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CHEMISTRY – 1996

1. **The required enzyme to convert glucose into alcohol is :**
   (1) Diastase   (2) Maltase   (3) Invertase   (4) Zymase

2. **Which of the following has strongest basic nature :**
   (1) m-nitroamiline   (2) p-nitroaniline   (3) Aniline   (4) Benzyl amine

3. **Which of the following is formed by the reaction of n-propyl bromide with alcoholic KOH :**
   (1) Propanol   (2) Propane   (3) Propene   (4) Propyne

4. **The free electron theory of metallic bond was given by :**
   (1) Drude and Lorenz   (2) Sommer field   (3) Pauling   (4) Stater

5. **By which of the following Law's 2-butene is the main product of dehydration of 2-butanol :**
   (1) Saytzeff's law
   (2) Markownikoff's law
   (3) Anti Markownikoff's
   (4) Peroxide effect

6. **Which of the following is proper catalyst for alkylisation of benzene :**
   (1) $C_6H_5NO_2$ (2) $AICI_3$ (3) Pt   (4) Ni

7. **In which of the following there is some value dipole moment :**
   (1) C_6H_6 (2) CH_4 (3) CO_2 (4) H_2O

8. **Which of the following is the last product of reduction of nitrobenzene in basic medium :**
   (1) Hydroazo benzene   (2) Aniline   (3) Phenityl hydroxyl amine   (4) Nitrobenzene

9. **The product of the reaction of chloroform with concentrate HNO_3.**
   (1) Nitromethane   (2) Nitrosyl chloride   (3) Methyl nitrite   (4) Chloropicrin

10. **The method of separation of a mixture of naphthalene and benzoic acid is :**
    (1) by alcohol   (2) by ether   (3) by cold water   (4) by Na_2CO_3

11. **When C6H5OH is treated with CHCI3 and KOH salicyldehyde is formed. The reaction is known as :**
    (1) Kolbe Schmidt reaction
    (2) Parkin reaction

(3) Gatter mann reaction
(4) Riemer tiemann reaction

12. Which of the following ion with NH_3 give clear and coloured solution :
(1) Mg^{+2} (2) Fe^{+2} (3) Cu^{+2} (4) Ag^{+2}

13. Graphite is conductor of electric while diamond is not because in graphite :

(1) there is ionic bond present
(2) there is sp^3 hybridisation
(3) there are no free electrons
(4) free electrons are present

14. Which of the following ions are present in the solution of neutral orthophosphoric acid :
(1) Na^+, HPO_4^{-2}
(2) Na^+, $H_2PO_4^-$, HPO_4^{-2}
(3) Na^+, PO_3^{-3}, $H_2PO_4^-$, HPO_4^{-2}
(4) Na^+, HPO_4^{-2}, PO_4^{-3}

15. Which of the following property is similar in the hydroxides of N and P:
(1) basic property
(2) solubility in water
(3) reduction properties
(4) stability

16. $A + B \overset{\rightarrow\rightarrow}{\leftarrow\leftarrow} C + D$ In this reversible reaction initially 4-4 moles of A and B reacts to form 2-2 moles of product at equilibrium. The value of K_c will be :
(1) ¼   (2) 4   (3) 3   (4) 1

17. The Ksp value of a salt AB at 25^0 C is 1.21 x 10^{-6}. The solubility of this salt in mole/liter will be :
(1) 1.1 x 10^{-3} (2) 1.21 x 10^{-3}
(3) 1.21 x 10^{-6} (4) 1.1 x 10^{-4}

18. In which of the following there is positive dipole moment :
(1) HF   (2) C_6H_6 (3) CCl_4 (4) BF_3

19. A compound 'A' reacts with conc. $H N O_3$ to form chloropicrin, compound A is :
(1) CH_3CHO (2) $CHCl_3$
(3) CH_3Cl (4) C_6H_5OH

20. Which of the following units, which represents the concetration of a solution does not depends on temperature :
(1) Molality   (2) Formality (3) Normality (4) Molarity

21. Which of the following hydroxide has least K_{sp} value at 25^0 C :
(1) $Sr(OH)_2$ (2) $Ca(OH)_2$ (3) $Mg(OH)_2$ (4) $Ba(OH)_2$

22. The oxidation states of highest electronegative element present in the product of the reaction of $BaO_2 + H_2SO_4$ is :
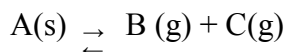(1) – 2, +1   (2) – 1 – 2   (3) 0, - 1   (4) – 2 0

23. Which of the following is found by the reaction of concentrate HNO_3 and iodine :
(1) HIO_3 (2) HIO   (3) HI   (4) HIO_2

24. The strongest bronsted base is :
(1) CIO_4^- (2) CIO_2^- (3) CIO_3^- (4) CIO^-

25. The value of Δ n for the below reaction will be :

$A(s) \underset{\leftarrow}{\to} B (g) + C(g)$

(1) 0   (2) 2   (3) – 1   (4) 1

26. Which of the following is not present in germansilver :
(1) Mn   (2) Zn   (3) Ni   (4) Cu

27. The oxidation states of iodine are :
(1) – 1, + 1, + 3, + 5   (2) – 1 , + 1, + 3
(3) ± 1, + 3, + 5, + 7   (4) – 1 , + 1, + 3, + 5

28. The IUPAC name of $(CH_3)2C H – CH_2 – CH_2 – Br$ is :
(1) 1-bromo-3-3-dimethyl propane
(2) 2-methyl-4-bromo butane
(3)1-bromo-3-methyl butane
(4) none of above

29. Which of the following is the reaction when benzaldehyde is heated with $(CH_3C)_2O$ in presence of CH_3COONa :
(1) Gattermann reaction   (2) Clasien reaction
(3) Knovenagel reaction   (4) Parkin reaction

30. Methyl ketone is identified by :
     (1) the reaction with fehling solution
     (2) the reaction with benedict solution
     (3) heated with $I_2 + Na_2CO_3$
     (4) none of above

31. The testing of purity of a solid compound is done by :
     (1) specific density
     (2) crystl structure of metals
     (3) boiling point
     (4) melting point

32. In which of the following there is no addition according to Markownikoff's law :

(1) 1-butyne   (2) 2-butene   (3) 1-butene   (4) propene

33. 23 gm. Of Na reacts with CH3OH to form :
(1) 1 mole of H_2 (2) ½ mole of H_2 (3) ½ mole of O_2 (4) 1 mole of O_2

34. SiCl$_4$ is hydrolysed while CCl$_4$ does not because :
    (1) C is more electronegative than Si
    (2) C and Si are of the same group
    (3) The structure of CCl$_4$ is tetrahedral
    (4) There are 3d orbitals in Si

35. Which of the following is formed when CH$_3$Ona is heated with C$_2$H$_5$l :
    (1) Dimethyl ether
    (2) Ethyl-methyl ether
    (3) Methyl-propyl ether
    (4) Diethyl ether

36. The poisonous compound which is mixed in petrol is :
(1) tetraethyl lead   (2) n-octane   (3) ethanol   (4) propene

37. Which of the following salt is used for bead test in inorganic analysis :
(1) $Na_2B_4O_7.10H_2O$ (2) $CaSO_4. 2H_2O$
(3) $FeSO_4. (NH_2)_2SO_4.6H_2O$ (4) $K_2SO_4.Al_2(SO_4)_3. 2H_2O$

38. To which of the following anti Markownikoff law is not applicable :
(1) 2-pantene   (2) 2-butene   (3) butane   (4) propene

39. The minimum no. of C atom which are required to show chain isomerism in alkyne :
(1) 5C   (2) 4C   (3) 2C   (4) 3C

40. The pH value of a solution to zero. The nature of the solution will be:
(1) both acid and base   (2) neutral   (3) acidic   (4) basic

41. The approximate pH value of 10^{-10} M NaOH solution will be:
(1) – 10   (2) 7   (3) 4   (4) 10

42. The percentage of chlorine in bleaching power is :
(1) 85%   (2) 58%   (3) 35%   (4) 12%

43. A compound n-pentane is found from how much type of hexanoic acid:
(1) 5   (2)4   (3) 2   (4) 3

44. Which of the following element has highest electron affinity :
(1) I   (2) CI   (3) Br   (4) F

45. If one liter of a solution contains 5 ml.. of N-HCI + 20 ml. of N/2 H$_2$SO$_4$ + 30 ml. of N/3 HNO$_3$, the normality of this solution will be:
(1) $\underline{N}$ (2) $\underline{N}$ (3) $\underline{N}$ (4) $\underline{N}$

40   10   5   20

46. The volume concentration of H_2O_2 solution of 6.8 gm. per 100 ml. will be:
  (1) 20   (2) 5.44   (3) 11.2   (4) 22.4

47. Which of the following is strongest oxidant :
  (1) I_2 (2) Cl_2 (3) Br_2 (4) F_2

48. Froath floatation process is used to increase the concentration of the following are :
  (1) Chalcopyrite   (2) Calamene   (3) Hematite (4) Bauxite

49. Acetic acid is a weak acid because :
  (1) 1.85 gm. ions are formed by one lakh gms. Of acetic acid
  (2) It is not a good conductor of electricity
  (3) It reacts with reactive metals
  (4) It is insoluble in water

50. Which of the following is extracted by making complex :
  (1) Ag   (2) Fe   (3) Hg   (4) Cu

51. By which of the following reagent colour of acidic $KMnO_4$ is disappeared :
  (1) Microcosmic salt   (2) Mohr's salt   (3) White vitriol   (4) Bleaching powder

52. Which of the following bydride has reducing property:
  (1) HF   (2) NH_3 (3) SiH_4 (4) CH_4

53. The solution of sodium in liquid ammonja is appeared blue reason is :
  (1) presence of solvated e^-
  (2) solvated Na^+
  (3) presence of NH_4^+ ion
  (4) presence of Na atom

54. Which of the following has octane no. zero :
  (1) n-hexane   (2) n-heptane   (3) iso-octane   (4) n-octane

55. The nos. of sigma bonds in 1-butene are:
  (1) 12   (2) 10   (3) 8   (4) 11

56. The precipitate obtained when acetaldehyde is treated with fehling solution :
  (1) Ag   (2) Cu_2O (3) Cu   (4) CuO

57. If the equilibrium constant of the reaction $2HI \rightleftharpoons 2HI$ $H_2 + I_2$ is 0.25 then the equilibrium constant of the reaction $H_2 + I_2 \rightleftharpoons 2HI$ will be :

  (1) 4   (2) 3   (3) 2   (4) 1

58. The similarity of C-bonds in benzene is due to :
  (1) delocalised π electrons

(2) alternate single and double bond in 6 CH groups
(3) The closed chain structure of 6 CH group
(4) All above

59. Primary amine when reacts with $CHCl_3$ + KOH it forms:
   (1) cyanide   (2) isocyante   (3) isothiocyanate   (4) isocyanide

60. The solid methane is :
   (1) not possible   (2) amphoteric   (3) basic   (4) acidic

61. Froath floatation process is depend upon:
   (1) electric properties of ore particles
   (2) magnetic properties of ore particles
   (3) relative density of ore particles
   (4) the property by which ore particles become wet

62. Which of the following ion has strongest capacity to polarise :
   (1) Li^+ (2) Ca^{+2} (3) Cs^+ (4) Rb^+

63. The size of the sulphate ion is :
   (1) pyramidal   (2) square planar   (3) tetrahedral   (4) triangular

64. Which of the following bond is present in N_2O_5 :
   (1) covalent and coordinate bond
   (2) covalent and ionic bond
   (3) covalent bond
   (4) ionic bond

65. By the theory of four quantum nos. which of the following orbital is not possible :
   (1) 4d   (2) 3s   (3) 3f   (4) 3d

66. Which of the following compound is formed when AgCI is dissolved in hypo :
   (1) $Na_5[Ag(S_2O_3)]_6$ (2) $Na_3[Ag(S_2O_3)_2]$
   (3) $Na_2[Ag(S_2O_3)]$ (4) $Na_3[Ag(S_2O_3)]_4$

67. Natural gas is :
   (1) a mixture of methane and octane
   (2) n-octane
   (3) n-butane
   (4) none of these

68. C O_2 is gas while SiO_2 is solid because :
   (1) CO_2 is a weak acid
   (2) Si atom have 3d orbitals
   (3) Intermolecular bonds in CO_2 are strong
   (4) CO_2 and SiO_2 are acidic in nature

69. Which of the following molecule is not pyramidal :

(1) PH_3 (2) NH_3 (3) NCl_3 (4) BCl_3

70. Berylium carbide on hydrolysis gives :
   (1) Methane   (2) Acetylene (3) Ethylene   (4) Methyl acetylene

71. The best way to represent the concentration of a solution is :
   (1) Mole fraction   (2) Molarity   (3) Normality (4) Molality

72. A one liter solution contains 0.1 M CH_3COONa and 0.05 M HCl. P_{ka} value of acetic acid is 1.8 x 10^{-5} then the pH value of the solution will be :
   (1) 5.60   (2) 4.74   (3) 2.87   (4) 4.27

73. Which of the following flux is used in the extraction of iron :
   (1) flint   (2) lime stone   (3) feldspar   (4) silica

74. If 1 mole urea is dissolved in 1000 gm. of pure water then the mole fraction of the water will be:
   (1) 1000   (2) .999   (3) 0.98   (4) 1.00

75. There is no dipole moment in CCl_4 because of the :
   (1) electron affinity of C and Cl are equal
   (2) lower size of C and Cl
   (3) regular tetrahedral structure
   (4) planar structure of molecule

76. Which couple of the element shows oxidation state of + 8 :
   (1) Cu and Cr   (2) Mn and Fe   (3) Ru and Os   (4) Cu and Zn

77. The shape of xenonhexfluoride is :
   (1) irregular octahedral
   (2) square planer
   (3) tetrahedral
   (4) triangular

78. $C_5H_{10}O$ reacts with NH_2OH but does not perform silver and iodoform test. The possible name of it is :
   (1) secondary alcohol   (2) ketone   (3) gldehyde   (4) primary alcohol

79. Which of the following is meta-directive group :
   (1) $-NH_2$ (2) $-CH_3$ (3) $-OH$ (4) $-NO_2$

80. The work of sodium thisulphale in photography is :
   (1) to toning   (2) to do still   (3) as reducing agent (4) as developer

81. Which of the following isomerism is present in lactic acid :
   (1) chain   (2) position   (3) geometric   (4) optical

82. When FeCl3 is heated violet with one of the following colour is obtained :

(1) Benzene   (2) Benzaldehyde   (3) Aniline   (4) Phenol

83. Benzene sulphonic acid is heated with NaOH to form :
   (1) Ethanol   (2) Benzoic acid   (3) Benzene   (4) Phenol

84. When benzenediazonium chloride is heated with H2O it forms :
   (1) Diazobenzene   (2) Nitrobenzene   (3) Aniline   (4) Phenol

85. By which of the following method sugar units are separated :
   (1) Biuret   (2) HNO_3 (3)Tollen's reagent   (4) Hydrolysis

86. Aniline is separated by which of the following method :
    (1) filter funnel
    (2) fractional distillation
    (3) steam distillation
    (4) none of above

87. Two compounds of different solubility is separated by :
    (1) extraction by solvent
    (2) fractional crystallization
    (3) sublimation
    (4) none of above

88. Preparation of ethane by CH_3CI in presence of anhydrous ether is known as :
    (1) Clemmenson's reduction
    (2) Decarbosylation
    (3) Kolbe's electrolysis method
    (4) Wurtz reaction

89. The product of the reaction of $CH_2=CH_2$ and dil. Basic $KMnO_4$ solution will be :
   (1) epoxide   (2) propanol   (3) ethylene glycol   (4) ethyl alcohol

90. The nos. of optical isomers of a compound having two chiral carbon atoms are :
   (1) 5   (2) 4   (3) 3   (4) 2

91. Which of the following is used as an indicator for titration of Na_2CO_3 and H_2SO_4 :
   (1) Bromothimol blue   (2) phenol red   (3) Phenolphthalein   (4) Methyl orange

92. Osmosis pressure relation is :
   (1) $\dfrac{P}{C} = RT$ (2) $P = \dfrac{CT}{R}$ (3) $R = \dfrac{PT}{C}$ (4) $P = \dfrac{RC}{T}$

93. In which of the following salt if dilution is increased there is no change in pH :
   (1) $CuSO_4$ (2) $(NH)_2SO_4$ (3)$BaSO_4$ (4) K_2CO_3

94. Formula of oleum is :
   (1) $H_2S_2O_8$ (2) H_2SO_5 (3) $H_2S_2O_4$ (4) $S_2S_2O_7$

95. An anhydride of $CHIO_4$ is :
   (1) Cl_2O_6 (2) Cl_2O (3) Cl_2O_7 (4) All

96. The IUPAC name of CH_3-O-C_2H_5 :
   (1) Methyl ethyl ketone
   (2) Ethyl methyl ether
   (3) Methoxyethane
   (4) Ethoxy methane

97. How many isomers are possible of $C_4H_{10}O$:
   (1) 7   (2) 6   (3) 5   (4) 3

98. The hybridization of Br in BrF_5 is :
   (1) sp^3d^2 (2) sp^3d (3) sp^2d (4) sp^3

99. A neutron is added in an element $_{90}X^{232}$. How many β particles is to be removed, to form it $_{90}X^{233}$:
   (1) 4   (2) 3   (3) 1   (4) 2

100. Electrolysis of the fused mixture of Na_3AIF_6 and Al_2O_3 give . Al at cathode. What will be found at anode :

ANSWER SHEET

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