

## CHEMISTRY 7<sup>th</sup>

- Which of the following process has negative values of  $\Delta S$ ?  
A. Evaporation of water B. Decomposition of lime  
C. Stretching of rubber band D. Dissolution of sugar in water
- The ionization constant of acetic acid is  $1.8 \times 10^{-8}$ . At what concentration will it be dissociated to 2%?  
A. 0.045 M B. 1 M C. 0.018 M D. 0.18 M
- In which one of the following cases,  $\Delta S = \Delta H/T$ ?  
A. an adiabatic process B. a process at constant pressure  
C. an isothermal reversible phase change D. a process for which  $\Delta C_p = 0$
- A gas is found to have a formula  $[\text{CO}]_x$ . If its vapour density is 70, then the value of x is  
A. 6.0 B. 5.0 C. 3.0 D. 2.5
- The molarity of a solution obtained by mixing 750 ml of 0.5 M HCl with 250 ml of 2 M HCl will be  
A. 1.25 M B. 2.5 M  
C. 0.875 M D. 1.00 M
- If the observed and theoretical molecular weight of NaCl is found to be 31.80 and 58.50, then the degree of dissociation of NaCl is  
A. 100% B. 90% C. 83.96% D. 8.39%
- Which of the following aqueous solutions will conduct an electric current quite well?  
A. Pure water B. Glycerol C. HCl D. Sugar
- The electropositive solution among the following is  
A. Tannic acid B. Gold  
C. Silicic acid D. Prussian blue
- In the Leclanche dry cell, anode is  
A. Zinc container B.  $\text{MnO} + \text{Carbon}$   
C. Graphite rod D. Carbon
- The mass number of a nucleide is 64. What is its nuclear radius?  
A. 5.6 Fermi B. 3.8 Fermi C. 1 Fermi D. 6.5 Fermi
- Sodium peroxide on treatment with cold dil.  $\text{H}_2\text{SO}_4$  gives  
A.  $\text{H}_2\text{O}_2 + \text{Na}_2\text{SO}_4$  B.  $\text{H}_2\text{O}_2 + \text{Na}_2\text{SO}_4 + \text{O}_2$   
C.  $\text{H}_2\text{O} + \text{Na}_2\text{SO}_3$  D.  $\text{H}_2\text{O} + \text{Na}_2\text{SO}_4$
- Which of the following hydroxides is the weakest base?  
A.  $\text{Ca}(\text{OH})_2$  B.  $\text{Sr}(\text{OH})_2$  C.  $\text{LiOH}$  D.  $\text{KOH}$
- The ionization energies of B and Al as compared to Be and Mg are  
A. higher B. equal  
C. lower D. none of the above
- Which is the electronic configuration of the outermost shell of group 16 elements?

- A.  $ns^2np^4$  B.  $ns^2np^5$  C.  $ns^2np^3$  D.  $ns^2np^2$
15. Which of the following belongs to halogen family?  
A. Astatine B. Radium C. Polonium D. Francium
16. The oxalate of which of the following elements is component of most kidney stones?  
A. Ca B. Na C. Ba D. Mg
17. Which of the following can absorb largest volume of hydrogen gas?  
A. Colloidal solution of palladium B. Colloidal hydroxide  
C. Finely divided nickel D. Finely divided platinum
18. In Borax bead test for quantitative analysis, which component of the lead reacts with basic radical to form metaborate?  
A.  $Na_2B_4O_7 \cdot 10H_2O$  B.  $Na_2BO_3$   
C.  $B_2O_3$  D.  $Na_2B_4O_7$
19. The azeotropic mixture of HCl and  $H_2O$  contains  
A. 20.2% HCl B. 57% HCl  
C. 36% HCl D. 48% HCl
20. Which of the following metals is obtained by leaching its ore with dilute cyanide solution?  
A. Vanadium B. Zinc C. Silver D. Tin
- A. It liberates hydrogen from boiling water  
B. It liberates hydrogen from hot alkali solution  
C. It liberates hydrogen from acids but not from alkalis  
D. It liberates hydrogen from acids as well as alkalis
22. In the manufacture of steel from pig iron, which of the following is used?  
A. Muffle furnace B. Blast furnace  
C. Carbon reduction D. Bessemer converter
23. Which of the following is used as an antacid in medicine?  
A. Milk of Magnesia B. Soda lime  
C. Lime water D. Milk of Lime
24. In hexacyanomanganate (II) ion, the Mn atoms assume  $d^2sp^2$  hybrid state. The number of unpaired electrons in the complex is  
A. 2 B. 3 C. 1 D. zero
25. Among the 3d-transition series, the I.E.  
A. decreases regularly in moving from left to right  
B. remains constant within the period  
C. increases gradually within the period, but the relative increase is not sharp  
D. increase regularly in moving from left to right
26.  $MnO_4^-$  ions can be reduced in strong alkaline media to give  
A.  $MnO_3^-$  B.  $MnO_4^{2-}$   
C.  $Mn^{2+}$  D.  $MnO_2$
27. 'Dien' is an example of \_\_\_\_\_ type of ligand.  
A. Bidentate B. Tridentate  
C. Monodentate D. None
28.  $PCl_3$  is stored in a well-stoppered bottle because  
A. it reacts with moisture of air B. it is decomposed by light  
C. it reacts with air to form  $POCl_3$  D. it is highly volatile
29. Which of the following is a condensation polymer?  
A. poly (ethylene glycol phthalate) B. neoprene

- C. polystyrene D. PAN
30. The disaccharide present in milk is  
A. Cellobiose B. Maltose C. Sucrose D. Lactose
31. Which of the following group is an auxochrome?  
A.  $-OCH_3$  B.  $-N(CH_3)_2$  C.  $-OH$  D. All
32. What is not different between atom and its ion?  
A. charge of the species B. electronic configuration  
C. nuclear charge D. size
33. How many structural isomers could be obtained from alkaline  $C_6H_{14}$ ?  
A. Five B. Four C. Seven D. Six
34. The most strained cycloalkane is  
A. Cyclobutane B. Cyclohexane C. Cyclopropane D. Cyclopentane
35. An organic compound is found to contain C = 40%, H = 6.66%. The empirical formula is  
A.  $C_2H_6O$  B. CHO C.  $CHO_2$  D.  $CH_2O$
36. n-Heptane passed over chromium trioxide supported over alumina at 873 K finally gives  
A. Ethylcyclopentane B. Carboxycyclohexane  
C. Cycloheptane D. Toluene
37. Noble's oil is  
A. detergent B. explosive C. insecticide D. fire extinguisher
38. When anisole is treated with  $Br_2$  in  $SCl_2$ , the product formed is  
A. mixture of ortho and para-bromo anisole B. methanol and methyl chloride  
C. methyl bromide and phenol D. bromobenzene
39. The vapour density of gas A is four times than B. If the molecular mass of B is M, then the molecular mass of A is  
A. 4 M B. 2 M C. M D.  $M/4$
40. The maximum number of electrons in p-orbital with  $n = 6$ ,  $m = 0$  is  
A. 14 B. 10 C. 6 D. 2
41. The correct arrangement of increasing order of atomic radius among Na, K, Mg, Rb is  
A.  $Na < K < Rb < Mg$  B.  $Mg < K < Na < Rb$   
C.  $Mg < Na < K < Rb$  D.  $Mg < Na < Rb < K$
42. The bond order of  $O_2$  - is  
A. 1 B. 2 C. 1.5 D. 2.5
43. At a certain temperature, the value of  $pK_w$  is 13.4 and the measured pH of a solution is 7. The solution is  
A. basic B. acidic C. neutral D. unpredictable
44. For an adiabatic process,  
A.  $\Delta E < W$  B.  $q = +W$  C.  $q = 0$  D.  $\Delta E \geq W$
45. Two flask of equal volume contain  $CO_2$  and  $SO_2$  respectively at  $25^\circ C$  and 1.5 atm. pressure. Which of the following is equal in them?  
A. rates of effusion B. number of molecules  
C. molecular structures D. masses of the two gases
46. A substance will be deliquescent if its vapour pressure  
A. is less than that of water vapour in air B. is greater than that of water vapour in air  
C. is equal to the atmospheric pressure D. is equal to that of water vapour in the air
47. When zinc is added to  $CuSO_4$  solution, copper is precipitated; it is so because of  
A. hydrolysis of  $CuSO_4$  B. reduction of  $SO_4$

- C. reduction of Zn D. reduction of  $\text{Cu}^{2+}$
48. From among the following triatomic molecules, the least bond angle is in  
A.  $\text{H}_2\text{S}$  B.  $\text{NO}_2$   
- C.  $\text{I}_3$   
- D.  $\text{O}_3$
49. A solution of sodium metal in liquid ammonia acts as a strong reducing agent due to the presence of  
A. sodium hydride B. solvated electrons  
C. sodium ions D.  $\text{NaNH}_2$
50. Hydrogen combines with other elements by  
A. gaining an electron B. losing an electron  
C. sharing an electron D. losing, gaining or sharing electron
51. An important ore of magnesium is  
A. galena B. carnalite C. cassiterite D. malachite
52. Which of the following gases is obtained when ammonium dichromate is heated?  
A. Nitrogen B. Nitrous oxide  
C. Oxygen D. Ammonia
53. The most common oxidation state for selenium in its compound is  
A. - 2 B. + 6 C. + 2 D. + 4
54. All halogens are coloured due to  
A. absorption of visible light B. absorption of ultra violet light  
C. absorption of infra red light D. none of the above
55. Which of the following cannot be oxidized by  $\text{H}_2\text{O}_2$ ?  
A.  $\text{Na}_2\text{SO}_3$  B.  $\text{O}_3$  C.  $\text{PbS}$  D.  $\text{KI}/\text{HCl}$
56. Boron trioxide can be reduced to boron with  
A. Mg B. Cu C. C D.  $\text{H}_2$
57. The estimation of reducing substances by the use of standard iodine solution is called  
A. iodometry B. iodimetry  
C. both 1) and 2) D. none of the above
58. An alloy is  
A. a solid containing two or more metals  
B. a metallic substance containing at least one metallic element  
C. a metallic substance containing at least one non-metal  
D. an interstitial compound
59. Which is manufactured by electrolysis of fused  $\text{NaCl}$ ?  
A. Na B.  $\text{NaOH}$  C.  $\text{NaClO}_3$  D.  $\text{NaClO}$
60. Which of the following metals is obtained by leaching out process using a solution of  $\text{NaCN}$  and then precipitating the metal by the addition of zinc dust?  
A. Iron B. Nickel C. Copper D. Silver
61. The function of sand in mortar is  
A. to make the mass compact  
B. to decrease the plasticity of the mass  
C. to prevent excessive shrinkage which might result in cracks  
D. to decrease the hardness
62. Which of the following does not show the variable oxidation state?  
A. Cu B. Mn C. Zn D. Fe
63. In photography,  $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$  is used  
A. for the conversion of  $\text{AgBr}$  into silver sulphate

- B. for the conversion of AgBr into soluble thiosulphate complex  
 C. for the conversion of AgBr into silver thiosulphate  
 D. in reduction of Ag metal from AgBr
64. Which one of the following alloys is used to make vessels to hold conc. H<sub>2</sub>SO<sub>4</sub>?  
 A. Trinitarian B. Ferromanganese  
 C. Silicobronze D. Ferrosilicon
65. Which of the following statements about ribose is incorrect?  
 A. It has six carbon atoms B. It exhibits optical activity  
 C. It is polyhydroxy compound D. It is an aldehyde sulphur
66. The antiseptic present in Dettol is  
 A. bithional B. iodine  
 C. chloroxylenol D. none of the above
67. Addition of Gold (III) chloride to glass mix cause it to develop  
 A. ruby colour B. green colour  
 C. hardness D. photochromatic properties
68. 2-Phenylpropenoic acid is IUPAC name of  
 A. Cinnamic acid B. Succinic acid  
 C. Pivallic acid D. Mendallic acid
69. In Lassaigne's test, the organic compound is fused with sodium metal so as to  
 A. form a sodium derivative  
 B. convert N, S or halogen into soluble ionic compound  
 C. burn the compound  
 D. none of the above
70. The most stable arrangement of double bonds in a polynuclear compound is the one in which the maximum number of rings possesses benzenoid structure. This rule is called as  
 A. Golden rule B. Dulong Petit's rule  
 C. Fries rule D. Huckel's rule
71. For the preparation of chloroethane,  
 A. ethyl sulphide is treated with hydrogen chloride  
 B. HCl gas is passed through ethanol  
 C. ethanol is treated with thionyl chloride in the presence of dimethyl amine  
 D. any of the above method
72. Vinyl chloride and ethyl chloride can be distinguished by  
 A. HCl/AgCl B. Lucas reagent  
 C. KOH, AgNO<sub>3</sub> D. AgCl
73. Ethers in contact with air for a long time form peroxides. The presence of peroxide in ether can be tested by adding Fe<sup>2+</sup> ions followed by the addition of  
 A. SnCl<sub>2</sub> B. HgCl<sub>2</sub> C. KI D. KCNS
74. Amongst the following, the strongest base is  
 A. N, N-dimethylaniline B. Aniline  
 C. 2, 4, 6-trimethylaniline D. 2, 4, 6-trinitroaniline
75. Formic acid reduces Tollen's reagent because  
 A. oxidation state of carbon in it is + 2 B. it is the weakest acid  
 C. it is highly strong acid D. it has an aldehyde group in its molecule
76. Which of the following gives alcohol on reduction?  
 A. Alkyl nitrite B. Amides  
 C. Nitroalkane D. Alkylcyanide
77. The number of gram-molecules of oxygen in  $6.02 \times 10^{24}$  CO molecules is

- A. 0.5 gm-molecule B. 1 gm-molecule  
 C. 10 gm-molecule D. 5 gm-molecule
78. The pH of solution formed by mixing 40 ml of 0.10 M HCl with 10 ml of 0.45 M of NaOH is  
 A. 12 B. 10 C. 6 D. 8
79. The density of Neon will be highest at  
 A. 273°C, 2 atm B. 273°C, 1 atm  
 C. 0°C, 2 atm D. STP
80. The given reaction  $2\text{FeCl}_3 + \text{SnCl}_2 \rightarrow 2\text{FeCl}_2 + \text{SnCl}_4$  is an example of  
 A. third order reaction B. second order reaction  
 C. first order reaction D. none of the above
81. Which of the following 0.1 M aqueous solutions have the lowest freezing point?  
 A. Sodium chloride B. Urea  
 C. Glucose D. Potassium sulphate
82. 50 mL of  $\text{H}_2\text{SO}_4$  solution requires 10 g pure  $\text{CaCO}_3$  for complete decomposition. The normality of acid is  
 A. 0.20 B. 9 C. 4 D. 0.10
83. When a lead storage battery is charged, it acts as  
 A. a galvanic cell B. a concentration cell  
 C. a fuel cell D. an electrolyte cell
84. The average molecular mass of colloidal can be determined by  
 A. Osmotic pressure measurement B. Flocculation value  
 C. Tyndall effect D. Boiling of colloidal
85. Nucleide having the same number of protons and also neutrons but differ in radioactivity are called as  
 A. nuclear isomers B. isodiaphers  
 C. isotones D. isobars
86. Alkali metals have very small value of electronegativity. The electronegativity down the group  
 A. decreases B. increases  
 C. remains same D. none of the above
87. The highest ionization energy among the following group 16 elements is possessed by  
 A. sulphur B. tellurium  
 C. selenium D. oxygen
88. Which of the following acts as an acid in sulphuric acid?  
 A.  $\text{HNO}_3$  B.  $\text{HClO}_4$   
 C.  $\text{H}_3\text{PO}_4$  D. Water
89. The density of oxygen gas at 25°C is 1.458 mg/litre at one atmosphere. At what pressure will oxygen have the density twice the value?  
 A. 4 atm/25°C B. 0.5 atm/25°C  
 C. 2 atm/25°C D. None
90. A sample of gas is at 0°C. The temperature at which its rms speed of the molecule will be doubled is  
 A. 819°C B. 723°C C. 273°C D. 103°C
91. An element has the electronic configuration  $1s^2 2s^2 2p^6 3s^2 3p^2$ . Its valency electrons are  
 A. 4 B. 6 C. 2 D. 3
92. The heaviest atom among the following is  
 A. Ra B. Pb C. Hg D. U
93. Which of the following statements is true?

- A. Some covalent compounds may also give ions in aqueous solution  
 B. Absolutely pure water does not contain any ion  
 C. Very sparingly soluble substances do not dissociate in aqueous solution  
 D. In aqueous solution, only electrovalent compounds give ions
94. Silicon has 4 electrons in the outermost orbit. In forming the bond,  
 A. it shares electrons B. it gains electrons  
 C. it losses electrons D. none
95. Which set have strongest tendency to form anions?  
 A. V, Cr, Mn B. N, O, F  
 C. Na, Mg, Al D. Ga, In, Te
96. If 0.22 g of substance when vaporized displaced 45 cm<sup>3</sup> of air measured over water at 293 K and 755 mm pressure, and if vapour pressure of H<sub>2</sub>O = 17.4 mm then the molecular weight of the substance will be  
 A. 121.1 B. 127.5 C. 222.2 D. 332.3
97. 2.3 mg of C<sub>2</sub>H<sub>5</sub>OH (mol. Wt. 46) is dissolved in 500 ml of water. The molarity of the solution is  
 A. 2.0 B. 0.05 C. 0.1 D. 0.01
98. Aqueous solution of SO<sub>2</sub> reacts with H<sub>2</sub>S to precipitate sulphur. Here SO<sub>2</sub> acts as a/an  
 A. oxidizing agent B. reducing agent  
 C. catalyst D. acid
99. The algebraic sum of potentials of two electrodes of a galvanic cell is called  
 A. Ionic difference B. EMF  
 C. Potential difference D. None of the above
100. On electrolysis of a sample of acidified water, 22.4 ml of H<sub>2</sub> was obtained. The volume of O<sub>2</sub> in ml obtained is  
 A. 11.2 ml B. 224.0 ml  
 C. 11.21 ml D. 22.4ml

**Solutions:**

- 1 2 3 4 5 6 7 8 9 10  
 C A A D C C C D A A  
 11 12 13 14 15 16 17 18 19 20  
 A C C A A A A C A C  
 21 22 23 24 25 26 27 28 29 30  
 C D A C C B B A A D  
 31 32 33 34 35 36 37 38 39 40  
 D C A C D D B A A D  
 41 42 43 44 45 46 47 48 49 50  
 C C A C B A D A B D  
 51 52 53 54 55 56 57 58 59 60  
 B A C A B A B B A D  
 61 62 63 64 65 66 67 68 69 70  
 C C B D A C A A B C  
 71 72 73 74 75 76 77 78 79 80  
 B C D C B A D A C A  
 81 82 83 84 85 86 87 88 89 90  
 D C D A A A D B C A  
 91 92 93 94 95 96 97 98 99 100  
 A D A A B A C A B A