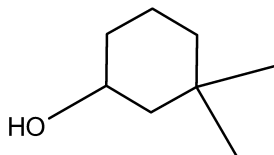


Vari Medical Academy Model Question Paper:

SECTION-A: 51 TO 85 WRITE ALL THE QUESTIONS

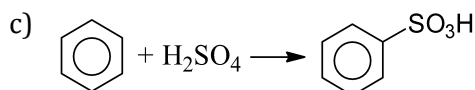
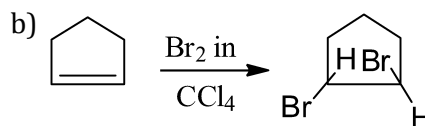
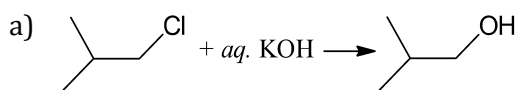
SECTION-B : 86 TO 100 WRITE ANY TEN QUESTIONS

51. The IUPAC name of the compound



- a) 3, 3-dimethyl-1-hydroxy cyclohexane b) 1, 1-dimethyl-3- hydroxy cyclohexane
c) 3, 3- dimethy-1- cyclohexanol d) 1,1-dimethyl-3-cyclohexanol

52. The addition reaction among the following is



d) All of the above

53. Racemic compound has

- a) Equimolar mixture of enantiomers b) 1:1 mixture of enantiomer and diastereomer
c) 1:1 mixture of diastereomers d) 1:2 mixture of enantiomers

54. The following compound will undergo electrophilic substitution more readily than benzene

- a) Nitrobenzene b) Benzoic acid
c) Benzaldehyde d) Phenol

55. Which of the following represents the given mode of hybridization $sp^2 - sp^2 - sp - sp$ from left to right?

- a) $CH_2 = CH - C \equiv CH$ b) $HC \equiv C - C \equiv N$
c) $CH_2 = C - C = CH_2$ d)

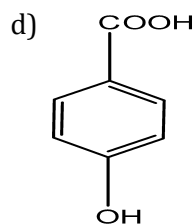
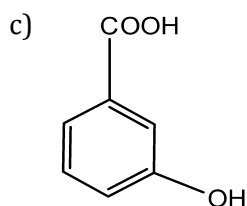
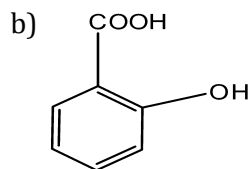
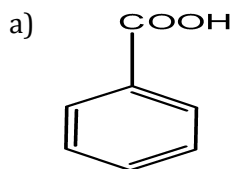
56. Which of the following applies in the reaction $CH_3CHBrCH_2CH_3 \xrightarrow{Alco. KOH}$?

- (I) $CH_3CH = CHCH_3$ (Major product)
(II) $CH_2 = CHCH_2CH_3$ (Minor product)
a) Hofmann's rule b) Saytzeff's rule
c) Kharasch effect d) Markownikoff's rule

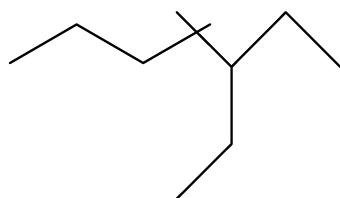
57. Carbon and hydrogen are estimated in organic compounds by

- a) Kjeldahl's method
 b) Duma's method
 c) Leibig's method
 d) Carius method

58. Which of the following aromatic acid is most acidic?



59. The IUPAC name of



- a) 1,1-diethyl-1,2,2-dimethylpentane
 b) 4,4-dimethyl-5,5-diethylpentane
 c) 5,5-diethyl-4,4-dimethylpentane
 d) 3-ethyl-4,4-dimethylheptane

60. $C_3H_5Cl + aq. NaOH \rightarrow C_2H_5OH + NaCl$;
 this reaction is

- a) Electrophilic substitution of I order
 b) Electrophilic substitution of II order
 c) Nucleophilic substitution of I order
 d) Nucleophilic substitution of II order

61. CH_3CH_2OH and CH_3OCH_3 are the example of

- a) Chain isomerism
 b) Functional isomerism
 c) Position isomerism
 d) Metamerism

62. The alkyl halide that undergoes S_N1 reaction more readily is

- a) Ethyl bromide
 b) Isopropyl bromide
 c) Vinyl bromide
 d) *n*-propyl bromide

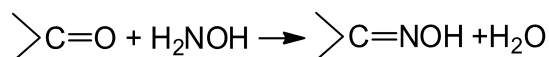
63. Arrange the following carbocations in order of stability

benzyl allyl methyl vinyl
 I II III IV

- a) IV > III > II > I
 b) I > II > III > IV

- c) II>IV>III>I
d) III>II>I>IV

64. Consider the following reaction



Is an example of

- a) Substitution
b) Elimination
c) Addition
d) Addition elimination
65. A saturated solution prepared by dissolved $\text{CaF}_2(s)$ in water, has $[\text{Ca}^{2+}] = 3.3 \times 10^{-4} \text{ M}$. What is the K_{sp} of CaF_2 ?
- a) 1.44×10^{-10}
b) 2.24×10^{-8}
c) 1.58×10^{-8}
d) 1.67×10^{-8}
66. The solubility in water of a sparingly soluble salt A_2B is $1.0 \times 10^{-3} \text{ mol L}^{-1}$. Its solubility product will be
- a) 4×10^{-9}
b) 4×10^9
c) 1×10^9
d) 1×10^{-9}
67. 15 moles of H_2 and 5.2 moles of I_2 are mixed and allowed to attain equilibrium at 500°C . At equilibrium, the concentration of HI is found to be 10 moles. The equilibrium constant for the formation of HI is
- a) 50
b) 15
c) 100
d) 25
68. Consider the following gaseous equilibria with equilibrium constants K_1 and K_2 respectively.
- $$\text{SO}_2(g) + \frac{1}{2}\text{O}_2(g) \rightleftharpoons \text{SO}_3(g)$$
- $$2\text{SO}_3(g) \rightleftharpoons 2\text{SO}_2(g) + \text{O}_2(g)$$
- The equilibrium constants are related as
- a) $2K_1 = K_2^2$
b) $K_1^2 = \frac{1}{K_2}$
c) $K_2^2 = \frac{1}{K_1}$
d) $K_2 = \frac{2}{K_1^2}$
69. The pK_a of a weak acid, HA , is 4.80. The pK_b of a weak base, BOH is 4.78. The pH of an aqueous solution of the corresponding salt, BA , will be
- a) 9.58
b) 4.79
c) 7.01
d) 9.22

70. For the reaction $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$; $\Delta H = -93.6 \text{ kJ mol}^{-1}$, the concentration of NH_3 at equilibrium can be increased by
- (I) lowering the temperature
 (II) low pressure
 (III) excess of N_2
 (IV) excess of H_2
- a) (II) and (IV) are correct
 b) (II) only is correct
 c) (I), (II) and (III) are correct
 d) (III) and (IV) are correct
71. According to law of mass action, for the reaction $2A + B \rightarrow \text{Products}$
- a) $\text{Rate} = k[A][B]$
 b) $\text{Rate} = k[A]^2[B]$
 c) $\text{Rate} = k[A][B]^2$
 d) $\text{Rate} = k[A]^{1/2}[B]$
72. Conjugate acid of $S_2O_8^{2-}$ is
- a) $H_2S_2O_8$
 b) H_2SO_4
 c) $HS_2O_8^-$
 d) HSO_4^-
73. 4 moles each of SO_2 and O_2 gases are allowed to react to form SO_3 in a closed vessel. At equilibrium 25% of O_2 is used up. The total number of moles of all the gases at equilibrium is
- a) 6.5
 b) 7.0
 c) 8.0
 d) 2.0
74. The expression for the solubility product of $Al_2(SO_4)_3$ is
- a) $K_{sp} = [Al^{3+}][SO_4^{2-}]$
 b) $K_{sp} = [Al^{3+}]^2[SO_4^{2-}]^3$
 c) $K_{sp} = [Al^{3+}]^3[SO_4^{2-}]^2$
 d) $K_{sp} = [Al^{3+}]^2[SO_4^{2-}]^2$
75. In the reactions, $A + 2B \rightleftharpoons 2C$, if 2 moles of A , 3.0 moles of B and 2.0 moles of C are placed in a 2 L flask and the equilibrium concentration of C is 0.5 mol/L, the equilibrium constant (K_c) for the reactions is
- a) 0.21
 b) 0.50
 c) 0.75
 d) 0.025
76. 9.2g N_2O_4 is heated in a 1L vessel till equilibrium state is established
- $$N_2O_4(g) \rightleftharpoons 2NO_2(g)$$

- a) 288 pm b) 398 pm
c) 618 pm d) 144 pm
93. A compound of 'A' and 'B' crystallises in a cubic lattice in which 'A' atoms occupy the lattice points at the corners of the cube. The 'B' atoms occupy the centre of each face of the cube. The probable empirical formula of the compound is
a) AB_2 b) A_3B
c) AB d) AB_3
94. In a solid lattice, the cation has left a lattice site and is located at an interstitial position, the lattice defect is
a) Frenkel defect b) Schottky defect
c) F-centre defect d) Valency defect
95. The axial angles in triclinic crystal system are
a) $\alpha = \beta = \gamma = 90^\circ$ b) $\alpha = \gamma = 90^\circ, \beta \neq 90^\circ$
c) $\alpha \neq \beta \neq \gamma \neq 90^\circ$ d) $\alpha = \beta = \gamma \neq 90^\circ$
96. The radii of Na^+ and Cl^- ions are 95 pm and 181 pm respectively. The edge length of $NaCl$ unit cell is
a) 276 pm b) 138 pm
c) 552 pm d) 415 pm
97. The cubic unit cell of Al (molar mass 27 g mol^{-1}) has an edge length of 405 pm. Its density is 2.7 g cm^{-3} . The cubic unit cell is
a) Face centred b) Body centred
c) Primitive d) Edge centred
98. If the radius of K^+ and F^- are 133 pm and 136 pm respectively, the distance between K^+ and F^- in KF is
a) 269 pm b) 134.5 pm
c) 136 pm d) 3 pm
99. Percentage of free space in cubic close packed structure and in body centred packed structure are respectively
a) 30% and 26% b) 26% and 32%
c) 32% and 48% d) 48% and 26%
100. A solid is made of two elements X and Z. The atoms Z are in *ccp* arrangement while the atom X occupy all the tetrahedral sites. What is the formula of the compound?

a) XZ

b) XZ_2

c) X_2Z

d) X_2Z_3

ANSWER KEY:

51	C	61	B	71	B	81	A	91	C
52	B	62	C	72	C	82	A	92	D
53	A	63	B	73	A	83	A	93	D
54	D	64	D	74	B	84	A	94	A
55	A	65	A	75	A	85	C	95	C
56	B	66	A	76	D	86	B	96	C
57	C	67	A	77	D	87	C	97	A
58	B	68	B	78	B	88	C	98	A
59	D	69	C	79	A	89	D	99	B
60	D	70	C	80	D	90	B	100	C