 | d) | 2 |
| 176. | Oxidation number of sulphur in is : | | | | | | | |
|  | a) | +2 | b) | +4 | c) | +6 | d) | −2 |
| 177. | Which can have both +ve and –ve oxidation states? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 178. | Milliequivalent of a solute in a solution can be given by: | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) | 1000 | | | | | | | |
|  | d) | Both (b) and (c) | | | | | | | |
| 179. | is passed through an acidified solution of copper sulphate and a black precipitate is formed. This is due to : | | | | | | | |
|  | a) | Oxidation of | | | | | | | |
|  | b) | Reduction of | | | | | | | |
|  | c) | Double decomposition | | | | | | | |
|  | d) | Reduction and oxidation | | | | | | | |
| 180. | Iodine has highest oxidation number in the compound : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 181. | Oxidation number of S in is : | | | | | | | |
|  | a) | +2 | b) | −2 | c) | 4 | d) | zero |
| 182. | In the reaction, , The eq.wt. of is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 183. | In the reaction, the substance undergoing oxidation is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 184. | The least count of burette used normally in laboratory is : | | | | | | | |
|  | a) | 0.1 mL | b) | 0.01 mL | c) | 0.2 mL | d) | 0.02 mL |
| 185. | Among and the number of molecules having nitrogen in negative oxidation state is | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 186. | In which iron has the lowest oxidation state? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 187. | A chemical balance used normally for weighing in laboratory can weigh upto a least count of : | | | | | | | |
|  | a) | 0.0001 g | b) | 0.001 g | c) | 0.0002 g | d) | 0.002 g |
| 188. | When is dissolved in water, the sodium ion becomes : | | | | | | | |
|  | a) | Oxidized | b) | Reduced | c) | Hydrolysed | d) | hydrated |
| 189. | Which is not a redox reaction? | | | | | | | |
|  | a) | ⟶ | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 190. | When ion reacts with ion in acidic solution is liberated. The equivalent weight of is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 191. | Corrosion of iron is : | | | | | | | |
|  | a) | Redox process | | | | | | | |
|  | b) | Neutralization process | | | | | | | |
|  | c) | Precipitation process | | | | | | | |
|  | d) | None of these | | | | | | | |
| 192. | During a redox titration involving a solution containing ions against in the presence of excess of ions, the number of electrons that gets transferred is | | | | | | | |
|  | a) | 6 | b) | 5 | c) | 4 | d) | 2 |
| 193. | In which of the following oxidation number of chlorine is +5? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 194. | In the reaction, the spectator ion is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 195. | Turn bull’s blue is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 196. | The oxidation state shown by silicon when it combines with strongly electropositive metals is | | | | | | | |
|  | a) |  | b) |  | c) | +4 | d) | +2 |
| 197. | The compound that can work both as an oxidising and reducing agent is: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 198. | An element in a compound has oxidation number . It is oxidized by in acidic medium. In the experiment mole of were used for mole of . The new oxidation number of after oxidation is : | | | | | | | |
|  | a) | 3 | b) |  | c) |  | d) |  |
| 199. | The burning of hydrogen is called : | | | | | | | |
|  | a) | Hydrogenation | b) | Hydration | c) | Oxidation | d) | reduction |
| 200. | Oxidation number of chlorine in chlorine heptaoxide is : | | | | | | | |
|  | a) | +1 | b) | +4 | c) | +6 | d) | +7 |
| 201. | The correct order of reducing power of halide ions is : | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 202. | The reaction, is an example of : | | | | | | | |
|  | a) | Oxidation reaction | | | | | | | |
|  | b) | Reduction reaction | | | | | | | |
|  | c) | Disproportionation reaction | | | | | | | |
|  | d) | Decomposition reaction | | | | | | | |
| 203. | The ox.no. of S in is : | | | | | | | |
|  | a) | + 2.5 | | | | | | | |
|  | b) | +2 and +3 (two S have +2 and other two have +3) | | | | | | | |
|  | c) | +2 and +3 (three S have +2 and one S has +3) | | | | | | | |
|  | d) | +5 and 0 (two S have +5 and the other two S have 0) | | | | | | | |
| 204. | Oxidation is a process which involves : | | | | | | | |
|  | a) | de-electronation | b) | Electronation | c) | Addition of hydrogen | d) | Addition of metal |
| 205. | A student states that heating of limestone is an oxidation process, the reason he gives that an oxide of the metal is produced on heating. Which one is correct? | | | | | | | |
|  | a) | The statement and reason are true | | | | | | | |
|  | b) | The statement and reason are wrong | | | | | | | |
|  | c) | The statement is true but the reason is false | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 206. | A sulphur containing species that cannot be an oxidising agent is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 207. | acts as ……. indicator in its redox titrations. | | | | | | | |
|  | a) | Self | b) | External | c) | Internal | d) | Not an |
| 208. | In a reaction between zinc and iodine in which zinc iodide is formed, which is oxidised? | | | | | | | |
|  | a) | Zinc ions | b) | Iodide ions | c) | Zinc atom | d) | Iodine |
| 209. | The best oxidising agent of the oxygen family is: | | | | | | | |
|  | a) | Tellurium | b) | Selenium | c) | Sulphur | d) | Oxygen |
| 210. | The oxidation state of iron in sodium nitroprusside is : | | | | | | | |
|  | a) | +2 | b) | +1 | c) | Zero | d) | +3 |
| 211. | A compound of Xe and F is found to have 53.3% Xe. Oxidation number of Xe in this compound is : | | | | | | | |
|  | a) | −4 | b) | Zero | c) | +4 | d) | +6 |
| 212. | Which combination is odd with respect to oxidation numbers of and respectively: | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 213. | 0.2 g of a sample of required 10 mL of in a titration in the presence of Purity of is : | | | | | | | |
|  | a) | 25% | b) | 85% | c) | 65% | d) | 95% |
| 214. | When as oxidising agent and ultimately forms the number of electrons transferred per mole of each case respectively is : | | | | | | | |
|  | a) | 4, 3, 1, 5 | b) | 1, 5, 3, 7 | c) | 1, 3, 4, 5 | d) | 1, 3, 8, 5 |
| 215. | Titration of KI with in presence of acid is a : | | | | | | | |
|  | a) | Clock reaction | b) | Redox reaction | c) | Intermolecular redox | d) | All of these |
| 216. | Oxidation state of nitrogen is incorrectly given for :  **Compound Oxidation state** | | | | | | | |
|  | a) | −3 | | | | | | | |
|  | b) | −1 | | | | | | | |
|  | c) | +2 | | | | | | | |
|  | d) | −3 | | | | | | | |
| 217. | Fluorine exhibits only −1 oxidation state, while iodine exhibits oxidation states of −1, +1, +3, +5 and +7. This is due to : | | | | | | | |
|  | a) | Fluorine being a gas | | | | | | | |
|  | b) | Available *d*-orbitals in iodine | | | | | | | |
|  | c) | Non-availability of *d*-orbitals in iodine | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 218. | Elements which generally exhibit multiple oxidation states and whose ions are coloured are known as : | | | | | | | |
|  | a) | Metalloid | b) | Non-metals | c) | Metals | d) | Transition metals |
| 219. | The oxidation state of sulphur in sodium tetrathionate () is | | | | | | | |
|  | a) | 2 | b) | 0 | c) | 2.5 | d) | 3.5 |
| 220. | Which is strongest oxidising agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 221. | Sulphur has the highest oxidation state in : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 222. | Nitrogen has fractional oxidation number in : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 223. | As the oxidation state for any metal increases, the tendency to show ionic nature: | | | | | | | |
|  | a) | Decreases | b) | Increases | c) | Remains same | d) | None of these |
| 224. | In acid medium Zn reduces nitrate ion to ion according to the reaction  (unbalanced)  How many moles of HCl are required to teduce half a mole of completely? Assume the availability of sufficient Zn. | | | | | | | |
|  | a) | 5 | b) | 4 | c) | 3 | d) | 2 |
| 225. | Weight of oxidized by 200 mL of 1 solution is : | | | | | | | |
|  | a) | 30.4 g | b) | 15.2 g | c) | 60.8 g | d) | 158 g |
| 226. | In the ionic equation,  The values of is | | | | | | | |
|  | a) | 6 | b) | 2 | c) | 4 | d) | 3 |
| 227. | The reaction, is balanced if : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 228. | What volume of 0.40 would be required to react with the liberated by adding excess of KI to 50 mL of 0.20 solution? | | | | | | | |
|  | a) | 12.5 mL | b) | 25 mL | c) | 50 mL | d) | 2.5 mL |
| 229. | For the reaction, The normality of (mol.wt. = 189.7) solution prepared by dissolving 47.5 g in acid solution and diluting with to a total of 2.25 litre is : | | | | | | | |
|  | a) | 0.222 | b) | 0.111 | c) |  | d) |  |
| 230. | The eq.wt. of the salt to be used as an oxidant in an acidic solution is : | | | | | | | |
|  | a) | (Mol. wt.)/1 | b) | (Mol. wt.)/2 | c) | (Mol. wt.)/3 | d) | (Mol. wt.)/5 |
| 231. | Oxalic acid on reacting with acidified is oxidised to : | | | | | | | |
|  | a) | and | b) | and | c) | and | d) | and |
| 232. | The oxidation number of N and Cl in respectively are | | | | | | | |
|  | a) | +2 and +7 | b) | +3 and +7 | c) | and +5 | d) | +2 and |
| 233. | Sulphur in +3 oxidation state is present in | | | | | | | |
|  | a) | Sulphurous acid | b) | Pyrosulphuric acid | c) | Dithionous acid | d) | Thiosulphuric acid |
| 234. | Among the properties (a) reducing, (b) oxidising and (c) complexing the set of properties shown by ion towards metal species is : | | | | | | | |
|  | a) | a, b, c | b) | b, c | c) | c, a | d) | a, b |
| 235. | Magnesium reacts with acids producing hydrogen and corresponding magnesium salts. In such reactions magnesium undergoes : | | | | | | | |
|  | a) | Oxidation | | | | | | | |
|  | b) | Reduction | | | | | | | |
|  | c) | Neither oxidation nor reduction | | | | | | | |
|  | d) | Simple dissolution | | | | | | | |
| 236. | What volume of 0.1 oxalic acid solution can be reduced by 250 g of an 8 per cent by weight solution? | | | | | | | |
|  | a) | 6.3 litre | b) | 12.6 litre | c) | 25.2 litre | d) | 0.63 litre |
| 237. | The oxidation state of +3 for phosphorus is in: | | | | | | | |
|  | a) | Hypophosphorous acid | | | | | | | |
|  | b) | Meta-phosphoric acid | | | | | | | |
|  | c) | Ortho-phosphoric acid | | | | | | | |
|  | d) | Phosphorous acid | | | | | | | |
| 238. | When is passed through acidified solution of potassium dichromate, then chromium sulphate is formed. The change in oxidation number of chromium is : | | | | | | | |
|  | a) | +4 to +2 | b) | +5 to +3 | c) | +6 to +3 | d) | +7 to +2 |
| 239. | Oxidation no. of P in are respectively : | | | | | | | |
|  | a) | +3, +5, +4 | b) | +4, +3, +5 | c) | +3, +4, +5 | d) | +5, +3, +4 |
| 240. | Oxidation of thiosulphate (ions by iodine gives: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 241. | 0.3 g of an oxalate salt was dissolved in 100 mL solution. The solution required 90 mL of for complete oxidation. The % of oxalate ion in salt is: | | | | | | | |
|  | a) | 33% | b) | 66% | c) | 70% | d) | 40% |
| 242. | How many litre of at STP will be liberated by the oxidation of with 10 g ? | | | | | | | |
|  | a) | 3.54 litre | b) | 7.08 litre | c) | 1.77 litre | d) | None of these |
| 243. | What is the normality of a solution to be used as an oxidant in acid medium, which contain 15.8 g of the compound in 100 mL of solution? Mol. wt. of is 158 : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 244. | in acid medium is always reduced to : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 245. | In balancing the half reaction, the number of electrons that must be added is : | | | | | | | |
|  | a) | 2 on the right | b) | 2 on the left | c) | 3 on the right | d) | 4 on the left |
| 246. | What volume of 0.1 is needed to oxidise 100 mg of in acidic solution? | | | | | | | |
|  | a) | 4.1 mL | b) | 8.2 mL | c) | 10.2 mL | d) | 4.6 mL |
| 247. | Which one is not a redox titration? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 248. | A 0.518 g sample of lime stone is dissolved in HCl and then the calcium is precipitated as . After filtering and washing the precipitate, it requires 40.0 mL of solution acidified with to titrate is as, . The percentage of in the sample is : | | | | | | | |
|  | a) | 54.0 % | b) | 27.1 % | c) | 42% | d) | 84% |
| 249. | The missing term in following equation is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 250. | Reaction of with in aqueous solution gives sodium bromide and sodium bromate with evolution of gas. The number of sodium bromide molecules involved in the balanced chemical equation is | | | | | | | |
|  | a) | 1 | b) | 3 | c) | 5 | d) | 7 |
| 251. | Oxidation number of carbon in are respectively : | | | | | | | |
|  | a) | −4/3, + 4/3 | b) | + 4/3, −4/3 | c) | −2/3, + 2/3 | d) | −2/3, + 4/3 |
| 252. | The reaction; shows : | | | | | | | |
|  | a) | Oxidation | b) | Reduction | c) | Complex formation | d) | All of these |
| 253. | The oxidation state of Cr in chromium trioxide is | | | | | | | |
|  | a) | +3 | b) | +4 | c) | +5 | d) | +6 |
| 254. | Oxidation number of S in is : | | | | | | | |
|  | a) | +1 | b) | +6 | c) | Zero | d) | −1 |
| 255. | In which of the following N has lowest oxidation number? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 256. | 2 mole of are oxidized by mole of whereas 2 mole of are oxidized by ’mole of . The ration f and is : | | | | | | | |
|  | a) | 1 : 3 | b) | 1 : 2 | c) | 1 : 4 | d) | 1 : 5 |
| 257. | reacts with halogens, the halogens : | | | | | | | |
|  | a) | Are oxidised | b) | Are reduced | c) | Form sulphur halides | d) | None of these |
| 258. | In an experiment 50 mL of 0.1 solution of a salt reacted with 25 mL of 0.1 solution of sodium sulphite. The half equation for the oxidation of sulphite ion is :  If the oxidation number of metal in the salt was 3, what would be the new oxidation number of metal? | | | | | | | |
|  | a) | Zero | b) | 1 | c) | 2 | d) | 4 |
| 259. | The most stable oxidation state of copper is : | | | | | | | |
|  | a) | +2 | b) | +1 | c) | +3 | d) | +4 |
| 260. | White phosphorus reacts with caustic soda, the products are This reaction is an example of | | | | | | | |
|  | a) | Oxidation | b) | Reduction | c) | Disproportionation | d) | Neutralisation |
| 261. | When a sulphur atom becomes a sulphide ion : | | | | | | | |
|  | a) | It gains two electrons | | | | | | | |
|  | b) | The mass number changes | | | | | | | |
|  | c) | There is no change in the composition of atom | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 262. | Titre value is the volume of titrant used for a definite amount of unknown reagent at its : | | | | | | | |
|  | a) | Equivalence point | b) | End point | c) | Neutralization point | d) | All of these |
| 263. | Oxidation states of are +2, +5 and 2 respectively. Formula of the compound formed by these wii be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 264. | In which compound, oxygen has an oxidation state of +2 ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 265. | If equal volumes of 1 and solutions are allowed to oxidise to in acidic medium volume of oxidant required for one mole of will be : | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) | Nothing can be predicted | | | | | | | |
| 266. | How many gram of should be taken to make up 250 mL of a solution of such strength that 1 mL is equivalent to 5.0 mg of Fe in ? | | | | | | | |
|  | a) | 1.414 g | b) | 0.70 g | c) | 3.16 g | d) | 1.58 g |
| 267. | The oxidation number of Cr in is | | | | | | | |
|  | a) | +3 | b) |  | c) |  | d) |  |
| 268. | In the reaction, the oxidation state of sulphur is : | | | | | | | |
|  | a) | Decreased | b) | Increased | c) | Unchanged | d) | None of these |
| 269. | The equivalent weight of (acidic medium) is (at. wt. of K = 39; Mn = 55) : | | | | | | | |
|  | a) | 158 | b) | 15.8 | c) | 31.6 | d) | 3.16 |
| 270. | The oxidation number of chromium in potassium dichromate is | | | | | | | |
|  | a) | +2 | b) | +4 | c) | +6 | d) | +8 |
| 271. | The equivalent weight of is half of its molecular weight when it is converted to : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 272. | Aqueous solution of reacts with to precipitate sulphur. Here acts as : | | | | | | | |
|  | a) | Catalyst | b) | Reducing agent | c) | Oxidizing agent | d) | Acid |
| 273. | Saline hydrides are : | | | | | | | |
|  | a) | Strong oxidants | | | | | | | |
|  | b) | Strong reductants | | | | | | | |
|  | c) | Strong dehydrating agents | | | | | | | |
|  | d) | Strong bleaching agents | | | | | | | |
| 274. | State the oxidation number of carbonyl carbon in methanal and methanoic acid respectively | | | | | | | |
|  | a) | 0 and 0 | b) | 0 and +2 | c) | +1 and +2 | d) | +1 and +3 |
| 275. | The eq. wt. of in the change is : | | | | | | | |
|  | a) | 12.7 | b) | 63.5 | c) | 25.4 | d) | 2.54 |
| 276. | Equivalent mass of oxidizing agent in the reaction is. | | | | | | | |
|  | a) | 32 | b) | 64 | c) | 16 | d) | 8 |
| 277. | In a conjugate pair of reductant and oxidant, the reductant has : | | | | | | | |
|  | a) | Lower ox.no. | b) | Higher ox.no. | c) | Same ox.no. | d) | Either of these |
| 278. | In which of the following reactions, hydrogen is acting as an oxidising agent? | | | | | | | |
|  | a) | With Li to form LiH | b) | With to give HI | c) | With S to give | d) | None of the above |
| 279. | The number of moles of Mohr’s salt required per mole of dichromate ion is : | | | | | | | |
|  | a) | 3 | b) | 4 | c) | 5 | d) | 6 |
| 280. | For reducing one mole of ion to Fe, the number of faraday of electricity is : | | | | | | | |
|  | a) | 2 | b) | 1 | c) | 1.5 | d) | 4 |
| 281. | This reaction is : | | | | | | | |
|  | a) | Oxidation reaction | b) | Reduction reaction | c) | Redox reaction | d) | None of these |
| 282. | The oxidation state of I in is : | | | | | | | |
|  | a) | +7 | b) | −1 | c) | +5 | d) | +1 |
| 283. | The oxidation number of N in is : | | | | | | | |
|  | a) | −3 | b) | +3 | c) | Zero | d) | 5 |
| 284. | by reacting with | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 285. | The oxidation number of in is : | | | | | | | |
|  | a) | +1 | b) | +2 | c) | −1 | d) | 0 |
| 286. | Which change occur when lead monoxide is converted into lead nitrate? | | | | | | | |
|  | a) | Oxidation | | | | | | | |
|  | b) | Reduction | | | | | | | |
|  | c) | Neither oxidation nor reduction | | | | | | | |
|  | d) | Both oxidation and reduction | | | | | | | |
| 287. | How many mole of electron are involved in the reduction of one mole of ion in alkaline medium to ? | | | | | | | |
|  | a) | 2 | b) | 1 | c) | 3 | d) | 4 |
| 288. | The oxidation number of Fe in is : | | | | | | | |
|  | a) | +2 | b) | +3 | c) | +4 | d) | +6 |
| 289. | For the reaction,  occurring in basic medium, the coefficient of in the balanced equation will be | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 290. | In the reaction | | | | | | | |
|  | a) | is an acid and is a base | | | | | | | |
|  | b) | is a base and is an acid | | | | | | | |
|  | c) | is an oxidising agent and is a reducing agent | | | | | | | |
|  | d) | is a reducing agent and is an oxidising agent | | | | | | | |
| 291. | When is converted into the change in the oxidation state of sulphur is from: | | | | | | | |
|  | a) | 0 to +2 | b) | +2 to +4 | c) | +4 to +2 | d) | +4 to +6 |
| 292. | The oxidation number of nitrogen in is : | | | | | | | |
|  | a) | +1 | b) | −1 | c) | −3 | d) | −2 |
| 293. | In the reaction, The ratio of equivalent weight of to its molecular weight is : | | | | | | | |
|  | a) | 1/8 | b) | 1/4 | c) | 1/2 | d) | 1 |
| 294. | In the reaction between acidified and iron (II) ions shown by the equation : | | | | | | | |
|  | a) | The colour of the solution changes from green to blue | | | | | | | |
|  | b) | The iron (II) ions are reduced | | | | | | | |
|  | c) | The dichromate ions are reduced | | | | | | | |
|  | d) | Hydrogen ions are reduced | | | | | | | |
| 295. | Which is the reducing agent in the reaction, | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 296. | Which is a redox reaction? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 297. | Which one of the following reactions involves disproportionation? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 298. | The oxidation state of chromium in the final product formed by the reaction between KI and acidified potassium dichromate solution is | | | | | | | |
|  | a) | +3 | b) | +2 | c) | +6 | d) | +4 |
| 299. | Which of the following acts as an oxidising as well as reducing agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 300. | Oxidation state of carbon in graphite is: | | | | | | | |
|  | a) | Zero | b) | +1 | c) | +4 | d) | +2 |
| 301. | Which compound has oxidation number of carbon equal to zero? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 302. | In the reaction, the reduction product is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 303. | The oxidation number of phosphorus in is : | | | | | | | |
|  | a) | + 5 | b) |  | c) | +6 | d) |  |
| 304. | 1 mole of chlorine combines with a certain weight of a metal giving 111 g of its chloride. The atomic weight of the metal (assuming its valency to be 2) is : | | | | | | | |
|  | a) | 40 | b) | 20 | c) | 80 | d) | None of these |
| 305. | Oxidation state of chromium | | | | | | | |
|  | a) | +10 | b) | +6 | c) | +3 | d) | +2 |
| 306. | Oxidation states of the metal in the minerals haematite and magnetite, respectively, are | | | | | | | |
|  | a) | II, III in haematite and III in magnetite | | | b) | II, III in haematite and II in magnetite | | |
|  | c) | II in haematite and II, III in magnetite | | | d) | III in haematite and II, III in magnetite | | |
| 307. | The colour of changes from red-orange to lemon-yellow on treatment with because of : | | | | | | | |
|  | a) | Reduction of (VI) to (III) | | | | | | | |
|  | b) | Formation of chromium hydroxide | | | | | | | |
|  | c) | Conversion of dichromate into chromate ion | | | | | | | |
|  | d) | Oxidation of potassium hydroxide to potassium peroxide | | | | | | | |
| 308. | How many electrons are involved in oxidation of in basic medium? | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 5 | d) | 3 |
| 309. | The oxidation state of nitrogen in is : | | | | | | | |
|  | a) | −3 and +5 | b) | +3 and +5 | c) | +5 | d) | +3 |
| 310. | When chloride is treated with excess is formed. The oxidation state of in this complex is: | | | | | | | |
|  | a) | +6 | b) | −2 | c) | +4 | d) | −5 |
| 311. | Oxidation number of chlorine in is : | | | | | | | |
|  | a) | Zero | b) | −1 | c) | +1 | d) | +2 |
| 312. | In the reaction, acts as : | | | | | | | |
|  | a) | An oxidising agent | | | | | | | |
|  | b) | An acid | | | | | | | |
|  | c) | An acid as well as oxidising agent | | | | | | | |
|  | d) | A reducing agent | | | | | | | |
| 313. | Change of hydrogen into proton is : | | | | | | | |
|  | a) | Oxidation of hydrogen | | | | | | | |
|  | b) | Acid-base reaction | | | | | | | |
|  | c) | Reduction of hydrogen | | | | | | | |
|  | d) | Displacement reaction | | | | | | | |
| 314. | 8 g of sulphur are burnt to form which is oxidised by water. The solution is treated with solution. The amount of precipitated is : | | | | | | | |
|  | a) | 1.0 mole | b) | 0.5 mole | c) | 0.24 mole | d) | 0.25 mole |
| 315. | The number of mole of ferrous oxalate oxidised by one mole of is: | | | | | | | |
|  | a) | 1/5 | b) | 3/5 | c) | 2/3 | d) | 5/3 |
| 316. | Reactants react in the equal number of …….. to give products. | | | | | | | |
|  | a) | Mole | b) | Weights | c) | Equivalent | d) | All of these |
| 317. | Mole and millimole of reactants react in the ……….as represented by balanced stoichiometric equation. | | | | | | | |
|  | a) | Molar ratio | b) | Equal amount | c) | Both (a) and (b) | d) | None of these |
| 318. | The reaction of white phosphorus with aqueous gives phosphine along with another phosphorus containing compound. The reaction type the oxidation states of phosphorus in phosphine and the other product are respectively : | | | | | | | |
|  | a) | Redox reaction; −3 and −5 | | | | | | | |
|  | b) | Redox reaction; +3 and +5 | | | | | | | |
|  | c) | Disproportionation reaction; −3 and +1 | | | | | | | |
|  | d) | Disproportionation reaction; −3 and +3 | | | | | | | |
| 319. | Which can act only as oxidising agent? | | | | | | | |
|  | a) | Oxygen | b) | Fluorine | c) | Iodine | d) |  |
| 320. | For the reaction : ; if and are equivalent masses of and respectively, then is : | | | | | | | |
|  | a) | 1 | b) | 2 | c) | 3 | d) | 4 |
| 321. | Bleaching action of is due to : | | | | | | | |
|  | a) | Reduction | b) | Oxidation | c) | Hydrolysis | d) | Acidic nature |
| 322. | In is : | | | | | | | |
|  | a) | Oxidised | b) | Reduced | c) | Both (a) and (b) | d) | None of these |
| 323. | If three electrons are lost by a metal ion its final oxidation number will be : | | | | | | | |
|  | a) | Zero | b) | +6 | c) | +2 | d) | +4 |
| 324. | In the reaction, : | | | | | | | |
|  | a) | is oxidised | | | | | | | |
|  | b) | is reduced | | | | | | | |
|  | c) | Both and are reduced | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 325. | Which of the following acts as an oxidizing agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 326. | How many gram of are present in a solution which requires 40 mL, of 0.11 to react with it, | | | | | | | |
|  | a) | 12.7 g | b) | 0.558 g | c) | 25.4 g | d) | 11.4 g |
| 327. | The number of mole of that will be needed to react with one mole of sulphite ion in acidic solution is : | | | | | | | |
|  | a) | 2/5 | b) | 3/5 | c) | 4/5 | d) | 1 |
| 328. | What weight of is required to make 1 litre of 2 solution to be used as an oxidising agent in the reaction? | | | | | | | |
|  | a) | 63 g | b) | 21 g | c) | 42 g | d) | 84 g |
| 329. | The oxidation state of two sulphur atoms in | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 330. | In a conjugate pair of reductant and oxidant, the oxidant has : | | | | | | | |
|  | a) | Higher ox.no. | b) | Lower ox.no. | c) | Same ox.no. | d) | Either of these |
| 331. | In the equation, . The equivalent weight of hydrogen sulphide is : | | | | | | | |
|  | a) | 17 | b) | 34 | c) | 68 | d) | 18 |
| 332. | In which transfer of five electrons takes place? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 333. | Oxidation number of nitrogen is highest in | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 334. | Starch gives blue colour with : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None of these |
| 335. | The number of mole of potassium salt, oxidised by one mole of permanganate ion is : | | | | | | | |
|  | a) | 2/5 | b) | 4/5 | c) | 1 | d) | 5/4 |
| 336. | When an acidified solution of ferrous ammonium sulphate is treated with solution, the ion which is oxidised is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 337. | Oxidation number of N in is : | | | | | | | |
|  | a) | −3 | b) | +3 | c) | Zero | d) | −1/3 |
| 338. | Hydrogen peroxide in aqueous solution decomposes on warming to give oxygen according to the equation, under conditions where one mole of gas occupies 24 of solution of produces 3 of . Thus, is : | | | | | | | |
|  | a) | 2.5 | b) | 1 | c) | 0.5 | d) | 0.25 |
| 339. | and KI on mixing gives : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 340. | Which metal exhibits more than one oxidation states? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 341. | Which of the following oxidation state is the most common among the lanthanoides : | | | | | | | |
|  | a) | 4 | b) | 2 | c) | 5 | d) | 3 |
| 342. | 13.5 g aluminium changes to in solution by losing : | | | | | | | |
|  | a) | electrons | | | | | | | |
|  | b) | electrons | | | | | | | |
|  | c) | electrons | | | | | | | |
|  | d) | electrons | | | | | | | |
| 343. | In the oxidation number of is : | | | | | | | |
|  | a) |  | b) | +2 | c) | Zero | d) | +4 |
| 344. | In the compounds the highest oxidation state is of the element | | | | | | | |
|  | a) | Mn | b) | K | c) | O | d) | Cr |
| 345. | The oxidation state of nitrogen varies from : | | | | | | | |
|  | a) | −3 to +5 | b) | 0 to +5 | c) | −3 to 1 | d) | +3 to +5 |
| 346. | The oxidation state of hydrogen in is : | | | | | | | |
|  | a) | +1 | b) |  | c) | Zero | d) | +2 |
| 347. | The most common oxidation state of an element is —2. The number of electrons present in its outermost shell is : | | | | | | | |
|  | a) | 2 | b) | 4 | c) | 6 | d) | 8 |
| 348. | A good indicator must possess the following characteristics : | | | | | | | |
|  | a) | The colour change should be sharp | | | | | | | |
|  | b) | The colour change should be clear | | | | | | | |
|  | c) | It must be sensitive to the equivalent point | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 349. | The oxidation number of Xe in and is | | | | | | | |
|  | a) | +6 | b) | +4 | c) | +1 | d) | +3 |
| 350. | The oxidation number of arsenic in arsenate is : | | | | | | | |
|  | a) | +5 | b) | +4 | c) | +6 | d) | +2 |
| 351. | The reaction,  is an example of | | | | | | | |
|  | a) | Reduction | b) | Oxidation | c) | Disproportionation | d) | None of these |
| 352. | During the presence of and in a mixture, on addition of dil. one notice that: | | | | | | | |
|  | a) | and are not formed | | | | | | | |
|  | b) | and formed during change undergoes a redox change forming colloidal sulphur and thus, no smell | | | | | | | |
|  | c) | A smell of burning sulphur | | | | | | | |
|  | d) | A smell of rotten egg | | | | | | | |
| 353. | Which is not an oxidising agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 354. | The charge on cobalt in is : | | | | | | | |
|  | a) | −6 | b) | +3 | c) | −3 | d) | +6 |
| 355. | The most stable oxidation state of chromium is : | | | | | | | |
|  | a) | + 5 | b) | + 3 | c) | + 2 | d) | + 4 |
| 356. | Arrange the following as increase in oxidation number  (i) (ii)  (iii) (iv) | | | | | | | |
|  | a) | (i)>(ii)>(iii)>(iv) | b) | (i)<(ii)<(iv)<(iii) | c) | (ii)<(iii)<(i)<(iv) | d) | (iii)>(i)>(iv)>(ii) |
| 357. | What mass of is reduced by 35 mL of 0.16 oxalic acid in acidic solution? The skeleton equation is, | | | | | | | |
|  | a) | 8.7 g | b) | 0.24 g | c) | 0.84 g | d) | 43.5 g |
| 358. | Stronger is oxidising agent, more is; | | | | | | | |
|  | a) | Standard reduction potential of that species | | | | | | | |
|  | b) | The tendency to get itself oxidised | | | | | | | |
|  | c) | The tendency to lose electrons by that species | | | | | | | |
|  | d) | Standard oxidation potential of that species | | | | | | | |
| 359. | How many g of are needed to prepare 3.75 litre of 0.850 solution if is reduced as, ? | | | | | | | |
|  | a) | 101 g | b) | 202 g | c) | 50.5 g | d) | 303.0 g |
| 360. | When is reduced with oxalic acid in acid medium, the oxidation number of changes from: | | | | | | | |
|  | a) | +7 to +4 | b) | +6 to +4 | c) | +7 to +2 | d) | +4 to +2 |
| 361. | Addition of zinc powder to solution precipitates copper due to : | | | | | | | |
|  | a) | Reduction of | b) | Reduction of | c) | Reduction of | d) | Hydrolysis of |
| 362. | Titrations in which liberated is estimated to carry out the volumetric estimations are known as ….titrations. | | | | | | | |
|  | a) | Iodometric | b) | Iodimetric | c) | Acidimetric | d) | Alkalimetric |
| 363. | In the course of chemical reaction, an oxidant : | | | | | | | |
|  | a) | Loses electron | b) | Gains electron | c) | Either of these | d) | None of these |
| 364. | In alkaline condition reacts as follows :  The eq. wt. of is : | | | | | | | |
|  | a) | 52.7 | b) | 158 | c) | 31.6 | d) | 79 |
| 365. | Oxidation number of nitrogen in is: | | | | | | | |
|  | a) | +5 | b) |  | c) | +3 | d) |  |
| 366. | Total number of molecules in a sample of containing ions of is : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 367. | Oxidation number of N in is : | | | | | | | |
|  | a) | +3 | b) | +2 | c) | +1 | d) | +4 |
| 368. | The oxidation state of chlorine is highest in the compound : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 369. | How many gram of are contained in 4 litre of 0.05 solution? The is to be used as an oxidant in acidic medium : | | | | | | | |
|  | a) | 1.58 g | b) | 15.8 g | c) | 6.32 g | d) | 31.6 g |
| 370. | The reaction; shows : | | | | | | | |
|  | a) | Acidic nature of | | | | | | | |
|  | b) | Alkaline nature of | | | | | | | |
|  | c) | Oxidising action of | | | | | | | |
|  | d) | Reducing action of | | | | | | | |
| 371. | For redox reaction,    coefficient of reactants in balanced states are | | | | | | | |
|  | a) | 2 5 16 | | | b) | 16 5 2 | | |
|  | c) | 5 16 2 | | | d) | 2 16 5 | | |
| 372. | Chlorine has +1 oxidation state in : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 373. | Which statement is incorrect? | | | | | | | |
|  | a) | Oxidation of a substance is followed by reduction of another | | | | | | | |
|  | b) | Reduction of a substance is followed by oxidation of another | | | | | | | |
|  | c) | Oxidation and reduction are complementary reactions | | | | | | | |
|  | d) | It is not necessary that both oxidation and reduction should take place in the same reaction | | | | | | | |
| 374. | In the standardization of using by iodometry, the equivalent weight of is : | | | | | | | |
|  | a) | (molecular weight)/2 | | | | | | | |
|  | b) | (molecular weight)/6 | | | | | | | |
|  | c) | (molecular weight)/3 | | | | | | | |
|  | d) | Same as molecular weight | | | | | | | |
| 375. | When is passed in a solution of potassium iodate, the oxidation state of iodine changes from : | | | | | | | |
|  | a) | +5 to 0 | b) | +5 to −1 | c) | −5 to 0 | d) | −7 to −1 |
| 376. | The halogen that shows same oxidation state in all its compounds with other elements is: | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 377. | The reaction,  is an example of | | | | | | | |
|  | a) | Disproportionation reaction | | | b) | Neutralisation reaction | | |
|  | c) | Double-decomposition reaction | | | d) | Pyrolytic reaction | | |
| 378. | Titrations in which solution is used as intermediate are known as ….titrations. | | | | | | | |
|  | a) | Iodometric | b) | Iodimetric | c) | Acidimetric | d) | alkalimetric |
| 379. | In the reaction,, which element is reduced? | | | | | | | |
|  | a) | I | b) | O | c) | H | d) | Cr |
| 380. | Carbon reacts with oxygen to form two oxides, and . This is because : | | | | | | | |
|  | a) | Carbon has two crystalline forms | | | | | | | |
|  | b) | Carbon has two oxidation states | | | | | | | |
|  | c) | Oxygen donates as well as accept electrons | | | | | | | |
|  | d) | Oxygen has a strong affinity for carbon | | | | | | | |
| 381. | How many milliliter of 0.5 solution will reduce 600 mL of 0.1 to ? | | | | | | | |
|  | a) | 120 mL | b) | 60 mL | c) | 30 mL | d) | 240 mL |
| 382. | What weight of (mol. wt. =152) will be oxidised by 200 mL of normal solution in acidic solution? | | | | | | | |
|  | a) | 30.4 g | b) | 60.8 g | c) | 121.6 g | d) | 15.8 g |
| 383. | How many milligram of iron ( are equal to 1 mL of 0.1055 equivalent? | | | | | | | |
|  | a) | 5.9 mg | b) | 0.59 mg | c) | 59 mg | d) | mg |
| 384. | Number of moles of required to oxidise one mole of ferrous oxalate completely in acidic medium will be : | | | | | | | |
|  | a) | 0.4 mole | b) | 7.5 mole | c) | 0.2 mole | d) | 0.6 mole |
| 385. | and are three elements forming a part of compound in oxidation states of +2, +5 and −2 respectively. What could be the compound? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 386. | In an oxidation process for a cell the other metal being univalent showing reduction takes up the …..electrons to complete redox reaction. | | | | | | | |
|  | a) |  | b) | 1 | c) |  | d) | 2 |
| 387. | In which of the following reactions, chlorine acts as an oxidising agent?  The correct answer is | | | | | | | |
|  | a) | (i) only | | | | | | | |
|  | b) | (ii) only | | | | | | | |
|  | c) | (i) and (iii) | | | | | | | |
|  | d) | (i),(ii) and (iii) | | | | | | | |
| 388. | During a redox change, the oxidant is always reduced to : | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 389. | When potassium permanganate is titrated against ferrous ammonium sulphate, the equivalent weight of potassium permanganate is : | | | | | | | |
|  | a) | Molecular weight/10 | b) | Molecular weight/5 | c) | Molecular weight/2 | d) | Molecular weight |
| 390. | Which conversion is an oxidation? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 391. | In which case +1 oxidation state is stable than +3? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 392. | In the reduction of dichromate by Fe(II), the number of electrons involved per chromium atom is : | | | | | | | |
|  | a) | 3 | b) | 1 | c) | 2 | d) | 4 |
| 393. | When is converted into the change in oxidation number of chromium is | | | | | | | |
|  | a) | 0 | b) | 5 | c) | 7 | d) | 9 |
| 394. | Which of the following acts as both an oxidizing as well as reducing agent? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 395. | In which of the following compounds, nitrogen exhibits highest oxidation state? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 396. | 1 mole of in neutral aqueous medium disproportionates to : | | | | | | | |
|  | a) | mole of and mole of | | | | | | | |
|  | b) | mole of and mole of | | | | | | | |
|  | c) | mole of and mole of | | | | | | | |
|  | d) | mole of and mole of | | | | | | | |
| 397. | Which one of the compound does not decolourised an acidified solution of ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 398. | When one mole of reacts with HCl, the volume of chlorine liberated at NTP will be: | | | | | | | |
|  | a) | 11.2 litre | b) | 22.4 litre | c) | 44.8 litre | d) | 56.0 litre |
| 399. | What would happen when a small quantity of is added to a solution of ? | | | | | | | |
|  | a) | Colour disappears | | | | | | | |
|  | b) | is evolved | | | | | | | |
|  | c) | An electron is added to | | | | | | | |
|  | d) | An electron is lost by | | | | | | | |
| 400. | The oxidation state of I in is | | | | | | | |
|  | a) | +1 | b) | +3 | c) | +5 | d) | +7 |
| 401. | The number of moles of reduced by one mole of in alkaline medium is | | | | | | | |
|  | a) | 1 | b) | 5 | c) | ½ | d) | 1/5 |
| 402. | A 0.50 solution of KI reacts with excess of and solutions according to the equation, . Which of the following statements is true? | | | | | | | |
|  | a) | 200 mL of the KI solution reacts with 0.10 mole . | | | | | | | |
|  | b) | 100 mL of the KI solution reacts with 0.060 of . | | | | | | | |
|  | c) | 0.5 litre of the KI solution produces 0.15 mole of | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 403. | Oxidation number of chromium in is : | | | | | | | |
|  | a) | +2 | b) | +3 | c) | +6 | d) | —4 |
| 404. | A standard solution is one whose : | | | | | | | |
|  | a) | Concentration is 1 *M* | | | | | | | |
|  | b) | Concentration is unknown | | | | | | | |
|  | c) | Concentration is known | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 405. | In the reaction, the substance oxidised is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 406. | Oxidation number of P in ion is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 407. | The oxidation number that iron does not exhibit in its common compounds or in its elemental state is : | | | | | | | |
|  | a) | Zero | b) | +1 | c) | +2 | d) | +3 |
| 408. | Oxidation number of Cl in is : | | | | | | | |
|  | a) | +7 | b) | −7 | c) | +5 | d) | −5 |
| 409. | In which reaction is hydrogen acting as an oxidising agent? | | | | | | | |
|  | a) | With iodine to give hydrogen iodide | | | | | | | |
|  | b) | With lithium to give lithium hydride | | | | | | | |
|  | c) | With nitrogen to give ammonia | | | | | | | |
|  | d) | With sulphur to give hydrogen sulphide | | | | | | | |
| 410. | In presence of moisture can : | | | | | | | |
|  | a) | Gain electrons | | | | | | | |
|  | b) | Lose electrons | | | | | | | |
|  | c) | Act as oxidising agent | | | | | | | |
|  | d) | Does not act as reducing agent | | | | | | | |
| 411. | The oxidation number of Mn in is : | | | | | | | |
|  | a) | +4 | b) | +6 | c) | +2 | d) | −4 |
| 412. | Which is not correct in case of Mohr’s salt? | | | | | | | |
|  | a) | It decolourises | | | | | | | |
|  | b) | It is primary standard | | | | | | | |
|  | c) | It is a double salt | | | | | | | |
|  | d) | Oxidation state of is +3 in the salt | | | | | | | |
| 413. | In the reduction of dichromate by Fe (II), the number of electrons involved per chromium atom is : | | | | | | | |
|  | a) | 3 | b) | 1 | c) | 2 | d) | 4 |
| 414. | Which of the following is a redox reaction? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 415. | What volume of 2 solution is required to oxidise 0.81 g of in acidic medium? | | | | | | | |
|  | a) | 47.8 mL | b) | 23.8 mL | c) | 40 mL | d) | 72 mL |
| 416. | Oxidation number of As atom in is : | | | | | | | |
|  | a) | +5 | b) | +6 | c) | +4 | d) | −3 |
| 417. | In the following change, . If the atomic weight of iron is 56, then its equivalent weight will be : | | | | | | | |
|  | a) | 42 | b) | 21 | c) | 63 | d) | 84 |
| 418. | In permonosulphuric acid ( the oxidation number of sulphur is | | | | | | | |
|  | a) | +8 | b) | +4 | c) | +5 | d) | +6 |
| 419. | The reaction,  is an example of | | | | | | | |
|  | a) | Reduction | b) | Oxidation | c) | Comproportionation | d) | Disproportionation |
| 420. | Amount of oxalic acid present in a solution can be determined by its titration with solution in the presence of . The titration gives unsatisfactory result when carried out in the presence of HCl, because HCl : | | | | | | | |
|  | a) | Oxidises oxalic acid to carbon dioxide and water | | | | | | | |
|  | b) | Gets oxidized by oxalic acid to chlorine | | | | | | | |
|  | c) | Furnishes ions in addition to those from oxalic acid | | | | | | | |
|  | d) | Reduces permanganate to | | | | | | | |
| 421. | Which is not a redox change? | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) |  | | | | | | | |
|  | d) |  | | | | | | | |
| 422. | Sulphurous acid can be used as : | | | | | | | |
|  | a) | Oxidising agent | b) | Reducing agent | c) | Bleaching agent | d) | All of these |

**ACTIVE SITE TUTORIALS**

**Date :** 23-07-2019 **TEST ID: 140**

**Time :** 07:02:00 **CHEMISTRY**

**Marks :** 1688

8.REDOX REACTIONS

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1) c 2) c 3) a 4) d**  **5) a 6) d 7) d 8) b**  **9) c 10) d 11) c 12) d**  **13) d 14) b 15) d 16) b**  **17) d 18) a 19) c 20) a**  **21) b 22) a 23) b 24) c**  **25) a 26) a 27) d 28) a**  **29) a 30) d 31) c 32) a**  **33) a 34) a 35) d 36) c**  **37) a 38) a 39) b 40) a**  **41) a 42) d 43) c 44) a**  **45) c 46) c 47) a 48) b**  **49) b 50) b 51) b 52) c**  **53) a 54) a 55) d 56) c**  **57) a 58) a 59) b 60) c**  **61) a 62) a 63) a 64) c**  **65) d 66) c 67) b 68) b**  **69) a 70) b 71) a 72) b**  **73) d 74) a 75) c 76) b**  **77) d 78) b 79) b 80) d**  **81) a 82) d 83) c 84) a**  **85) d 86) b 87) c 88) a**  **89) c 90) b 91) a 92) b**  **93) b 94) a 95) d 96) c**  **97) b 98) c 99) b 100) b**  **101) c 102) b 103) a 104) a**  **105) a 106) b 107) b 108) a**  **109) b 110) a 111) b 112) d**  **113) a 114) a 115) d 116) d**  **117) c 118) b 119) d 120) b**  **121) b 122) a 123) b 124) a**  **125) c 126) a 127) a 128) a**  **129) d 130) a 131) a 132) b**  **133) c 134) b 135) a 136) d**  **137) b 138) a 139) c 140) a**  **141) c 142) b 143) b 144) b**  **145) a 146) c 147) a 148) d**  **149) c 150) c 151) b 152) b**  **153) d 154) a 155) b 156) a**  **157) a 158) a 159) c 160) d**  **161) a 162) d 163) a 164) a**  **165) a 166) a 167) d 168) a**  **169) c 170) b 171) a 172) c**  **173) c 174) a 175) b 176) c**  **177) b 178) d 179) c 180) a**  **181) a 182) c 183) d 184) a**  **185) c 186) a 187) c 188) d**  **189) a 190) c 191) a 192) b**  **193) c 194) a 195) a 196) b**  **197) b 198) b 199) c 200) d**  **201) d 202) c 203) d 204) a**  **205) b 206) b 207) a 208) c**  **209) d 210) a 211) d 212) c**  **213) b 214) c 215) d 216) c**  **217) b 218) d 219) c 220) d**  **221) b 222) c 223) a 224) a**  **225) a 226) b 227) b 228) b**  **229) a 230) b 231) c 232) b**  **233) c 234) c 235) a 236) a**  **237) d 238) c 239) c 240) c**  **241) b 242) a 243) d 244) b**  **245) d 246) a 247) d 248) a**  **249) a 250) c 251) b 252) d**  **253) a 254) a 255) c 256) a**  **257) b 258) c 259) a 260) c**  **261) a 262) d 263) b 264) c**  **265) a 266) b 267) c 268) b**  **269) c 270) c 271) b 272) c**  **273) b 274) b 275) c 276) c**  **277) a 278) a 279) d 280) a**  **281) c 282) a 283) a 284) c**  **285) d 286) c 287) a 288) a**  **289) a 290) d 291) d 292) b**  **293) d 294) c 295) a 296) d**  **297) c 298) a 299) d 300) a**  **301) d 302) b 303) a 304) c**  **305) b 306) d 307) c 308) a**  **309) a 310) c 311) c 312) a**  **313) a 314) d 315) d 316) c**  **317) a 318) c 319) b 320) a**  **321) a 322) c 323) b 324) a**  **325) d 326) b 327) a 328) c**  **329) c 330) a 331) a 332) a**  **333) b 334) b 335) d 336) a**  **337) d 338) a 339) c 340) d**  **341) d 342) d 343) c 344) a**  **345) a 346) b 347) c 348) d**  **349) b 350) a 351) d 352) b**  **353) c 354) b 355) b 356) b**  **357) b 358) a 359) a 360) c**  **361) a 362) a 363) b 364) b**  **365) a 366) d 367) a 368) d**  **369) c 370) c 371) a 372) c**  **373) d 374) b 375) a 376) b**  **377) a 378) b 379) d 380) b**  **381) a 382) a 383) a 384) d**  **385) c 386) c 387) d 388) c**  **389) b 390) d 391) c 392) a**  **393) a 394) b 395) a 396) a**  **397) b 398) d 399) d 400) b**  **401) a 402) c 403) c 404) c**  **405) a 406) b 407) b 408) a**  **409) b 410) b 411) a 412) d**  **413) a 414) d 415) b 416) a**  **417) b 418) d 419) c 420) d**  **421) a 422) d** | | | | |

**ACTIVE SITE TUTORIALS**

**Date :** 23-07-2019 **TEST ID: 140**

**Time :** 07:02:00 **CHEMISTRY**

**Marks :** 1688

8.REDOX REACTIONS

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | **(c)**  MN can exhibit + 7 oxidation no. | | | | | | | |
| 2 | **(c)**  Indicators are the substances which indicates the completion of a reaction. | | | | | | | |
| 3 | **(a)**  Or | | | | | | | |
| 4 | **(d)**  factor = 0.6/3 = 0.2 | | | | | | | |
| 5 | **(a)**  is reduced. | | | | | | | |
| 6 | **(d)**    In this reaction Cu and Fe undergo reduction while sulphur undergoes oxidation. Hence, this is a redox reaction. | | | | | | | |
| 7 | **(d)**  ---do---- | | | | | | | |
| 8 | **(b)** | | | | | | | |
| 9 | **(c)**  N has +3 ox.no. which may increase (upto +5) or decrease (upto −3) | | | | | | | |
| 10 | **(d)**  is sodium peroxide. | | | | | | | |
| 11 | **(c)**  Acidified solution oxidises into  +4 +6    Hence, oxidation state of sulphur changes from +4 to +6. | | | | | | | |
| 12 | **(d)**  Electronation is gain of electrons i.e., | | | | | | | |
| 13 | **(d)**  Thus, there are lose of 8 electrons in the reaction | | | | | | | |
| 14 | **(b)**  It is definition of volumetric analysis. | | | | | | | |
| 15 | **(d)**  Oxidation takes place at anode (c) is not feasible, is not oxidised to under given conditions. Hence, option (d) is correct. | | | | | | | |
| 16 | **(b)**  or  Thus, | | | | | | | |
| 17 | **(d)**  Carbon in oxalic acid has +3 oxidation state which may be increases to +4 (in and thus, can act as reductant. Rest all have highest oxidation number. Ox.no. of N, Mn and S in | | | | | | | |
| 18 | **(a)** | | | | | | | |
| 19 | **(c)** | | | | | | | |
| 20 | **(a)**  is reducing and complexing agent. | | | | | | | |
| 21 | **(b)**  Ammonia solvated electrons are strongly reducing, impart blue colour to solution and are good conductor of current. | | | | | | | |
| 22 | **(a)**  is a mixture of and | | | | | | | |
| 23 | **(b)**  is isomorphous to, | | | | | | | |
| 24 | **(c)**  Hence, changes in oxidation number are 5,1,3,4. | | | | | | | |
| 25 | **(a)**  Alkaline earth metals have only +2 ox.no. in combined state. | | | | | | | |
| 26 | **(a)**  Alkali metals are strongest reducing agents. | | | | | | | |
| 27 | **(d)** | | | | | | | |
| 28 | **(a)**  . | | | | | | | |
| 29 | **(a)** | | | | | | | |
| 30 | **(d)** | | | | | | | |
| 31 | **(c)** | | | | | | | |
| 32 | **(a)** | | | | | | | |
| 33 | **(a)**  Oxygen shows 1 oxidation state in | | | | | | | |
| 34 | **(a)**    On adding Eq. (i) and (ii), we get  To balance O atom, add molecules on RHS and on LHS, then  or | | | | | | | |
| 35 | **(d)**  Cl has +7 ox.no. in . | | | | | | | |
| 36 | **(c)**  ;  ⟶ | | | | | | | |
| 37 | **(a)**  Oxidation number in elemental form is zero. Co-valency is two because of S−S−S−S−chain. | | | | | | | |
| 38 | **(a)**  ∴ Total charge on cation or anion = +6 | | | | | | | |
| 39 | **(b)**  is carbon sub-oxide.  Thus, | | | | | | | |
| 40 | **(a)**  (Redox change) | | | | | | | |
| 41 | **(a)**  Oxidation state of oxygen in is is the intermediate oxidation state of oxygen. | | | | | | | |
| 42 | **(d)**  S of is reduced. | | | | | | | |
| 43 | **(c)** | | | | | | | |
| 44 | **(a)**  Ox.no. of alkali metals is always + 1. | | | | | | | |
| 45 | **(c)**    Only this reaction involves oxidation and reduction. | | | | | | | |
| 46 | **(c)** | | | | | | | |
| 47 | **(a)** | | | | | | | |
| 48 | **(b)** | | | | | | | |
| 49 | **(b)** | | | | | | | |
| 50 | **(b)**  Or | | | | | | | |
| 51 | **(b)**  The oxidation state of N are +5, +2, 0 and −3 in and respectively. | | | | | | | |
| 52 | **(c)**  The oxidation state of iodine in as  The oxidation state of iodine in is +7 as  3  The oxidation state of iodine in is +7 as  5 | | | | | | | |
| 53 | **(a)**  is reduced to . | | | | | | | |
| 54 | **(a)**  S of is reduced. | | | | | | | |
| 55 | **(d)**  The characteristics of oxidant. Note these. | | | | | | | |
| 56 | **(c)** | | | | | | | |
| 57 | **(a)**  Meq. of bleaching powder = Meq. of = Meq. of hypo | | | | | | | |
| 58 | **(a)** | | | | | | | |
| 59 | **(b)** | | | | | | | |
| 60 | **(c)**  5 mole ≡ 2 mole | | | | | | | |
| 61 | **(a)**  Caro’s acid is It has a peroxide linkage so, oxidation state of S is    Let the oxidation state of S is | | | | | | | |
| 62 | **(a)**  The formula for Eq. wt. of reductant or oxidant. | | | | | | | |
| 63 | **(a)** | | | | | | | |
| 64 | **(c)**  No doubt oxygen is taken in respiration, but oxidant-reduction occur simultaneously. | | | | | | | |
| 65 | **(d)**  1 4 6  2 6 3 | | | | | | | |
| 66 | **(c)**  Both and show + 8 ox.no. | | | | | | | |
| 67 | **(b)**  Two oxygen atom have peroxide linkage, ( oxidation number) and six have −2 ox.no.  Thus, | | | | | | | |
| 68 | **(b)** | | | | | | | |
| 69 | **(a)**  mL | | | | | | | |
| 70 | **(b)**  thus, matter is oxidised by liberated oxygen. | | | | | | | |
| 72 | **(b)** | | | | | | | |
| 73 | **(d)**  Addition of KI to makes it dark brown. | | | | | | | |
| 74 | **(a)**  Mn is stronger oxidising agent in +7 oxidation state. | | | | | | | |
| 75 | **(c)**  (reduction)...(i)  (oxidation)…(ii)  Eq.(ii)is multiplied by 6    Thus, balanced equation is  Hence, the value of ‘’ is 6. | | | | | | | |
| 76 | **(b)**  Possible product is | | | | | | | |
| 77 | **(d)**  Find oxidation number of P in each. | | | | | | | |
| 78 | **(b)**  Let the oxidation number of Cr is in  6  and in the oxidation number of Cr is  Hence, oxidation number of Cr changes from +6 to +3. | | | | | | | |
| 79 | **(b)**  Find oxidation no.in each. | | | | | | | |
| 80 | **(d)** | | | | | | | |
| 81 | **(a)**  The sum of oxidation states of all elements in an ion is equal to charge on it.  Let the oxidation state of S in  Or | | | | | | | |
| 82 | **(d)** | | | | | | | |
| 83 | **(c)**  Oxidation number of iodine in given species is as follows  O.N. of iodine in =+3  O.N. of iodine in  O.N. of iodine in =+5  O.N. of iodine in | | | | | | | |
| 84 | **(a)** | | | | | | | |
| 85 | **(d)**    Suppose O.N. of O = suppose  O.N. of O = | | | | | | | |
| 86 | **(b)** | | | | | | | |
| 87 | **(c)**  Os and Ru show +8 oxidation number. | | | | | | | |
| 88 | **(a)**  Thus, is needed in the same Meq. ratio. | | | | | | | |
| 89 | **(c)** | | | | | | | |

|  |  |
| --- | --- |
| 90 | **(b)**  Meq. of = Meq. of  = 0.2 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 92 | **(b)**  Thus, is to be reduced by a reducing agent. | | | | | | | |
| 93 | **(b)** | | | | | | | |
| 94 | **(a)**  is oxidant; and are also oxidant. | | | | | | | |
| 96 | **(c)**  None of elements in reaction (c) undergoes a change in oxidation number, therefore reaction (c) is not a redox reaction    It is a double decomposition reaction | | | | | | | |
| 97 | **(b)**  is salt of which has the following structure    Difference in oxidation number of two types of sulphur = 5 | | | | | | | |
| 98 | **(c)**  Sum of oxidation no. of atoms in it is zero. | | | | | | | |
| 99 | **(b)** | | | | | | | |
| 100 | **(b)** | | | | | | | |
| 101 | **(c)**  Electronic configuration of  More stable due to  half filled *d* | | | | | | | |
| 102 | **(b)**  5 milli mole of are left. | | | | | | | |
| 103 | **(a)**  K − C ≡ N  N is more electronegative and thus, has oxidation number as it involves three covalent bonds.  Thus, | | | | | | | |
| 104 | **(a)**  Ox.no.of Ni is equal to zero. | | | | | | | |
| 105 | **(a)** | | | | | | | |
| 106 | **(b)**  Mn has +6 ox.no. in and +2 ox.no. in | | | | | | | |
| 107 | **(b)**  In reaction 0 +1 -1  The oxidation number of bromine increases from 0 to +1 and decreases from 0 to , so due to this reason bromine is both oxidised as well as reduced in the above reaction. | | | | | | | |
| 108 | **(a)** | | | | | | | |
| 109 | **(b)**  in has −1 ox.no. and thus, easily oxidized. | | | | | | | |
| 110 | **(a)**  NO in iron complex has +1 ox.no.  Thus, | | | | | | | |
| 111 | **(b)**  Let the oxidation state of Fe in =  Or 3 | | | | | | | |
| 112 | **(d)** | | | | | | | |
| 113 | **(a)** | | | | | | | |
| 114 | **(a)** | | | | | | | |
| 115 | **(d)** | | | | | | | |
| 116 | **(d)**  Find oxidation number of iodine in each. | | | | | | | |
| 117 | **(c)**  . | | | | | | | |
| 118 | **(b)** | | | | | | | |
| 119 | **(d)**     |  | | --- | |  |   Hence, number of moles of produced =3 | | | | | | | |
| 120 | **(b)**  is itself reduced. | | | | | | | |
| 121 | **(b)** | | | | | | | |
| 122 | **(a)**  Oxidation involves loss of electrons and reduction involves gain of electrons, hence in case of oxidation-reduction reactions(redox reactions)charge remains conserved | | | | | | | |
| 123 | **(b)**  Ni is oxidized and thus, reductant. | | | | | | | |
| 124 | **(a)**  -1  +6 0 +4  oxidising  agent | | | | | | | |
| 125 | **(c)**  . | | | | | | | |
| 126 | **(a)**    The oxidation number of S increases from to 0 in elemental sulphur and hence, gets oxidized | | | | | | | |
| 127 | **(a)**  has zero oxidation state of S.  In  In | | | | | | | |
| 128 | **(a)**  Cr in has +6 and Mn in has +7 oxidation number respectively, the highest value for them. | | | | | | | |
| 129 | **(d)**  F is more electronegative than oxygen. | | | | | | | |
| 130 | **(a)**  Oxidation number of Cl in  1 | | | | | | | |
| 131 | **(a)** | | | | | | | |
| 132 | **(b)**  In ionic hydrides, H has ox.no. | | | | | | | |
| 133 | **(c)**  Let the oxidation number of Xe is in | | | | | | | |
| 134 | **(b)**  No change in ox.no. of any species. | | | | | | | |
| 135 | **(a)** | | | | | | | |
| 136 | **(d)**  Both are same. | | | | | | | |
| 137 | **(b)** | | | | | | | |
| 138 | **(a)**  Let oxidation state of P in | | | | | | | |
| 139 | **(c)** | | | | | | | |
| 140 | **(a)**  Calculate ox.no. of S by assuming and | | | | | | | |
| 141 | **(c)**  Steam is reduced. | | | | | | | |
| 142 | **(b)**  An intramolecular redox change is one in which one element of a compound is oxidized ( and one element is reduced ( | | | | | | | |
| 143 | **(b)** | | | | | | | |
| 144 | **(b)**  Due to smallest halogen, it possesses maximum tendency for accepting electron in aqueous medium.  (1/2) | | | | | | | |
| 145 | **(a)**  Bromine has zero oxidation state because it is in free state.  0    Let the oxidation number of Br in is .  So, oxidation number changes from 0 to +5. | | | | | | | |
| 146 | **(c)**  it has four peroxide bonds each having an oxidation number of and one double bond in which oxidation number of O is  Therefore, | | | | | | | |
| 147 | **(a)**  Indicator then only can show redox change with either of the titre species to indicate end point. | | | | | | | |
| 148 | **(d)** | | | | | | | |
| 149 | **(c)**    Hence, P is both oxidized as well as reduced | | | | | | | |
| 150 | **(c)** | | | | | | | |
| 151 | **(b)**  . | | | | | | | |
| 152 | **(b)**  Let the oxidation number of oxygen in following compounds is  In    In  In  In  free state or in any of its allotropic form is always zero.  Thus, the increasing order of oxidation number is  0 +2 | | | | | | | |
| 153 | **(d)**  Na−Hg is uncombined state of sodium. | | | | | | | |
| 154 | **(a)**  A measuring flask has a definite volume. | | | | | | | |
| 155 | **(b)**  Since, reacts with (if added internally) to give blue colour of iron complex. | | | | | | | |
| 156 | **(a)** | | | | | | | |
| 157 | **(a)**  Oxygen of gets reduced from − 1 to −2. | | | | | | | |
| 158 | **(a)** | | | | | | | |
| 159 | **(c)** | | | | | | | |
| 160 | **(d)**  can be oxidized to only by electrolysis. | | | | | | | |
| 161 | **(a)** | | | | | | | |
| 162 | **(d)**  The same species in each reaction is oxidized and reduced as well to give disproportionation reaction. | | | | | | | |
| 163 | **(a)** | | | | | | | |
| 164 | **(a)** | | | | | | | |
| 165 | **(a)** | | | | | | | |
| 166 | **(a)**  C has −4 ox.no. in ,  In rest all it has +4 ox.no. | | | | | | | |
| 167 | **(d)** | | | | | | | |
| 168 | **(a)**  Milliequivalent [ or millimole do not change on dilution. | | | | | | | |
| 169 | **(c)**  ion is green; . | | | | | | | |
| 170 | **(b)** | | | | | | | |
| 171 | **(a)** | | | | | | | |
| 172 | **(c)** | | | | | | | |
| 173 | **(c)** | | | | | | | |
| 174 | **(a)**  Ox.no. of on both side is +6 | | | | | | | |
| 175 | **(b)** | | | | | | | |
| 176 | **(c)** | | | | | | | |
| 177 | **(b)**  Iodine has −1 (minimum ox.no.) and +7 (maximum ox.no.). | | | | | | | |
| 178 | **(d)**  These are formulae of Meq. | | | | | | | |
| 179 | **(c)** | | | | | | | |
| 180 | **(a)**  I in has +7 ox.no. | | | | | | | |
| 181 | **(a)** | | | | | | | |
| 182 | **(c)** | | | | | | | |
| 183 | **(d)**    None of the elements changes its oxidation number | | | | | | | |
| 184 | **(a)**  Usually burettes have least count of 0.1 mL. | | | | | | | |
| 185 | **(c)**  The oxidation state of N in is    The oxidation state of N in is  The oxidation state in N in is  The oxidation state of N in is  Hence, three molecules (have negative oxidation state. | | | | | | | |
| 186 | **(a)**  in has zero oxidation no., the lowest for metals. | | | | | | | |
| 187 | **(c)**  The weight of rider used is 0.0002 g. | | | | | | | |
| 188 | **(d)**  Ions are hydrated on dissolution of salt in water. | | | | | | | |
| 189 | **(a)**  Ox.no. of each element on two sides is same. | | | | | | | |
| 190 | **(c)** | | | | | | | |
| 191 | **(a)**  Corrosion involves oxidation of species. | | | | | | | |
| 192 | **(b)**  [5   |  | | --- | |  |   Five electrons gets transferred. | | | | | | | |
| 193 | **(c)** | | | | | | | |
| 194 | **(a)**  The species present in solution but does not take part in the reaction and are also omitted while writing the potential redox change are called spectator ion. | | | | | | | |
| 195 | **(a)**  It is the formula of turns bull’s blue. | | | | | | | |
| 196 | **(b)**  Si has 4 electrons in its valence shell. When it reacts with strongly electropositive metal like Na, Mg, K etc., it gives 4 electrons and its oxidation state in this case is | | | | | | | |
| 197 | **(b)**  Oxygen in has ox.no. −1 which can increase or decrease. | | | | | | | |
| 198 | **(b)**  Also, Meq of  Or | | | | | | | |
| 199 | **(c)**  is formed) | | | | | | | |
| 200 | **(d)** | | | | | | | |
| 201 | **(d)**  Due to higher order. | | | | | | | |
| 202 | **(c)**  Cl atom is oxidised as well as Cl atom is reduced Such reactions are called auto redox or disproportionation reactions. | | | | | | | |
| 203 | **(d)**  Ox.no. of S in is no doubt 2.5 but it is average of two values, | | | | | | | |
| 204 | **(a)**  De-electronation is loss of electrons, i.e. | | | | | | | |
| 205 | **(b)**  ; This is simple decomposition and not a redox change. | | | | | | | |
| 206 | **(b)**  has minimum ox.no. and thus, can act only as reducing agent. | | | | | | | |
| 207 | **(a)**  It imparts its colour at end point. | | | | | | | |
| 208 | **(c)** | | | | | | | |
| 209 | **(d)**  Oxygen has highest electron affinity in its family. | | | | | | | |
| 210 | **(a)** | | | | | | | |
| 211 | **(d)**  The formula is obtained by taking an account of g atoms. | | | | | | | |
| 212 | **(c)**  in and has −3, −3, −1/3 and +3 oxidation number respectively. | | | | | | | |
| 213 | **(b)** | | | | | | | |
| 214 | **(c)** | | | | | | | |
| 215 | **(d)**  The reaction involves :  The reaction gives blue colour only after all the is used. The reaction is carried out with adjusted amount of so that only a fraction of and KI reaction occurs before the blue colour of starch— appears, however the slow redox reaction of continues. The appearance of blue colour is like clock alarm and in such reactions time for the appearance of blue colour is noticed. The phenomenon is used in studying rate of reaction. If time taken for blue colour appearance is longer, the reaction is slow and . | | | | | | | |
| 216 | **(c)**  N in has −2 ox.no. | | | | | | | |
| 217 | **(b)**  The electrons of outermost shell in iodine are unpaired during their excitation to subshell. | | | | | | | |
| 218 | **(d)**  A characteristic property of transition elements. | | | | | | | |
| 219 | **(c)**  Let the oxidation state of sulphur in is  1 | | | | | | | |
| 220 | **(d)**  is strongest oxidant among all the species. | | | | | | | |
| 221 | **(b)**  S has +6 ox. no. in | | | | | | | |
| 222 | **(c)** | | | | | | | |
| 223 | **(a)**  Tendency to lose more electron for cation decreases. | | | | | | | |
| 224 | **(a)**  (Net equation)    mole of (0r is reduced by  =10 moles of HCl  mole of will be reduced by  = moles of HCl  = 5 moles of HCl | | | | | | | |
| 225 | **(a)** | | | | | | | |
| 226 | **(b)** | | | | | | | |
| 227 | **(b)** | | | | | | | |
| 228 | **(b)**  ∴ *V* = 25 mL | | | | | | | |
| 229 | **(a)** | | | | | | | |
| 230 | **(b)** | | | | | | | |
| 231 | **(c)** | | | | | | | |
| 232 | **(b)**  Oxidation no. of N in is  Oxidation no. of Cl in is | | | | | | | |
| 233 | **(c)**  Sulphurous acid    Pyrosulphuric acid (    or  Thiosulphuric acid (    Dithionous acid (  3 | | | | | | | |
| 234 | **(c)**  (Complex formation)  also acts as reducing agent. | | | | | | | |
| 235 | **(a)**  . | | | | | | | |
| 236 | **(a)** | | | | | | | |
| 237 | **(d)**  is phosphorous acid. | | | | | | | |
| 238 | **(c)** | | | | | | | |
| 239 | **(c)** | | | | | | | |
| 240 | **(c)**  . | | | | | | | |
| 241 | **(b)**  Meq. of oxalate = Meq. of  oxalate ion = 0.198 g  of oxalate ion | | | | | | | |
| 242 | **(a)**  g | | | | | | | |
| 243 | **(d)** | | | | | | | |
| 244 | **(b)** | | | | | | | |
| 245 | **(d)**  or | | | | | | | |
| 246 | **(a)** | | | | | | | |
| 247 | **(d)**  It is precipitation reaction. | | | | | | | |
| 248 | **(a)**  = Meq. Of CaO  = 54% | | | | | | | |
| 249 | **(a)**  Equate charge on both side,  is choice. | | | | | | | |
| 250 | **(c)**  is disproportionated in basic medium as | | | | | | | |
| 251 | **(b)**  Carbon has negative oxidation no.in and positive oxidation number in is more electronegative than C. is more electropositive than C. | | | | | | | |
| 252 | **(d)**  It is a complexation reaction involving reduction of and oxidation of KI. | | | | | | | |
| 253 | **(a)**  Oxidation state of Cr in  6 | | | | | | | |
| 254 | **(a)** | | | | | | | |
| 255 | **(c)**  N has + 1 ox.no. | | | | | | | |
| 256 | **(a)**  5 mole mole  mole  Or  5 mole = 3 mole | | | | | | | |
| 257 | **(b)** | | | | | | | |
| 258 | **(c)**  Meq. of salt = Meq. Of | | | | | | | |
| 259 | **(a)**  is more stable than although later, has configuration. In 18 electron core is not held properly by nuclear charge and thus, is readily converted to . | | | | | | | |
| 260 | **(c)**  In this reaction phosphorus is simultaneously oxidised and reduced.  It is disproportionation reation.  0 + -3 | | | | | | | |
| 261 | **(a)**  . | | | | | | | |
| 262 | **(d)**  All terms have same meaning. | | | | | | | |
| 263 | **(b)**  The sum of the oxidation states is always zero in neutral compound.  The oxidation state of and are +2, +5 and respectively.  In    In    In  2+5  In    Hence, the formula of the compound is | | | | | | | |
| 264 | **(c)**  F is most electronegative element and thus, has −1 ox.no.  Thus, | | | | | | | |
| 265 | **(a)**  Meq. of | | | | | | | |
| 266 | **(b)**  Meq. of in 1 mL = Meq. of  Thus, | | | | | | | |
| 267 | **(c)**  Let the oxidation number of Cr in is | | | | | | | |
| 268 | **(b)** | | | | | | | |
| 269 | **(c)** | | | | | | | |
| 270 | **(c)**  Let the oxidation number of Cr be | | | | | | | |
| 271 | **(b)** | | | | | | | |
| 272 | **(c)**  is reduced and thus, oxidant. | | | | | | | |
| 273 | **(b)** | | | | | | | |
| 274 | **(b)**  Let the oxidation number of carbonyl carbon in methanal (HCHO) and methanoic acid (HCOOH) is and is respectively.  In HCHO,  2  2  In HCOOH,  2 | | | | | | | |
| 275 | **(c)** | | | | | | | |
| 276 | **(c)** | | | | | | | |
| 277 | **(a)**  is reductant. | | | | | | | |
| 278 | **(a)**  0 +1 -1  Oxidation number of hydrogen is decreasing from 0 to So, is acting as oxidising agent in this reaction. | | | | | | | |
| 279 | **(d)**  Mohr’s salt is | | | | | | | |
| 280 | **(a)**  1 faraday of electricity involves change of one mole electron. | | | | | | | |
| 281 | **(c)**  Oxidation of and reduction of is taking place. | | | | | | | |
| 282 | **(a)** | | | | | | | |
| 283 | **(a)** | | | | | | | |
| 284 | **(c)** | | | | | | | |
| 285 | **(d)** | | | | | | | |
| 286 | **(c)**  Ox. no. of each species remains same. | | | | | | | |
| 287 | **(a)**  . | | | | | | | |
| 288 | **(a)**  ∴ | | | | | | | |
| 289 | **(a)** | | | | | | | |
| 290 | **(d)** | | | | | | | |
| 291 | **(d)**  . | | | | | | | |
| 292 | **(b)** | | | | | | | |
| 293 | **(d)** | | | | | | | |
| 294 | **(c)**  is reduced. | | | | | | | |
| 295 | **(a)** | | | | | | | |
| 296 | **(d)** | | | | | | | |
| 297 | **(c)**  The reactions, in which the same element is oxidised as well as reduced, are called disproportionation reactions.    In this reaction, the same element, is oxidised as well as reduced, so it is an example of disproportionation reaction. | | | | | | | |
| 298 | **(a)**  is reduced to  Thus, final state of Cr is +3. Hence, (a) | | | | | | | |
| 299 | **(d)**  (Sodium nitrite) acts both as oxidising as well as reducing agent because in it N-atom is in +3 oxidation state (intermediate oxidation state).  Oxidising property  Reducing property | | | | | | | |
| 300 | **(a)**  Graphic is uncombined state of carbon. | | | | | | | |
| 301 | **(d)** | | | | | | | |
| 302 | **(b)** | | | | | | | |
| 303 | **(a)** | | | | | | | |
| 304 | **(c)** | | | | | | | |
| 305 | **(b)**    It is chromium peroxide.  Let the oxidation number of Cr is    Hence, the oxidation state of Cr is +6. | | | | | | | |
| 306 | **(d)**  Haematite is in which oxidation number of iron is III.  Magnetite is which is infact a mixed oxide hence iron is present in both II and III oxidation state. | | | | | | | |
| 307 | **(c)**  (red-orange) (lemon-yellow) | | | | | | | |
| 308 | **(a)**  In basic medium  Net reaction is  +7 +6  Change in oxidation number  =7  So, electrons involved = | | | | | | | |
| 309 | **(a)**  In N has ox.no. −3 and in , N has ox.no. +5. | | | | | | | |
| 310 | **(c)** | | | | | | | |
| 311 | **(c)** | | | | | | | |
| 312 | **(a)**  Thus, is oxidant. | | | | | | | |
| 313 | **(a)**  . | | | | | | | |
| 314 | **(d)**  One mole of S will give one mole of Thus, mole of formed = mole of | | | | | | | |
| 315 | **(d)** | | | | | | | |
| 316 | **(c)**  Equal equivalent of species react together. | | | | | | | |
| 317 | **(a)**  It is a fact. | | | | | | | |
| 318 | **(c)**  The balanced disproportionation reaction involving white phosphorus with aq. is | | | | | | | |
| 319 | **(b)**  F can have only –ve ox.no., or can be reduced only. | | | | | | | |
| 320 | **(a)** | | | | | | | |
| 321 | **(a)**  thus, matter is reduced by liberated hydrogen. | | | | | | | |
| 322 | **(c)**  undergoes oxidation and reduction as well; | | | | | | | |
| 323 | **(b)**  . | | | | | | | |
| 324 | **(a)**  Thus, is oxidized. | | | | | | | |
| 325 | **(d)**  All these substances can accept electrons and can decrease their oxidation number and hence, all these act as oxidation agent | | | | | | | |
| 326 | **(b)** | | | | | | | |
| 327 | **(a)** | | | | | | | |
| 328 | **(c)** | | | | | | | |
| 329 | **(c)**  The chemical structure of is as follows  O O  || ||    || ||  O O    for H for S for O for OO  +2 | | | | | | | |
| 330 | **(a)**  oxidation; is reductant. | | | | | | | |
| 331 | **(a)** | | | | | | | |
| 332 | **(a)**  . | | | | | | | |
| 333 | **(b)**  In  Oxidation number of N =  In  In  In =  Hence, in the oxidation number of nitrogen is highest. | | | | | | | |
| 334 | **(b)**  Starch + ⟶ Blue | | | | | | | |
| 335 | **(d)** | | | | | | | |
| 336 | **(a)**  . | | | | | | | |
| 337 | **(d)**  = 0 | | | | | | | |
| 338 | **(a)**  Mole of formed | | | | | | | |
| 339 | **(c)** | | | | | | | |
| 340 | **(d)**  +2 and +3 | | | | | | | |
| 341 | **(d)**  It is a fact. | | | | | | | |
| 342 | **(d)**  Thus, forms losing electrons  will lose electrons | | | | | | | |
| 343 | **(c)** | | | | | | | |
| 344 | **(a)**  Mn has +7 oxidation state in | | | | | | | |
| 345 | **(a)**  Minimum ox.no. = group no. −8.  Maximum ox.no. = group no. | | | | | | | |
| 346 | **(b)**  H possesses negative one value of oxidation number in ionic hydrides. | | | | | | | |
| 347 | **(c)**  Due to –ve oxidation number it should be non-metal having six electrons in outer shell. | | | | | | | |
| 348 | **(d)**  These are characteristics of indicator. | | | | | | | |
| 349 | **(b)**  The oxidation state of Xe in both | | | | | | | |
| 350 | **(a)**  is sodium arsenate  Or is arsenate.  Thus, | | | | | | | |
| 351 | **(d)**    Hence, those reactions in which two or more species undergo oxidation as well as reduction are called comproportionation. | | | | | | | |
| 352 | **(b)** | | | | | | | |
| 353 | **(c)**  Glucose is reducing agent. | | | | | | | |
| 354 | **(b)** | | | | | | | |
| 355 | **(b)**  It is a fact. | | | | | | | |
| 356 | **(b)**  Oxidation state of Mn in  Let oxidation state of Mn in    +4      (iv) Let oxidation state of Mn in  Increasing order of oxidation states is | | | | | | | |
| 357 | **(b)** | | | | | | | |
| 358 | **(a)**  More is more is the tendency to get itself reduced or more is oxidising power. | | | | | | | |
| 359 | **(a)** | | | | | | | |
| 360 | **(c)** | | | | | | | |
| 361 | **(a)** | | | | | | | |
| 362 | **(a)**  It is definition of iodimetric titrations. | | | | | | | |
| 363 | **(b)** | | | | | | | |
| 364 | **(b)** | | | | | | | |
| 365 | **(a)** | | | | | | | |
| 366 | **(d)**  from 1 molecule of  molecules of | | | | | | | |
| 367 | **(a)**  Calculate ox.no. by taking in | | | | | | | |
| 368 | **(d)**  Cl ha +7 ox.no. in | | | | | | | |
| 369 | **(c)** | | | | | | | |
| 370 | **(c)**  oxidises to . | | | | | | | |
| 371 | **(a)**  Following is balanced redox reaction.  So, coefficients of | | | | | | | |
| 372 | **(c)** | | | | | | | |
| 373 | **(d)**  Oxidation-reduction takes place simultaneously. | | | | | | | |
| 374 | **(b)**  ; | | | | | | | |
| 375 | **(a)** | | | | | | | |
| 376 | **(b)**  shows only −1 ox.no. | | | | | | | |
| 377 | **(a)**  Reduction (oxidation number decreases)    Oxidation (oxidation number is increases)  The reactions in which the same substance undergoes oxidation as well as reduction, are called disproportionation reactions.  So, the above reaction is an example of disproportionation reaction. | | | | | | | |
| 378 | **(b)**  It is definition of iodimetric titrations. | | | | | | | |
| 379 | **(d)** | | | | | | | |
| 380 | **(b)**  +2 oxidation state due to configuration having 2 unpaired electrons in subshell. +4 oxidation state due to configuration in excited state having four unpaired electrons. | | | | | | | |
| 381 | **(a)** | | | | | | | |
| 382 | **(a)** | | | | | | | |
| 383 | **(a)** | | | | | | | |
| 384 | **(d)** | | | | | | | |
| 385 | **(c)**  The sum of oxidation number is zero. | | | | | | | |
| 386 | **(c)**  Electrons released at anode = Electrons used at cathode. | | | | | | | |
| 388 | **(c)** | | | | | | | |
| 389 | **(b)** | | | | | | | |
| 390 | **(d)**  Loss of an electron or increase in oxidation number is oxidation process. | | | | | | | |
| 391 | **(c)**  Due to inert pair effect which is more predominant in T1. | | | | | | | |
| 392 | **(a)**  Thus, electrons involved per Cr atom = 3. | | | | | | | |
| 393 | **(a)**  Let oxidation state of Cr in    or    Let oxidation state of Cr in    2+    Change in oxidation state of Cr is zero when it changes from | | | | | | | |
| 394 | **(b)**  In the oxidation number of N is + 3 which is less than the maximum possible, oxidation number and more than the minimum possible oxidation number therefore, it can act both as an oxidizing as well as reducing agent | | | | | | | |
| 395 | **(a)**  Ox. No. of N in respectively. | | | | | | | |
| 396 | **(a)** | | | | | | | |
| 397 | **(b)**  cannot be oxidised because Fe has highest oxidation state. | | | | | | | |
| 398 | **(d)**  = Meq. Of | | | | | | | |
| 399 | **(d)**  acts as oxidant. | | | | | | | |
| 400 | **(b)**  Let oxidation state of I in  ( | | | | | | | |
| 401 | **(a)**  In alkaline medium  +7 +6  Change in oxidation number  = 7  = 1  Hence, moles of KI = moles of | | | | | | | |
| 402 | **(c)**  mole gives 3 mole | | | | | | | |
| 403 | **(c)** | | | | | | | |
| 404 | **(c)**  The concentration of standard solution is known. | | | | | | | |
| 405 | **(a)**    is oxidised in this reaction. | | | | | | | |
| 406 | **(b)** | | | | | | | |
| 407 | **(b)**  Iron usually shows zero, +2, +3 oxidation state. | | | | | | | |
| 408 | **(a)**  Calculate ox.no. of Cl in by assuming and | | | | | | | |
| 409 | **(b)**  is reduced and thus, oxidant. | | | | | | | |
| 410 | **(b)** | | | | | | | |
| 411 | **(a)** | | | | | | | |
| 412 | **(d)**  Ox.no. Fe in Mohr’s salt, is +2. | | | | | | | |
| 413 | **(a)** | | | | | | | |
| 414 | **(d)** | | | | | | | |
| 415 | **(b)** | | | | | | | |
| 416 | **(a)** | | | | | | | |
| 417 | **(b)** | | | | | | | |
| 418 | **(d)**  Permonosulphuric acid (has two oxygen atoms in peroxide linkage, hence,      =+6 | | | | | | | |
| 419 | **(c)**  The reaction, in which two or more species undergo reduction as well as oxidation to give a single species are called comproportionation reaction. This is reverse of disproportionation reaction. | | | | | | | |
| 420 | **(d)**  is also oxidised along with oxalic acid by | | | | | | | |
| 421 | **(a)**  No change in oxidation no.in any of the species. | | | | | | | |
| 422 | **(d)**  S in is in +4 oxidation state. It lies in between its maximum and minimum oxidation state, and -2 and thus, S can increase or decrease its ox.no.as the case may be. | | | | | | | |