**ACTIVE SITE TUTORIALS**

**Date :** 20-08-2019 **TEST ID: 528**

**Time :** 12:21:00 **CHEMISTRY**

**Marks :** 718

10.THE S-BLOCK ELEMENTS

**Single Correct Answer Type**

| 1. | Select the correct statement(s) | | | | | | | |
|  | a) | Presence of in table salt causes it to clump | | | | | | | |
|  | b) | Addition of to table salt converts to non-hygroscopic salt | | | | | | | |
|  | c) | Both (a) and (b) | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 2. | In which of the following the hydration energy is higher than the lattice energy? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 3. | Select the correct statement(s) | | | | | | | |
|  | a) | Beryllium and magnesium hydride are covalent and polymeric | | | | | | | |
|  | b) | and are ionic | | | | | | | |
|  | c) | contains three-centre two-electron bond | | | | | | | |
|  | d) | All of the above are correct statements | | | | | | | |
| 4. | A metal readily forms water soluble . It also forms oxide which becomes inert on heating. Hydroxide is insoluble in water but soluble in solution. What is ? | | | | | | | |
|  | a) | Mg | b) |  | c) | Ca | d) | Be |
| 5. | Slaked lime and chlorine reacts to produce | | | | | | | |
|  | a) | Quicklime | | | b) |  | | |
|  | c) |  | | | d) | Mixture of and | | |
| 6. | Identify the correct statement | | | | | | | |
|  | a) | Gypsum is obtained by heating plaster of Paris | | | | | | | |
|  | b) | Plaster of Paris can be obtained by hydration of gypsum | | | | | | | |
|  | c) | Plaster of Paris contains higher percentage of calcium than does gypsum | | | | | | | |
|  | d) | Plaster of Paris obtained from gypsum by oxidation | | | | | | | |
| 7. | Alkaline earth metals are | | | | | | | |
|  | a) | Reducing agent | b) | Dehydrating agent | c) | Amphoteric | d) | Oxidizing agent |
| 8. | A compound which can be used in space vehicles both to absorb and liberate is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 9. | Which of the following is not used as food preservatives? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 10. | Which is used in the treatment of manic-depressive disorders? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 11. | is formed when | | | | | | | |
|  | a) | reacts with solution | | | b) | reacts with solution | | |
|  | c) | Both (a) and (b) correct | | | d) | None of the above is correct | | |
| 12. | Be and do not resemble in | | | | | | | |
|  | a) | Both become passive on reaction with due to formation of oxide layer | | | | | | | |
|  | b) | Their chlorides are Lewis bases | | | | | | | |
|  | c) | Chlorides exist in polymeric form | | | | | | | |
|  | d) | Hydroxides are soluble in alkali as well as in acid | | | | | | | |
| 13. | Which of the following statements are true about II A group elements? | | | | | | | |
|  | a) | All form nitrides in air | | | b) | Be is amphoteric | | |
|  | c) | is ionic ‘salt-like’ hydride | | | d) | All of the above are correct statements | | |
| 14. | Select the incorrect statement | | | | | | | |
|  | a) | can be stored in a vessel made of | | | | | | | |
|  | b) | can be stored in a vessel made of alloy | | | | | | | |
|  | c) | HF can be stored in a vessel made of wax | | | | | | | |
|  | d) | HF attacks glass | | | | | | | |
| 15. | Automobile grease is obtained from | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 16. | Metal carbides on reaction with form . Carbide can be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 17. | Match compounds/metal in with their uses in   |  |  | | --- | --- | |  |  | | A. Liquid sodium metal  B. Potassium stearate  C. Potassium nitrate  D. Potassium superoxide | 1. Breathing apparatus submarine  2. Explosive  3. Coolant in nuclear reaction  4. Soft soap |   Hence, correct order is  A B C D | | | | | | | |
|  | a) | 1 3 2 4 | | | b) | 3 4 2 1 | | |
|  | c) | 2 1 3 4 | | | d) | 4 2 3 1 | | |
| 18. | Which cannot be used to generate ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 19. | The deap colour produced when iodine is dissolved in a solution of potassium iodide is caused by the presence of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 20. | cannot be obtained by heating | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 21. | Lattice energy of IIA group compounds (oxides, carbonates, fluorides) | | | | | | | |
|  | a) | Decreases as size of the ion increases | | | b) | Increases as size of the ion increases | | |
|  | c) | Constant for a given type of anion | | | d) | All of the above are incorrect | | |
| 22. | Select the correct statement(s) | | | | | | | |
|  | a) | is more soluble in a solution of on heating | | | | | | | |
|  | b) | is converted to and on heating | | | | | | | |
|  | c) | is thermally stable | | | | | | | |
|  | d) | Presence of of in water causes temporary hardness | | | | | | | |
| 23. | The decomposition temperature is maximum for | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 24. | Which is/are coloured and paramagnetic? | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of thee |
| 25. | Which is main constituent of egg-shell? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 26. | Gun powder spontaneously react when ignited. Reaction can be | | | | | | | |
|  | a) |  | | | | | | | |
|  | b) |  | | | | | | | |
|  | c) | Both (a) & (b) | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 27. | Match compounds given in with their uses in   |  |  | | --- | --- | |  |  | | A.  B.  C.  D. | 1. glass  2. bleach  3. absorber  4. detergent |   Hence, correct order is  A B C D | | | | | | | |
|  | a) | 4 1 3 2 | | | b) | 1 3 4 2 | | |
|  | c) | 2 4 1 3 | | | d) | 3 2 4 1 | | |
| 28. | Which does not exist in solid state? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 29. | Magnalium contains | | | | | | | |
|  | a) | Aluminium + magnesium | | | b) | Magnesium + copper | | |
|  | c) | Magnesium + iron | | | d) | Magnesium + silver | | |
| 30. | Be and resemble in the following but not in | | | | | | | |
|  | a) | Both form electron deficient hydrides | | | b) | Both are rendered passive by | | |
|  | c) | Both form amphoteric oxides | | | d) | Both have -hybridisation in their com | | |
| 31. | Gypsum is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 32. | Plaster of Paris is hardened by | | | | | | | |
|  | a) | Giving out water | b) | Uniting with water | c) | Changing into | d) | Liberating |
| 33. | Which can dissolve ? | | | | | | | |
|  | a) | KI | b) |  | c) | Both (a) and (b) | d) | None of these |
| 34. | Flame test is not given by | | | | | | | |
|  | a) | Ca | b) |  | c) | Mg | d) | Li |
| 35. | Lightest alkaline earth metal is | | | | | | | |
|  | a) | Be | b) | Mg | c) | Ca | d) |  |
| 36. | Setting of plaster of Paris is | | | | | | | |
|  | a) | Oxidation with atmospheric oxygen | | | b) | Combination with atmospheric | | |
|  | c) | Dehydration | | | d) | Hydration to yield another hydrate | | |
| 37. | Which is used as a treatment for bipolar disorder (an illness that involves alternating periods of depression)? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 38. | A colourless solid () on heating evolved and also gave a while residue, soluble in water. Residue also gave when treated with dilute acid. [] is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 39. | Burning of Mg is extinguished by | | | | | | | |
|  | a) | Throwing liquid | b) | Throwing sand | c) | Throwing ice | d) | Throwing water |
| 40. | When is passed into moist slaked lime, compound formed is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 41. | The deliquescent among the following is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 42. | Out of the following statements  I. is highly hydrated  II. Li has highest melting point among Li, Na, K and  III. Only Li forms nitride out of alkali metals | | | | | | | |
|  | a) | I and II | b) | II and III | c) | I and III | d) | I, II and III |
| 43. | Select the correct statement | | | | | | | |
|  | a) | Be and show diagonal relationship | | | b) | Be form tetrahedral complexes | | |
|  | c) | forms , on octahedral complex | | | d) | All of the above are correct statement | | |
| 44. | Which is most stable out of the following? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 45. | Which of the following is/are correct statement(s)? | | | | | | | |
|  | a) | in part of bones | | | b) | is part of enamel o teeth | | |
|  | c) | ions are important in blood clotting | | | d) | All of the above are correct | | |
| 46. | What is impurity (as a salt) associated with table salt obtained from sea-water? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 47. | Which disproportionate into (peroxide) and (metal) on heating? | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) & (b) | d) | None of these |
| 48. | Epsom salt is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 49. | Which are involved in various physiological functions in animals? | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 50. | Setting of cement is | | | | | | | |
|  | a) | Exothermic reaction | | | b) | Endothermic reaction | | |
|  | c) | Neither endothermic nor exothermic | | | d) | None of the above | | |
| 51. | Noble gases (like He, Ne, , Kr etc,) are isolated from air. One of the steps is/are | | | | | | | |
|  | a) | Heating air with Li or Mg | | | b) | Bubbling air into solution | | |
|  | c) | Both (a) and (b) are correct | | | d) | None of the above is correct | | |
| 52. | Select the correct statement(s) | | | | | | | |
|  | a) | is more soluble in a solution of than in | | | | | | | |
|  | b) | is converted to ad on heating | | | | | | | |
|  | c) | is thermally stable | | | | | | | |
|  | d) | Presence of or in water causes temporary hardness | | | | | | | |
| 53. | Which is used for fixing atmospheric nitrogen? | | | | | | | |
|  | a) | (nitrolim) | b) |  | c) |  | d) | All of these |
| 54. | gas along with solid is obtained when sodium salt is heated. is again obtained when gas is passed into aqueous solution . and are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 55. | Which is the major constituent of gun powder? | | | | | | | |
|  | a) | Nitre | b) | Sulphur | c) | Charcoal | d) | Chile salt petre |
| 56. | The electron affinity of Be is similar to | | | | | | | |
|  | a) | He | b) | B | c) | Li | d) | Na |
| 57. | The pair whose both species are used in antacid medicinal preparation is | | | | | | | |
|  | a) | and | | | b) | and | | |
|  | c) | and | | | d) | and | | |
| 58. | Match the compound (given in ) with their colours (given in )   |  |  | | --- | --- | |  |  | | A.  B.  C.  D. | 1. Pale yellow  2. Orange  3. Bright Yellow  4. Ruby red |   A B C D | | | | | | | |
|  | a) | 4 1 2 3 | | | b) | 2 3 1 4 | | |
|  | c) | 1 2 3 4 | | | d) | None of these | | |
| 59. | Baking powder contains | | | | | | | |
|  | a) | and starch | | | b) |  | | |
|  | c) | starch | | | d) |  | | |
| 60. | Portland cement does not contain | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 61. | Reagent used as fixer in photography | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | Both (a) and (c) |
| 62. | The charage/size ratio of a cation determines its polarizing power. Which one of the following sequences represents the increasing order of the polarizing power of cationic species; ? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 63. | is converted to by following reaction  In the above equilibrium, which is least soluble in hot water? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 64. | Which are true statements about -block elements? | | | | | | | |
|  | a) | Metals are obtained by the electrolysis of fused chlorides | | | | | | | |
|  | b) | Only one type of valency, +1 for I A and +2 for II A, is shown | | | | | | | |
|  | c) | Oxides are basic except | | | | | | | |
|  | d) | All of the above are correct statements | | | | | | | |
| 65. | Suboxide of has the formula | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 66. | 1 mole of a substance was treated with an excess of water. 2 moles of readily combustible gas were produced along with solution which when reacted with gas produced a white turbidity. The substance could be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 67. | Among nd the largest particle is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 68. | values for the following cases are given below  Mg  Ca  In which case decomposition of is most spontaneous? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | Equally in all cases |
| 69. | Nitrolim is a | | | | | | | |
|  | a) | Mixture of calcium carbide and nitrogen | | | b) | Mixture of calcium cyanamide and carbon | | |
|  | c) | Mixture of calcium cyanide and carbon | | | d) | Mixture of and | | |
| 70. | Select the correct statement(s) | | | | | | | |
|  | a) | Stability of peroxides and superoxides of alkali metals increases with increase in size of the metal ion | | | | | | | |
|  | b) | does not form hydrated salt | | | | | | | |
|  | c) | Increase in stability in (a) is due to stabilization of large anions by larger cations through lattice energy effects | | | | | | | |
|  | d) | The low solubility of is due to its high lattice energy whereas low solubility of is due to smaller hydration energy | | | | | | | |
| 71. | Aqueous solution of on reaction with gives | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 72. | Select the incorrect statement | | | | | | | |
|  | a) | is thermally stable while decomposes into Ag. and | | | | | | | |
|  | b) | forms complexes, does not | | | | | | | |
|  | c) | is water soluble, is insoluble | | | | | | | |
|  | d) | and both give colour in flame when lignited | | | | | | | |
| 73. | To an acidified dichromate solution, a pinch of and ether is added and shaken. What is observed | | | | | | | |
|  | a) | Deep violet colour | | | b) | Red colour changing to green | | |
|  | c) | Copious evolution of oxygen | | | d) | Bluish-green precipitate | | |
| 74. | Na and Li are placed in dry air. We get | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 75. | Which of the following is known as dead burnt? | | | | | | | |
|  | a) | Gypsum | b) | Plaster of Paris | c) | Anhydrite | d) | None of these |
| 76. | A covalent chloride is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 77. | There is loss in weight when mixture of and | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 78. | Following are the ionization potential values of | | | | | | | |
|  | a) | Na | b) | K | c) | Be | d) | Ne |
| 79. | II A (alkaline earth metals) and II B (zinc family) resemble | | | | | | | |
|  | a) | is isomorphous with | | | | | | | |
|  | b) | II A and II B cations are not precipitated by in acidic medium | | | | | | | |
|  | c) | Both (a) and (b) | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 80. | Which one among the following is the most soluble in water? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 81. | (sesquoxides) is paramagnetic is nature. It is due to the presence of | | | | | | | |
|  | a) | Peroxide ion | b) | Superoxide ion | c) | Oxide ion | d) | All of the above |
| 82. | Which of the following is not an ore of magnesium | | | | | | | |
|  | a) | Carnallite | b) | Magnesite | c) | Dolomite | d) | Gypsum |
| 83. | The element whose electronic configuration is is | | | | | | | |
|  | a) | Non-metal | b) | Noble gas | c) | Metalloid | d) | Metal |
| 84. | Which is used to treat acid indigestion? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 85. | Which of the following is best absorber as well as source of in submarines? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 86. | Which is the incorrect statement? | | | | | | | |
|  | a) | The heat of hydration of the dipositive alkaline earth metal ions decrease with an increase in their ionic size | | | | | | | |
|  | b) | forms on heating | | | | | | | |
|  | c) | Hydration of alkali metal ion is le than that of II A | | | | | | | |
|  | d) | Alkaline earth metal ions, because of their much larger charge to size ratio, exert a much stronger electrostatic attraction on the oxygen of water molecule surrounding them | | | | | | | |
| 87. | The activity of alkaline earth metals as reducing agent | | | | | | | |
|  | a) | Decreases from Be to | | | | | | | |
|  | b) | Increases from Be to | | | | | | | |
|  | c) | Increase form Be to Ca and decreases from Ca to | | | | | | | |
|  | d) | Decreases form Be to Ca and increases from Ca to | | | | | | | |
| 88. | Which is not obtained when metal carbides react with ? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 89. | Which of the following is preferentially formed on reaction of oxygen and potassium? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 90. | Which salt can be used to identify coloured cation? | | | | | | | |
|  | a) | Borax | b) | Microcosmic salt | c) | Both (a) and (b) | d) | None of these |
| 91. | The stability of and is in order . This increasing stability at the size of metal ion increases is due to stabilization of | | | | | | | |
|  | a) | Larger cation by smaller anions through lattice energy effects | | | | | | | |
|  | b) | Larger cation by larger anions through lattice energy effects | | | | | | | |
|  | c) | Smaller cations by smaller anions through mp | | | | | | | |
|  | d) | Smaller cations by larger anions through mp | | | | | | | |
| 92. | In alkaline earth metal sulphates, the value of hydration energy decrease down the group because of the | | | | | | | |
|  | a) | Decrease in size | b) | Increase in size | c) | Greater lattice energy | d) | None of these |
| 93. | is | | | | | | | |
|  | a) | Added to bauxite in the electrolytic production of aluminium | | | | | | | |
|  | b) | Used to toughen glass | | | | | | | |
|  | c) | Used as medicine as it affects the balance between and and and | | | | | | | |
|  | d) | All of the above are correct | | | | | | | |
| 94. | Select the correct statement(s) | | | | | | | |
|  | a) | ions are necessary for the activation of phosphate transfer enzymes | | | | | | | |
|  | b) | Mg is present in chlorophyll used in photosynthesis in green plants | | | | | | | |
|  | c) | Operation of pumps is biological | | | | | | | |
|  | d) | All of the above are correct statements | | | | | | | |
| 95. | Which one of the following is correct sequence followed by molar ionic conductance of the ions? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 96. | When NO is passed into KOH solution, products are | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 97. | Which of the following mixtures cannot be prepared? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 98. | Estimation of calcium and magnesium is done by | | | | | | | |
|  | a) | EDTA | b) | Oxalate | c) | Phosphate | d) | None of these |
| 99. | Mg and Li are similar in their properties due to | | | | | | | |
|  | a) | Same ratio | b) | Same electron affinity | c) | Same group | d) | Same radius |
| 100. | Select the correct statement(s) | | | | | | | |
|  | a) | ions are necessary for the activation of phosphate transfer enzymes | | | | | | | |
|  | b) | Mg is present in chlorophyll used in photosynthesis in green plants | | | | | | | |
|  | c) | Operation of pumps is biological | | | | | | | |
|  | d) | All of the above are correct statements | | | | | | | |
| 101. | The commonn name, “cream of tartar” refers to | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 102. | The alkalide ion is | | | | | | | |
|  | a) | Diamagnetic | b) | Represented as | c) | Paramagnetic | d) | Represented as |
| 103. | Which is the most stable halide of alkali metal? | | | | | | | |
|  | a) | Sodium fluoride | b) | Sodium bromide | c) | Sodium chloride | d) | Sodium iodide |
| 104. | Choose the incorrect statement | | | | | | | |
|  | a) | is kept in the atmosphere of since it is least thermally stable | | | | | | | |
|  | b) | Be dissolves in alkali forming | | | | | | | |
|  | c) | forms complex ion with n when goes with cation | | | | | | | |
|  | d) | forms complex ion with in which goes with anion | | | | | | | |
| 105. | Some of alkali metal salts are coloured. yellow, pink, green. It is due to | | | | | | | |
|  | a) | Cations are coloured ions | | | b) | Anions are coloured ions | | |
|  | c) | Both (a) & (b) are correct | | | d) | None of the above is correct | | |
| 106. | Which is a pair of paramagnetic species? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 107. | Following are the ionization potential values of | | | | | | | |
|  | a) | Na | b) | K | c) | Be | d) | Ne |
| 108. | Which is the incorrect statement? | | | | | | | |
|  | a) | The heats of hydration of the dipositive alkaline earth metal ions decrease with an increase in their ionic size | | | | | | | |
|  | b) | forms on heating | | | | | | | |
|  | c) | Hydration of alkali metal ion is less than that of II A | | | | | | | |
|  | d) | Alkaline earth metal ions, because of their much larger charge to size ratio, exert a much stronger electrostatic attraction on the oxygen of water molecule surrounding them | | | | | | | |
| 109. | A basic refractory material among the following is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 110. | Which has least molar solubility in ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 111. | Which will give on heating? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 112. | All alkali metals form following compound except | | | | | | | |
|  | a) | Amide, | | | b) | Superoxide like | | |
|  | c) | Ionic ‘salt-like’ hydride H | | | d) | Basic oxides | | |
| 113. | Which one of the following has magnesium? | | | | | | | |
|  | a) | Vitamin | b) | Chlorophyll | c) | Haemocyanin | d) | Carbonic anhydrase |
| 114. | is used as | | | | | | | |
|  | a) | Disinfectant | b) | Desiccant agent | c) | Medicine | d) | None of these |
| 115. | Out of | | | | | | | |
|  | a) | and are soluble, and and are insoluble in water | | | | | | | |
|  | b) | is soluble, others insoluble | | | | | | | |
|  | c) | is insoluble, others are soluble | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 116. | Nitrate can be converted into metal oxide on heating in case of | | | | | | | |
|  | a) | Li | b) | Na | c) | Both (a) and (b) | d) | None of these |
| 117. | Lattice energy (numerical value) of chloride of alkali metals is in order | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 118. | Alkali metal dissolve in liquid , then which of the following observation are true? | | | | | | | |
|  | a) | gas is liberated | | | | | | | |
|  | b) | Solution is blue due to the presence of solvated electrons | | | | | | | |
|  | c) | Solution is conducting | | | | | | | |
|  | d) | All of the above are correct | | | | | | | |
| 119. | On strong heating the product obtained is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 120. | Which one of the following hydroxide is insoluble in water? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 121. | The substance used as pigment in paint is | | | | | | | |
|  | a) | Borax | b) | Alumina | c) | Lithophone | d) | None of these |
| 122. | Intermediate formed by heating microcosmic salt and which forms coloured bead with coloured cation | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 123. | Lithopone is mixture of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 124. | The correct order of increasing ionic character is | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 125. | Which of the following changes is not realized in the laboratory? | | | | | | | |
|  | a) | Absorption of NO by alkaline sodium sulphite to form a compound | | | | | | | |
|  | b) | Combustion of metallic Mg in | | | | | | | |
|  | c) | Heating hydrated magnesium chloride to get the anhydrous salt | | | | | | | |
|  | d) | ‘Displacement’ of chlorine from by iodine to form | | | | | | | |
| 126. | Molten sodium chloride conducts electricity due to the presence of | | | | | | | |
|  | a) | Free electrons | b) | Ions | c) | Na atom | d) | atom |
| 127. | Which is/are not the correct configuration of -block elements? | | | | | | | |
|  | a) |  | b) |  | c) | Both (a) and (b) | d) | None of these |
| 128. | The pair of amphoteric hydroxide is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 129. | Lithium shows similarities with magnesium in its chemical behavior because | | | | | | | |
|  | a) | Similar size, greater electronegativity and lower polarizing powder | | | | | | | |
|  | b) | Similar size, same electronegativity and lower polarizing power | | | | | | | |
|  | c) | Similar size, same electronegativity and similar high polarizing power | | | | | | | |
|  | d) | None of the above | | | | | | | |
| 130. | Alkali metals resemble IB (copper family) in the following respects | | | | | | | |
|  | a) | +1 valency | | | b) | Sulphates are water soluble | | |
|  | c) | Oxides are strong bases | | | d) | Oxides are strong acids | | |
| 131. | The alkali metals dissolve in liquid , it is found that | | | | | | | |
|  | a) | The dilute solutions are blue but the colour changes to bronze with increasing concentration | | | | | | | |
|  | b) | The blue colour is due to the presence of solvated electrons | | | | | | | |
|  | c) | The blue solutions are paramagnetic but the bronze-coloured solutions are diamagnetic | | | | | | | |
|  | d) | All of the facts given above are found | | | | | | | |
| 132. | on hydrolysis forms ( is an alkali metal) | | | | | | | |
|  | a) | and | b) | and | c) | and | d) | and |
| 133. | Mg and Zn do not resemble in following properties | | | | | | | |
|  | a) | Oxides are amphoteric | | | b) | Carbonates o heating form metal oxides | | |
|  | c) | Widely used as electrodes | | | d) | Used to prevent corrosion | | |
| 134. | In water | | | | | | | |
|  | a) | Temporary harden is due to the bicarbonates of and | | | | | | | |
|  | b) | Permanent harness is due to chlorides and sulphates of and | | | | | | | |
|  | c) | Hardness can be removed by adding phosphates | | | | | | | |
|  | d) | All of the above properties are true | | | | | | | |
| 135. | Which is used to treat acid indigestion? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 136. | When gas is passed into aqueous product formed is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 137. | Following compounds are used in fire-works | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | All of these |
| 138. | In polymeric there are | | | | | | | |
|  | a) | Three centre two-electron bonds | | | b) | Three centre three-electron bonds | | |
|  | c) | Two centre three-electrons bonds | | | d) | Two centre two-electron bonds | | |
| 139. | The product obtained on fusion of and is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 140. | is not used in | | | | | | | |
|  | a) | Paper industry | b) | Soap industry | c) | Rayon industry | d) | Plastic industry |
| 141. | The first ionization potential of Na is . The value of electron gain enthalpy of will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 142. | Select the correct statement(s) | | | | | | | |
|  | a) | decomposes into oxides while other alkali carbonates are thermally stable | | | | | | | |
|  | b) | is predominantly covalent | | | | | | | |
|  | c) | is stable | | | | | | | |
|  | d) | All of the above | | | | | | | |
| 143. | Mixture of and is called | | | | | | | |
|  | a) | Portland cement | b) | Sorel’s cement | c) | Double salt | d) | None of these |
| 144. | Be and show diagonal relationship hence, both have | | | | | | | |
|  | a) | Same degree of electronegativity | | | b) | Amphoteric nature of oxides | | |
|  | c) | Approximately same charge/radius ratio | | | d) | All the properties above | | |
| 145. | Which of the following carbonate decompose most easily on heating? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 146. | Going down to II A group, following properties increase except | | | | | | | |
|  | a) | Solubility of hydroxides in | | | b) | Hydration energy | | |
|  | c) | Thermal stability of carbonates | | | d) | Ionic radius | | |
| 147. | Which of the following halide of calcium is insoluble in water? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 148. | Be in undergoes | | | | | | | |
|  | a) | Linear hybridization | | | b) | Trigonal hybridization | | |
|  | c) | Tetrahedral hybridization | | | d) | No hybridisation | | |
| 149. | The right order of the solubility of sulphates of alkaline earth metals in water | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) |  | | | d) |  | | |
| 150. | A colourless solid on heating evolved and also gave a white residue, soluble in water. Residue also gave when treated with dilute acid. is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 151. | Bleaching action of is due to | | | | | | | |
|  | a) | Nascent oxygen | b) | Chlorine | c) |  | d) |  |
| 152. | Ripening of fruits can be carried out in presence of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 153. | Select the correct statement(s) | | | | | | | |
|  | a) | is only sparingly soluble in water and no has been isolated | | | | | | | |
|  | b) | cannot be made by a method similar to the ammonia-soda process | | | | | | | |
|  | c) | and both are thermally stable | | | | | | | |
|  | d) | is a mineral called trona | | | | | | | |
| 154. | The solubilities of carbonates decrease down the magnesium group due to a decrease in | | | | | | | |
|  | a) | Lattice energies of solids | | | b) | Hydration energies of cations | | |
|  | c) | Interionic attractions | | | d) | Entropy of solution formation | | |
| 155. | Which is not the -block element? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 156. | Bleaching powder loses its power on keeping for a long time because | | | | | | | |
|  | a) | It changes into calcium hypochlorate | | | | | | | |
|  | b) | It changes into calcium chloride and calcium hydroxide | | | | | | | |
|  | c) | It absorbs moisture | | | | | | | |
|  | d) | It changes into calcium chloride and calcium | | | | | | | |
| 157. | () and are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | None is correct |

**Multiple Correct Answers Type**

| 158. | The reagent(s) used for softening the temporary hardness of water is (are) | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 159. | Select the correct statement(s) | | | | | | | |
|  | a) | Alkali metals-ozonides are coloured and paramagnetic | | | | | | | |
|  | b) | Alkali metals-ozonides are colourless and diamagnetic | | | | | | | |
|  | c) | Sesquoxides of alkali metals are peroxides disuperoxides | | | | | | | |
|  | d) | Sesquoxides are paramagnetic due to presence of superoxide ion | | | | | | | |
| 160. | Which are true statements about -block elements? | | | | | | | |
|  | a) | Metals are obtained by the electrolysis of fused chlorides | | | | | | | |
|  | b) | Oxides are basic except | | | | | | | |
|  | c) | +1 valency by alkali metals and +2 valency by alkaline earth metals is shown | | | | | | | |
|  | d) | Carabonates are thermally stable | | | | | | | |
| 161. | can reduce | | | | | | | |
|  | a) | Carbonyl compounds into alcohols | | | b) | Alkenes into alkanes | | |
|  | c) | group into | | | d) | Either into alcohols | | |
| 162. | Sesquoxides of alkali metals | | | | | | | |
|  | a) | Have been prepared by careful thermal decomposition of | | | | | | | |
|  | b) | Are dark-coloured paramagnetic substances | | | | | | | |
|  | c) | Are colourless diamagnetic substances | | | | | | | |
|  | d) | Are coloured diamagnetic substances | | | | | | | |
| 163. | Select the correct statement(s) | | | | | | | |
|  | a) | Radius of hydrated ion is smaller than that of hydrated ion | | | | | | | |
|  | b) | Ionic mobility of hydrated ion is smaller than that of hydrated ion | | | | | | | |
|  | c) | Hydrated is more conducting that hydrated ion | | | | | | | |
|  | d) | Ionic mobility of hydrated | | | | | | | |
| 164. | Select the correct alternate(s) | | | | | | | |
|  | a) | In the ions are linked into infinite chain | | | | | | | |
|  | b) | In , a dimer is formed by H-bonding | | | | | | | |
|  | c) | In , a dimer is formed by H-bonding | | | | | | | |
|  | d) | In , the ions are linked into infinite chain | | | | | | | |
| 165. | Recently sodium naphthenide has been used as reductant in complex formation. is | | | | | | | |
|  | a) | Paramagnetic | b) | Deep-green in colour | c) | Diamagnetic | d) | colourless |
| 166. | Select the correct alternate(s) | | | | | | | |
|  | a) | All alkali metals form solid bicarbonates | | | | | | | |
|  | b) | Except , all alkali metals bicarbonates are solid | | | | | | | |
|  | c) | decomposes into and | | | | | | | |
|  | d) | decomposes into and | | | | | | | |
| 167. | Select the correct statement(s) | | | | | | | |
|  | a) | contains the paramagnetic ion | | | | | | | |
|  | b) | is stable only in the presence of large cations as K, and Cs | | | | | | | |
|  | c) | is paramagnetic and has orange colour | | | | | | | |
|  | d) | has antifluorite structure | | | | | | | |
| 168. | Which is/are true statement(s)? | | | | | | | |
|  | a) | The heats of hydration of the dipositive alkaline earth metal ions decrease with an increase in their ionic size | | | | | | | |
|  | b) | Hydration of alkali metal ion is less than that of IIA | | | | | | | |
|  | c) | Alkaline earth metal ions, because of their much larger charge to size ratio exert a much stronger electrostatic attraction on the oxygen of water molecular surrounding them | | | | | | | |
|  | d) | None of the above statements is correct | | | | | | | |
| 169. | and differ in | | | | | | | |
|  | a) | is thermally stable while decomposes into and | | | | | | | |
|  | b) | forms complexes, does not | | | | | | | |
|  | c) | is water soluble, is insoluble | | | | | | | |
|  | d) | and both give colour in flame when ignited | | | | | | | |
| 170. | Select the correct alternate(s) | | | | | | | |
|  | a) | Solid and and deliquescent | | | | | | | |
|  | b) | is used in preference to in gun powder | | | | | | | |
|  | c) | is used in preference to in gun powder | | | | | | | |
|  | d) | exists in solid state | | | | | | | |

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| **Assertion - Reasoning Type** | | | |
| This section contain(s) 0 questions numbered 171 to 170. Each question containsstatement 1(Assertion) and statement 2(Reason). Each question has the 4 choices (a), (b), (c) and (d) out of which **only one** is correct. | | | |
|  | a) | Statement 1 is True, Statement 2 is True; Statement 2 **is** correct explanation for Statement 1 | |
|  | b) | Statement 1 is True, Statement 2 is True; Statement 2 **is not** correct explanation for Statement 1 | |
|  | c) | Statement 1 is True, Statement 2 is False | |
|  | d) | Statement 1 is False, Statement 2 is True | |

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| 171 |  | | |
|  | **Statement 1:** | | S block elements are highly electropositive. |
|  | **Statement 2:** | | The valance electrons present in s orbital are loosely held. |

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| 172 |  | | |
|  | **Statement 1:** | | Group 1 elements are known as the alkali elements. |
|  | **Statement 2:** | | S orbital can accommodate only two electrons. |

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| 173 |  | | |
|  | **Statement 1:** | | Gypsum is added to cement to increase its rate of setting. |
|  | **Statement 2:** | | Gypsum is calcium sulphate hemihydrates. |

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| 174 |  | | |
|  | **Statement 1:** | | Radium is most abundant s block elements. |
|  | **Statement 2:** | | S block elements are non radioactive in nature. |

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| **Matrix-Match Type** | | | | | | | | | |
| This section contain(s) 0 question(s). Each question contains Statements given in 2 columns which have to be matched. Statements (A, B, C, D) in **columns I** have to be matched with Statements (p, q, r, s) in **columns II**. | | | | | | | | | |

| 175. | Match Column I (compounds) with Column II (associated uses) | | | | | | | | |

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|  | **Column-I** | | | **Column- II** | | | |
|  | **(A)** |  | | (1) | | Baking | |
|  | **(B)** |  | | (2) | | Photovoltaic cell | |
|  | **(C)** |  | | (3) | | Submarine | |
|  | **(D)** | Cs | | (4) | | Humidity control | |
|  | **CODES :** | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **A** | **B** | **C** | **D** |  |  |
|  | **a)** | 2 | 3 | 1 | 4 |  |  |
|  | **b)** | 4 | 2 | 3 | 1 |  |  |
|  | **c)** | 3 | 1 | 4 | 2 |  |  |
|  | **d)** | 1 | 4 | 2 | 3 |  |  |

| 176. | Match the mineral names (in Column I) with the chemical formulae (in Column II) | | | | | | | | |

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|  | **Column-I** | | | **Column- II** | | | |
|  | **(A)** | Magnesite | | (1) | |  | |
|  | **(B)** | Dolomite | | (2) | |  | |
|  | **(C)** | Kieserite | | (3) | |  | |
|  | **(D)** | Carnallite | | (4) | |  | |
|  | **CODES :** | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **A** | **B** | **C** | **D** |  |  |
|  | **a)** | 3 | 4 | 2 | 1 |  |  |
|  | **b)** | 2 | 1 | 3 | 4 |  |  |
|  | **c)** | 4 | 2 | 1 | 3 |  |  |
|  | **d)** | 1 | 3 | 4 | 2 |  |  |

| 177. | Select the metals (in Column I) with the specific properties of the compounds (in Column II) | | | | | | | | |

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|  | **Column-I** | | | **Column- II** | | | |
|  | **(A)** |  | | (1) | | Supper oxide | |
|  | **(B)** | Na | | (2) | | Lewis acid a chloride | |
|  | **(C)** | K | | (3) | | Most negative value of | |
|  | **(D)** | Be | | (4) | | Thermally stable carbonate | |
|  | **(E)** | Mg | | (5) | | No flame colouration of the chloride | |
|  | **CODES :** | | | | | | | |

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|  |  | **A** | **B** | **C** | **D** | **E** |  |
|  | **a)** | 3 | 4 | 1 | 2 | 5 |  |
|  | **b)** | 2 | 3 | 4 | 5 | 5 |  |
|  | **c)** | 1 | 2 | 5 | 3 | 5 |  |
|  | **d)** | 5 | 1 | 3 | 4 | 5 |  |

| 178. | Match the species in Column I with given property (ies) in Column II | | | | | | | | |

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|  | **Column-I** | | | **Column- II** | | | |
|  | **(A)** |  | | (1) | | Paramagnetic | |
|  | **(B)** |  | | (2) | | Ether soluble | |
|  | **(C)** |  | | (3) | | Humidity control | |
|  | **(D)** |  | | (4) | | Coloured compounds | |
|  | **CODES :** | | | | | | | |

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|  |  | **A** | **B** | **C** | **D** |  |  |
|  | **a)** | 2,3 | 4,5 | 2,1 | 1,5 |  |  |
|  | **b)** | 1,5 | 2 | 2,3 | 4,5 |  |  |
|  | **c)** | 1,2 | 1,5 | 4,5 | 2,3 |  |  |
|  | **d)** | 4,5 | 2,3 | 1,5 | 1,5 |  |  |

| 179. | Match compounds (in Column I) with the specific properties of the compounds (in Column II) | | | | | | | | |

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|  | **Column-I** | | | **Column- II** | | | |
|  | **(A)** |  | | (1) | | Temporary hardness | |
|  | **(B)** |  | | (2) | | Permanent hardness | |
|  | **(C)** |  | | (3) | | Decomposes readily | |
|  | **(D)** |  | | (4) | |  | |
|  | **CODES :** | | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **A** | **B** | **C** | **D** |  |  |
|  | **a)** | 2 | 3 | 1 | 4 |  |  |
|  | **b)** | 3 | 4 | 2 | 1 |  |  |
|  | **c)** | 1 | 2 | 4 | 3 |  |  |
|  | **d)** | 4 | 1 | 3 | 2 |  |  |

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| **Linked Comprehension Type**  This section contain(s) 14 paragraph(s) and based upon each paragraph, multiple choice questions have to be answered. Each question has atleast 4 choices (a), (b), (c) and (d) out of which **only one** is correct.  **Paragraph for Question Nos. 180 to -180** | | | | | | | | |
| A ∆ Boxide+CO2B+H2O→(C)C+CO2→A(milky)C+NH4Cl ∆DgasD+H2O+CO2→EE+NaCl→FF ∆ Na2CO3+CO2+H2O | | | | |

| 180. | Name of the process is | | | | | | | |
|  | a) | Solvay | b) | Ammonia-soda | c) | Both (a) & (b) correct | d) | None is correct |
| **Paragraph for Question Nos. 181 to - 181** | | | | | | | | |

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| Read the following passage and answer the questions at the end of itDilute solutions of alkali metals in liquid NH3 are blue. It is the ammoniated electron which is responsible for the blue colour of the solution, and the electrical conductivity is due to the ammoniated cation, MNH3x+ as well as the ammoniated electron, eNH3y-, values of x and y depend on the extent of salvation (by NH3). Dilute solutions are paramagnetic due to free electrons | | | | |

| 181. | What happens if alkali metal is allowed to react with concentrated ammonia solution? | | | | | | | |
|  | a) | Paramagnetic character of solvated electrons is retained | | | | | | | |
|  | b) | Solvated electrons associate to form electron-pairs and paramagnetic character decreases | | | | | | | |
|  | c) | Reducing character is increased | | | | | | | |
|  | d) | Reducing character is not affected | | | | | | | |
| **Paragraph for Question Nos. 182 to - 182** | | | | | | | | |

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| Questions given below are based on the following values of hydration energy and lattice energyHydration energy∆Hhydr. (kJ mol-1)Lattice energy∆HU (kJ mol-1)Li+ -499Na+ -390K+ -305Cl- -382LiCl -840NaCl -776KCl -703 | | | | |

| 182. | Which salt has maximum heat of hydration? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | and equally |
| **Paragraph for Question Nos. 183 to - 183** | | | | | | | | |

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| Answer the questions based on the following flow-sheet | | | | |

| 183. | This flow-sheet represents | | | | | | | |
|  | a) | Solvay process of | | | b) | Solvay process of | | |
|  | c) | Dow process of | | | d) | None of the above is correct | | |
| **Paragraph for Question Nos. 184 to - 184** | | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Reduction potentials of group 1 (alkali metals) are given below:ElementE°ULi++e-→LiNa++e-→NaK++e-→KRb++e-→RbCs++e-→Cs-3.045-2.714-2.925-2.925-2.923Answer the following questions | | | | |

| 184. | Which is the best reducing agent? | | | | | | | |
|  | a) | Li | b) | Na | c) |  | d) | Cs |
| **Paragraph for Question Nos. 185 to - 185** | | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| “Calcium oxide, CaO, is used to remove SO2 from power plant exhaust”Based on the above statement, answer the following questions | | | | |

| 185. | In what form removes ? | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| **Paragraph for Question Nos. 186 to - 186** | | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Based on following analytical data, answer the questionsA mineral which can be represented by the formula MgxBayCO3z, was analysed as described belowA sample of the mineral was dissolved in excess hydrochloric acid and the solution made up to 100 cm3 with water. During the process 48 cm3 of carbon dioxide, measured at 25℃ and 1 atmosphere pressure, were evolvedA 25.0 cm3 portion of the resulting solution required 25.0 cm3 of EDTA solution of concentration 0.2 mol dm3 to reach an end-point. A further 25.0 cm3 portion gave a precipitate of barium sulphate of mass 0.058 g on treatment with excess dilute sulphuric acid. You may assume that group-2 metal ions from 1:1 complexes with EDTAMolar volume of any gas at 25℃ and 1 atmosphere pressure =24 dm3) | | | | |

| 186. | Formula of the mineral is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| **Paragraph for Question Nos. 187 to - 187** | | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Questions given below are based on the following enthalpy valuesThe standard enthalpy of formation ∆Hfo, of hypothetical CaCl(s) theoretically found to be -188 kJ mol-1 and that of CaCl2s-795 kJ mol-1 | | | | |

| 187. | Which of the following compounds is more stable? | | | | | | | |
|  | a) |  | | | b) |  | | |
|  | c) | Both (a) & (b) are equally stable | | | d) | Nothing can be said | | |
| **Paragraph for Question Nos. 188 to - 189** | | | | | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ∆G° values (kJ mol-1) for the following cases can givenMCO3 → MO+ CO2-394.4Mg -1028.2-568.9 64.9Ca -1129.2-603.4165.9Ba-1134.4-520.4219.6Answer the following question | | | | |

| 188. | Maximum value of is for the reaction when is | | | | | | | |
|  | a) | Mg | b) | Ca | c) |  | d) | Equal for all cases |

**Integer Answer Type**

| 189. | Magnesium allyide is where is….. | | | | | | | |
| 190. | Potassium superoxide has….. unpaired electron(s) | | | | | | | |
| 191. | Bleaching powder has two types of chlorine one with oxidation number and other with oxidation number…… | | | | | | | |
| 192. | disproportionates to and on passing into hot solution. In this process each mole of consumes …… mole(s) of | | | | | | | |
| 193. | When in heated, change in oxidation number of N is….. | | | | | | | |
| 194. | When is heated, change in oxidation number of N is….. | | | | | | | |
| 195. | One mole of is neutralized by mole(s) of | | | | | | | |
| 196. | 96 g of Mg is burnt in air in a closed chamber. On analysis 25% of Mg is converted into oxide and remaining Mg into other possible product. Residue is dissolving in and neutralized by . Number of moles of required is…… | | | | | | | |
| 197. | Number of -electrons in is….. | | | | | | | |
| 198. | When one mole of is heated, obtained is …… mole | | | | | | | |
| 199. | Number of neutrons in is…… | | | | | | | |
| 200. | Epsom salt contains….. water molecules (of hydration) | | | | | | | |
| 201. | Magnesium is coordinated to N-atoms in chlorophyll. Number of rings in chlorophyll is……. | | | | | | | |
| 202. | Number of elements in second period showing diagonal relationship is….. | | | | | | | |
| 203. | removes permanent hardness  10 L of hard water required 0.0848 g. Thus, harden in ppm of is…… | | | | | | | |
| 204. | Number of ions joined by H-bonding in is….. | | | | | | | |
| 205. | Bond order of oxide in sodium peroxide is….. | | | | | | | |
| 206. | Hydrated sodium sulphite has . Number of molecules of hydration is….. | | | | | | | |
| 207. | Magnesium nitride is where is…… | | | | | | | |
| 208. | Number of electrons in magnesium ion formed by three steps ionization of magnesium is….. | | | | | | | |
| 209. | values of some metals are  : V  V  V  V  V  V  Number of metals which can displace gas from acid is…… | | | | | | | |
| 210. | Coordination number of complexes of beryllium is….. | | | | | | | |
| 211. | In question ….. | | | | | | | |
| 212. | One mole of lithium nitride is decomposed by and resultant solution is neutralized by . Number of moles of required is…. | | | | | | | |
| 213. | Magnesium is coordinated to …… N atoms in chlorophyll | | | | | | | |
| 214. | Potassium sesquoxide has actually ….. O atoms | | | | | | | |
| 215. | has 8.54% Mg, 48.75% Ba and remaining carbonate. 0.281 kg is decomposed by formed is …… mole(s) | | | | | | | |
| 216. | When is passed into hot alkali solution, products formed have two types of chlorine. Difference in oxidation number of two chlorine atoms is…… | | | | | | | |
| 217. | Number of water molecules in gypsum is….. | | | | | | | |
| 218. | Unpaired electron(s) in superoxide ion…. | | | | | | | |
| 219. | is absorber and producer as shown  Values of is…… | | | | | | | |
| 220. | Number of radioactive elements in -block is….. | | | | | | | |

**ACTIVE SITE TUTORIALS**

**Date :** 20-08-2019 **TEST ID: 528**

**Time :** 12:21:00 **CHEMISTRY**

**Marks :** 718

10.THE S-BLOCK ELEMENTS

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1) c 2) b 3) d 4) d**  **5) d 6) c 7) a 8) c**  **9) d 10) b 11) c 12) b**  **13) d 14) a 15) d 16) c**  **17) b 18) c 19) c 20) a**  **21) a 22) a 23) c 24) c**  **25) a 26) c 27) a 28) c**  **29) a 30) d 31) a 32) b**  **33) a 34) c 35) c 36) d**  **37) a 38) d 39) c 40) c**  **41) a 42) b 43) d 44) a**  **45) a 46) c 47) b 48) d**  **49) c 50) a 51) c 52) a**  **53) a 54) c 55) d 56) a**  **57) a 58) a 59) a 60) d**  **61) c 62) c 63) d 64) d**  **65) d 66) b 67) c 68) a**  **69) b 70) b 71) b 72) d**  **73) a 74) d 75) c 76) a**  **77) c 78) c 79) c 80) a**  **81) b 82) d 83) d 84) c**  **85) a 86) b 87) b 88) a**  **89) b 90) c 91) b 92) b**  **93) d 94) d 95) a 96) c**  **97) c 98) a 99) d 100) d**  **101) b 102) a 103) a 104) c**  **105) b 106) a 107) c 108) b**  **109) d 110) c 111) b 112) b**  **113) b 114) b 115) a 116) c**  **117) a 118) d 119) b 120) c**  **121) c 122) c 123) d 124) a**  **125) c 126) b 127) c 128) d**  **129) c 130) a 131) d 132) b**  **133) a 134) d 135) c 136) d**  **137) d 138) a 139) b 140) d**  **141) b 142) d 143) b 144) d**  **145) d 146) b 147) c 148) a**  **149) a 150) d 151) c 152) d**  **153) c 154) a 155) b 156) d**  **157) c 1) b,c,d 2) a,c,d 3) a,b,c 4) a,d**  **5) a,b 6) b,c,d 7) a,b 8) a,b**  **9) b,c 10) a,b,c,d 11) a,b,c 12) a,b,c**  **13) a,b,d 1) a 2) b 3) d 4) d**  **1) c 2) a 3) a 4) d**  **5) b 1) a 2) b 3) a 4) b**  **5) a 6) a 7) b 8) b**  **9) c 1) 3 2) 1 3) 1 4) 2**  **5) 1 6) 2 7) 2 8) 5**  **9) 6 10) 0 11) 5 12) 7**  **13) 8 14) 3 15) 8 16) 2**  **17) 1 18) 7 19) 5 20) 9**  **21) 4 22) 4 23) 4 24) 4**  **25) 4 26) 6 27) 2 28) 8**  **29) 2 30) 1 31) 3 32) 2** | | | | |

**ACTIVE SITE TUTORIALS**

**Date :** 20-08-2019 **TEST ID: 528**

**Time :** 12:21:00 **CHEMISTRY**

**Marks :** 718

10.THE S-BLOCK ELEMENTS

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | **(d)** | | | | | | | |
| 7 | **(a)**  Due to low (IE) and most negative values | | | | | | | |
| 8 | **(c)** | | | | | | | |
| 9 | **(d)**  is used as preservatives of dead biological specimen | | | | | | | |
| 11 | **(c)** | | | | | | | |
| 12 | **(b)**  Chlorides are Lewis acids | | | | | | | |
| 14 | **(a)** | | | | | | | |
| 16 | **(c)** | | | | | | | |
| 18 | **(c)**  Mg does not react with | | | | | | | |
| 20 | **(a)**  is thermally stable | | | | | | | |
| 22 | **(a)**  soluble | | | | | | | |
| 24 | **(c)**  is paramagnetic due to  is actually  Peroxide superoxide  Thu, it also paramagnetic | | | | | | | |
| 30 | **(d)** | | | | | | | |
| 33 | **(a)** | | | | | | | |
| 38 | **(d)**  (a)    (c)  Insoluble  in    is water soluble | | | | | | | |
| 40 | **(c)** | | | | | | | |
| 42 | **(b)**  Smaller the size of cation, larger the hydration; size of  Thus, is least hydrated  Thus, I is incorrect  Li has closed packed structure. Thus, II is correct  Only Li forms nitride. Thus, III is correct  Thus, II and III are correct | | | | | | | |
| 44 | **(a)**  Smaller the size of cation, larger the hydration, hence, larger the stability of hydrated ion | | | | | | | |
| 47 | **(b)** | | | | | | | |
| 50 | **(a)**  It involved hydration hence exothermic | | | | | | | |
| 51 | **(c)**  (a)  and are removed  (b)  is removed | | | | | | | |
| 52 | **(a)**  make permanent hardness | | | | | | | |
| 56 | **(a)**  Be   |  |  | | --- | --- | | ⥮ | ⥮ |   He   |  | | --- | | ⥮ |   Due to stable electronic configuration tendency to gain electron is minimum | | | | | | | |
| 61 | **(c)**  (as fixer) dissolves unreacted as | | | | | | | |
| 67 | **(c)** | | | | | | | |
| 68 | **(a)**  salt)  salt)  of is minimum, thus decomposition of is most feasible | | | | | | | |
| 69 | **(b)** | | | | | | | |
| 71 | **(b)**  Sodium thiosulphate, gets oxidised by chlorine water. | | | | | | | |
| 72 | **(d)**  golden yellow  no flame | | | | | | | |
| 73 | **(a)**  Deep violet soluble  in ether | | | | | | | |
| 74 | **(d)** | | | | | | | |
| 77 | **(c)** | | | | | | | |
| 78 | **(c)**  Third IE is very high, thus it represents alkali earth metal (Be) | | | | | | | |
| 81 | **(b)**  actually exists as is paramagnetic | | | | | | | |
| 82 | **(d)**  Gypsum is | | | | | | | |
| 85 | **(a)** | | | | | | | |
| 86 | **(b)** | | | | | | | |
| 88 | **(a)** | | | | | | | |
| 89 | **(b)**  is stable due to larger anion which polarises | | | | | | | |
| 95 | **(a)**  Smaller cation larger hydration thus smaller molar ionic conductance  **Ionic size**  **Hydration**  **Size of hydration ion**  **Molar ionic conductance** | | | | | | | |
| 97 | **(c)**  is acidic and decomposed by forming  acid base | | | | | | | |
| 101 | **(b)**  Potassium antimonyl tartrate | | | | | | | |
| 102 | **(a)**  (a) is alkalide ion  Paramagnetic due to unpaired electrons  Diamagnetic due to paired electrons | | | | | | | |
| 104 | **(c)**  anion | | | | | | | |
| 105 | **(b)**  Alkali salts are colourless  colourless yellow since is yellow  colourless yellow  pink since is pink  green since is green | | | | | | | |
| 106 | **(a)**  is paramagnetic due to one unpaired electron) (is paramagnetic due to one unpaired electron on N) | | | | | | | |
| 107 | **(c)**  is very high indicates +2 oxidation state. Thus, Be | | | | | | | |
| 108 | **(b)** | | | | | | | |
| 110 | **(c)**  Molar solubility is in (Reference Concise) inorganic Chemistry J.D. Lee) | | | | | | | |
| 111 | **(b)** | | | | | | | |
| 112 | **(b)**  Li and Na do not form superoxide | | | | | | | |
| 115 | **(a)**  Solution 46-49  () | | | | | | | |
| 116 | **(c)** | | | | | | | |
| 117 | **(a)**  Smaller cation polarizes anion to a greater extent hence larger covalent nature and thus lattice energy | | | | | | | |
| 119 | **(b)** | | | | | | | |
| 126 | **(b)**  In molten state | | | | | | | |
| 127 | **(c)**  (a) Last filling is in thus it is -block element  (b) same as (a)  Thus, both are -block element | | | | | | | |
| 128 | **(d)**  basic  basic  acidic  acidic | | | | | | | |
| 130 | **(a)**   |  |  | | --- | --- | | **IA** (Alkali) | **IB** (Coinage) | | (a)  (b) soluble  (c)  Strong base  (d) also false | valency thus true  less soluble  Weak base  Thus, false | | | | | | | | |
| 133 | **(a)**  basic oxide  amphoteric oxide  Thus, Mg and Zn do not resemble in this behaviour | | | | | | | |
| 136 | **(d)** | | | | | | | |
| 137 | **(d)**  on ignition imparts crimson red  green  green (due to ) | | | | | | | |
| 139 | **(b)** | | | | | | | |
| 142 | **(d)** | | | | | | | |
| 145 | **(d)**  Alkali metal carbonate are not decomposed on heating | | | | | | | |
| 146 | **(b)**  Larger the size, smaller the hydration energy | | | | | | | |
| 148 | **(a)**  -linear | | | | | | | |
| 150 | **(d)**    no effect of heat    insoluble in water | | | | | | | |
| 151 | **(c)** | | | | | | | |
| 152 | **(d)**  used to ripen fruits | | | | | | | |
| 153 | **(c)**  and are decomposed by heating | | | | | | | |
| 155 | **(b)**  (a) (-block)  (b) (-block)  (c) in ground state -block) and in excited state  (d) ground state  excited state  Thus, -block | | | | | | | |
| 156 | **(d)** | | | | | | | |
| 171 | **(a)**  The loosely held -electron in the outermost valence shell of these elements makes them, the most electropositive metals which readily give ion’s or . | | | | | | | |
| 172 | **(b)**  If Assertion is True, Reason is True, Reason is correct explanation of 1  If Assertion is True, Reason is True, Reason is not correct explanation of 1  If Assertion is True, Reason is False  If Assertion is False, Reason is True | | | | | | | |
| 173 | **(d)**  Gypsum is added to coment to decrease its rate of setting.  Gypsum is calcium sulphate dehydrate. | | | | | | | |
| 174 | **(d)**  Radium is rarest of all -block elements. Francium is radioactive. Its long lived isotope has a half-life of only 21 min. | | | | | | | |
| 180 | **(a)**  Solution 46-49  () | | | | | | | |