

71. When  $n p n$  transistor is used as an amplifier :
- electrons move from base to collector
  - holes move from emitter to base
  - electrons move from collector to base
  - holes move from base to emitter
72. For a transistor amplifier in common emitter configuration for load impedance of  $1 \text{ k}\Omega$  ( $h_{fe} = 50$  and  $h_{oe} = 25 \mu \text{ A/V}$ ), the current gain is :
- 5.2
  - 15.7
  - 24.8
  - 48.78
73. A piece of copper and another of germanium are cooled from room temperature to  $77 \text{ K}$ , the resistance of :
- each of them increases
  - each of them decreases
  - copper decreases and germanium increases
  - copper increases and germanium decreases
74. The manifestation of band structure in solids is due to :
- Heisenberg's uncertainty principle
  - Pauli's exclusion principle
  - Bohr's correspondence principle
  - Boltzmann's law
75. When  $p-n$  junction diode is forward biased, then :
- the depletion region is reduced and barrier height is increased
  - the depletion region is widened and barrier height is reduced
  - both the depletion region and barrier height are reduced
  - both the depletion region and barrier height are increased

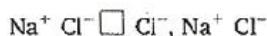
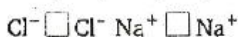
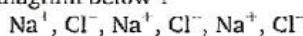
## Chemistry

76. Which of the following sets of quantum numbers is correct for an electron in  $4f$  orbital ?
- $n = 4, l = 3, m = +4, s = +1/2$
  - $n = 4, l = 4, m = -4, s = -1/2$
  - $n = 4, l = 3, m = +1, s = +1/2$
  - $n = 3, l = 2, m = -2, s = +1/2$
77. Consider the ground state of Cr atom ( $Z = 24$ ). The numbers of electrons with the azimuthal quantum numbers,  $l = 1$  and  $2$  are, respectively :
- 12 and 4
  - 12 and 5
  - 16 and 4
  - 16 and 5
78. Which one of the following ions has the highest value of ionic radius ?
- $\text{Li}^+$
  - $\text{B}^{3+}$
  - $\text{O}^{2-}$
  - $\text{F}^-$
79. The wavelength of the radiation emitted, when in a hydrogen atom electron falls from infinity to stationary state 1, would be (Rydberg constant  $= 1.097 \times 10^7 \text{ m}^{-1}$ ) :
- 91 nm
  - 192 nm
  - 406 nm
  - $9.1 \times 10^{-8} \text{ nm}$
80. The correct order of bond angles (smallest first) in  $\text{H}_2\text{S}$ ,  $\text{NH}_3$ ,  $\text{BF}_3$  and  $\text{SiH}_4$  is :
- $\text{H}_2\text{S} < \text{SiH}_4 < \text{NH}_3 < \text{BF}_3$
  - $\text{NH}_3 < \text{H}_2\text{S} < \text{SiH}_4 < \text{BF}_3$
  - $\text{H}_2\text{S} < \text{NH}_3 < \text{SiH}_4 < \text{BF}_3$
  - $\text{H}_2\text{S} < \text{NH}_3 < \text{BF}_3 < \text{SiH}_4$
81. Which one of the following sets of ions represents the collection of isoelectronic species ?
- $\text{K}^+, \text{Ca}^{2+}, \text{Sc}^{3+}, \text{Cl}^-$
  - $\text{Na}^+, \text{Ca}^{2+}, \text{Sc}^{3+}, \text{F}^-$
  - $\text{K}^+, \text{Cl}^-, \text{Mg}^{2+}, \text{Sc}^{3+}$
  - $\text{Na}^+, \text{Mg}^{2+}, \text{Al}^{3+}, \text{Cl}^-$
- (Atomic numbers  $\text{F} = 9, \text{Cl} = 17, \text{Na} = 11, \text{Mg} = 12, \text{Al} = 13, \text{K} = 19, \text{Ca} = 20, \text{Sc} = 21$ )
82. Among  $\text{Al}_2\text{O}_3, \text{SiO}_2, \text{P}_2\text{O}_3$  and  $\text{SO}_2$  the correct order of acid strength is :
- $\text{SO}_2 < \text{P}_2\text{O}_3 < \text{SiO}_2 < \text{Al}_2\text{O}_3$
  - $\text{SiO}_2 < \text{SO}_2 < \text{Al}_2\text{O}_3 < \text{P}_2\text{O}_3$
  - $\text{Al}_2\text{O}_3 < \text{SiO}_2 < \text{SO}_2 < \text{P}_2\text{O}_3$
  - $\text{Al}_2\text{O}_3 < \text{SiO}_2 < \text{P}_2\text{O}_3 < \text{SO}_2$
83. The bond order in  $\text{NO}$  is 2.5 while that in  $\text{NO}^+$  is 3. Which of the following statements is true for these two species ?
- Bond length in  $\text{NO}^+$  is greater than in  $\text{NO}$
  - Bond length in  $\text{NO}$  is greater than in  $\text{NO}^+$
  - Bond length in  $\text{NO}^+$  is equal to that in  $\text{NO}$
  - Bond length is unpredictable
84. The formation of the oxide ion  $\text{O}^{2-}(\text{g})$  requires first an exothermic and then an endothermic step as shown below
- $$\text{O}(\text{g}) + e^- = \text{O}^-(\text{g}); \Delta H^\circ = -142 \text{ kJ mol}^{-1}$$
- $$\text{O}(\text{g})^- + e^- = \text{O}^{2-}(\text{g}); \Delta H^\circ = 844 \text{ kJ mol}^{-1}$$

This is because :

- (a) oxygen is more electronegative  
(b) oxygen has high electron affinity  
(c)  $O^-$  ion will tend to resist the addition of another electron  
(d)  $O^-$  ion has comparatively larger size than oxygen atom
85. The states of hybridization of boron and oxygen atoms in boric acid ( $H_3BO_3$ ) are respectively :  
(a)  $sp^2$  and  $sp^2$       (b)  $sp^2$  and  $sp^3$   
(c)  $sp^3$  and  $sp^2$       (d)  $sp^3$  and  $sp^3$
86. Which one of the following has the regular tetrahedral structure ?  
(a)  $XeF_4$       (b)  $SF_4$   
(c)  $BF_4^-$       (d)  $[Ni(CN)_4]^{2-}$   
(Atomic numbers B = 5, S = 16, Ni = 28, Xe = 54)
87. Of the following outer electronic configurations of atoms, the highest oxidation state is achieved by which one of them ?  
(a)  $(n-1)d^8ns^2$       (b)  $(n-1)d^3ns^1$   
(c)  $(n-1)d^3ns^2$       (d)  $(n-1)d^5ns^2$
88. As the temperature is raised from  $20^\circ C$  to  $40^\circ C$ , the average kinetic energy of neon atoms changes by a factor of which of the following ?  
(a)  $1/2$       (b)  $\sqrt{313/293}$   
(c)  $313/293$       (d) 2
89. The maximum number of  $90^\circ$  angles between bond pair-bond pair of electrons is observed in :  
(a)  $dsp^3$  hybridization  
(b)  $sp^3d$  hybridization  
(c)  $dsp^2$  hybridization  
(d)  $sp^3d^2$  hybridization
90. Which one of the following aqueous solutions will exhibit highest boiling point ?  
(a) 0.01 M  $Na_2SO_4$   
(b) 0.01 M  $KNO_3$   
(c) 0.015 M urea  
(d) 0.015 M glucose
91. Which among the following factors is the most important in making fluorine the strongest oxidizing agent ?  
(a) Electron affinity  
(b) Ionization enthalpy  
(c) Hydration enthalpy  
(d) Bond dissociation energy
92. In van der Waals' equation of state of the gas law, the constant 'b' is a measure of :  
(a) intermolecular repulsions  
(b) intermolecular attraction  
(c) volume occupied by the molecules  
(d) intermolecular collisions per unit volume
93. The conjugate base of  $H_2PO_4^-$  is :  
(a)  $PO_4^{3-}$       (b)  $P_2O_5$   
(c)  $H_3PO_4$       (d)  $HPO_4^{2-}$
94.  $6.02 \times 10^{20}$  molecules of urea are present in 100 mL of its solution. The concentration of urea solution is :  
(a) 0.001 M      (b) 0.01 M  
(c) 0.02 M      (d) 0.1 M  
(Avogadro constant,  $N_A = 6.02 \times 10^{23} \text{ mol}^{-1}$ )
95. To neutralise completely 20 mL of 0.1M aqueous solution of phosphorous acid ( $H_3PO_3$ ), the volume of 0.1M aqueous KOH solution required is :  
(a) 10 mL      (b) 20 mL  
(c) 40 mL      (d) 60 mL
96. For which of the following parameters the structural isomers  $C_2H_5OH$  and  $CH_3OCH_3$  would be expected to have the same values ? (Assume ideal behaviour) :  
(a) Heat of vaporisation  
(b) Vapour pressure at the same temperature  
(c) Boiling points  
(d) Gaseous densities at the same temperature and pressure
97. Which of the following liquid pairs shows a positive deviation from Raoult's law ?  
(a) Water — hydrochloric acid  
(b) Benzene — methanol  
(c) Water — nitric acid  
(d) Acetone — chloroform
98. Which one of the following statements is false ?  
(a) Raoult's law states that the vapour pressure of a component over a solution is proportional to its mole fraction  
(b) The osmotic pressure ( $\pi$ ) of a solution is given by the equation  $\pi = MRT$ , where M is the molarity of the solution  
(c) The correct order of osmotic pressure for 0.01 M aqueous solution of each compound is  $BaCl_2 > KCl > CH_3COOH > \text{sucrose}$   
(d) Two sucrose solutions of same molality prepared in different solvents will have the same freezing point depression

99. What type of crystal defect is indicated in the diagram below ?



- (a) Frenkel defect  
 (b) Schottky defect  
 (c) Interstitial defect  
 (d) Frenkel and Schottky defects
100. An ideal gas expands in volume from  $1 \times 10^{-3} \text{ m}^3$  to  $1 \times 10^{-2} \text{ m}^3$  at 300K against a constant pressure of  $1 \times 10^5 \text{ Nm}^{-2}$ . The work done is :

- (a) -900 J (b) -900 kJ  
 (c) 270 kJ (d) 900 kJ

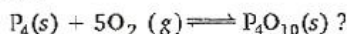
101. In a hydrogen-oxygen fuel cell, combustion of hydrogen occurs to :

- (a) generate heat  
 (b) create potential difference between the two electrodes  
 (c) produce high purity water  
 (d) remove adsorbed oxygen from electrode surfaces

102. In a first order reaction, the concentration of the reactant, decreases from 0.8 M to 0.4 M in 15 min. The time taken for the concentration to change from 0.1 M to 0.025 M is :

- (a) 30 min (b) 15 min  
 (c) 7.5 min (d) 60 min

103. What is the equilibrium expression for the reaction

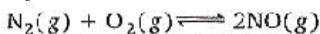


- (a)  $K_c = \frac{[\text{P}_4\text{O}_{10}]}{[\text{P}_4][\text{O}_2]^5}$  (b)  $K_c = \frac{[\text{P}_4\text{O}_{10}]}{5[\text{P}_4][\text{O}_2]}$   
 (c)  $K_c = [\text{O}_2]^5$  (d)  $K_c = \frac{1}{[\text{O}_2]^5}$

104. For the reaction,  $\text{CO}(\text{g}) + \text{Cl}_2(\text{g}) \rightleftharpoons \text{COCl}_2(\text{g})$ , the  $K_p / K_c$  is equal to :

- (a)  $1/RT$  (b)  $RT$   
 (c)  $\sqrt{RT}$  (d) 1.0

105. The equilibrium constant for the reaction



at temperature  $T$  is  $4 \times 10^{-4}$ . The value of  $K_c$  for the reaction :

$\text{NO}(\text{g}) \rightleftharpoons \frac{1}{2} \text{N}_2(\text{g}) + \frac{1}{2} \text{O}_2(\text{g})$  at the same temperature is :

- (a)  $2.5 \times 10^2$  (b) 50  
 (c)  $4 \times 10^{-4}$  (d) 0.02

106. The rate equation for the reaction  $2A + B \rightarrow C$  is found to be :

$$\text{rate} = k[A][B]$$

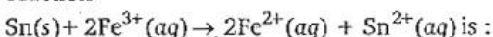
The correct statement in relation to this reaction is that the :

- (a) unit of  $k$  must be  $\text{s}^{-1}$   
 (b)  $t_{1/2}$  is a constant  
 (c) rate of formation of  $C$  is twice the rate of disappearance of  $A$   
 (d) value of  $k$  is independent of the initial concentrations of  $A$  and  $B$
107. Consider the following  $E^\circ$  values :

$$E^\circ_{\text{Fe}^{3+}/\text{Fe}^{2+}} = +0.77 \text{ V}$$

$$E^\circ_{\text{Sn}^{2+}/\text{Sn}} = -0.14 \text{ V}$$

Under standard conditions the potential for the reaction



- (a) 1.68 V (b) 1.40 V  
 (c) 0.91 V (d) 0.63 V

108. The molar solubility (in  $\text{mol l}^{-1}$ ) of a sparingly soluble salt  $MX_4$  is 's'. The corresponding solubility product is  $K_{sp}$  s is given in terms of  $K_{sp}$  by the relation :

- (a)  $s = (K_{sp}/128)^{1/4}$  (b)  $s = (128 K_{sp})^{1/4}$   
 (c)  $s = (256 K_{sp})^{1/5}$  (d)  $s = (K_{sp}/256)^{1/5}$

109. The standard emf of a cell, involving one electron change is found to be 0.591 V at  $25^\circ\text{C}$ . The equilibrium constant of the reaction is ( $F = 96,500 \text{ C mol}^{-1}$ ) :

- (a)  $1.0 \times 10^1$  (b)  $1.0 \times 10^5$   
 (c)  $1.0 \times 10^{10}$  (d)  $1.0 \times 10^{30}$

110. The enthalpies of combustion of carbon and carbon monoxide are  $-393.5$  and  $-283 \text{ kJ mol}^{-1}$  respectively. The enthalpy of formation of carbon monoxide per mole is :

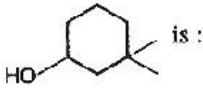
- (a) 110.5 kJ (b) 676.5 kJ  
 (c) -676.5 kJ (d) -110.5 kJ

111. The limiting molar conductivities  $\wedge^\circ$  for NaCl, KBr and KCl are 126, 152 and  $150 \text{ S cm}^2 \text{ mol}^{-1}$  respectively. The  $\wedge^\circ$  for NaBr is :

- (a)  $128 \text{ S cm}^2 \text{ mol}^{-1}$  (b)  $176 \text{ S cm}^2 \text{ mol}^{-1}$   
 (c)  $278 \text{ S cm}^2 \text{ mol}^{-1}$  (d)  $302 \text{ S cm}^2 \text{ mol}^{-1}$

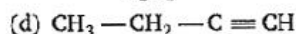
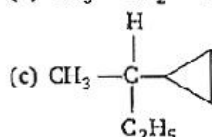
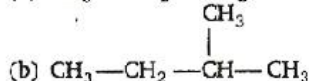
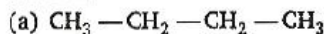
112. In a cell that utilises the reaction  

$$\text{Zn}(s) + 2\text{H}^+(aq) \longrightarrow \text{Zn}^{2+}(aq) + \text{H}_2(g)$$
 addition of  $\text{H}_2\text{SO}_4$  to cathode compartment, will :  
 (a) lower the  $E$  and shift equilibrium to the left  
 (b) lower the  $E$  and shift the equilibrium to the right  
 (c) increase the  $E$  and shift the equilibrium to the right  
 (d) increase the  $E$  and shift the equilibrium to the left
113. Which one of the following statements regarding helium is incorrect ?  
 (a) It is used to fill gas balloons instead of hydrogen because it is lighter and non-inflammable  
 (b) It is used as a cryogenic agent for carrying out experiments at low temperatures  
 (c) It is used to produce and sustain powerful superconducting magnets  
 (d) It is used in gas-cooled nuclear reactors
114. Identify the correct statement regarding enzymes :  
 (a) Enzymes are specific biological catalysts that can normally function at very high temperatures ( $T \sim 1000 \text{ K}$ ).  
 (b) Enzymes are normally heterogeneous catalysts that are very specific in their action  
 (c) Enzymes are specific biological catalysts that cannot be poisoned  
 (d) Enzymes are specific biological catalysts that possess well defined active sites.
115. One mole of magnesium nitride on the reaction with an excess of water gives :  
 (a) one mole of ammonia  
 (b) one mole of nitric acid  
 (c) two moles of ammonia  
 (d) two moles of nitric acid
116. Which one of the following ores is best concentrated by froth-floatation method ?  
 (a) Magnetite (b) Cassiterite  
 (c) Galena (d) Malachite
117. Beryllium and aluminium exhibit many properties which are similar. But, the two elements differ in :  
 (a) exhibiting maximum covalency in compounds  
 (b) forming polymeric hydrides  
 (c) forming covalent halides  
 (d) exhibiting amphoteric nature in their oxides
118. Aluminium chloride exists as dimer,  $\text{Al}_2\text{Cl}_6$  in solid state as well as in solution of non-polar solvents such as benzene. When dissolved in water, it gives :  
 (a)  $\text{Al}^{3+} + 3\text{Cl}^-$   
 (b)  $[\text{Al}(\text{H}_2\text{O})_6]^{3+} + 3\text{Cl}^-$   
 (c)  $[\text{Al}(\text{OH})_6]^{3-} + 3\text{HCl}$   
 (d)  $\text{Al}_2\text{O}_3 + 6\text{HCl}$
119. The soldiers of Napoleon army while at Alps during freezing winter suffered a serious problem as regards to the tin buttons of their uniforms. White metallic tin buttons got converted to grey powder. This transformation is related to :  
 (a) a change in the crystalline structure of tin  
 (b) an interaction with nitrogen of the air at very low temperatures  
 (c) a change in the partial pressure of oxygen in the air  
 (d) an interaction with water vapour contained in the humid air
120. The  $E^\circ_{M^{3+}/M^{2+}}$  values for Cr, Mn, Fe and Co are  $-0.41, +1.57, +0.77$  and  $+1.97 \text{ V}$  respectively. For which one of these metals the change in oxidation state from  $+2$  to  $+3$  is easiest ?  
 (a) Cr (b) Mn  
 (c) Fe (d) Co
121. Excess of KI reacts with  $\text{CuSO}_4$  solution and then  $\text{Na}_2\text{S}_2\text{O}_3$  solution is added to it. Which of the statements is incorrect for this reaction ?  
 (a)  $\text{Cu}_2\text{I}_2$  is formed  
 (b)  $\text{CuI}_2$  is formed  
 (c)  $\text{Na}_2\text{S}_2\text{O}_3$  is oxidised  
 (d) Evolved  $\text{I}_2$  is reduced
122. Among the properties (A) reducing (B) oxidising (C) complexing, the set of properties shown by  $\text{CN}^-$  ion towards metal species is :  
 (a) A, B (b) B, C  
 (c) C, A (d) A, B, C
123. The co-ordination number of a central metal atom in a complex is determined by :  
 (a) the number of ligands around a metal ion bonded by sigma bonds  
 (b) the number of ligands around a metal ion bonded by pi-bonds  
 (c) the number of ligands around a metal ion bonded by sigma and pi-bonds both  
 (d) the number of only anionic ligands bonded to the metal ion

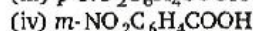
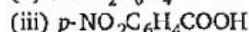
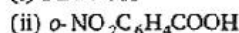
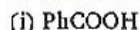
124. Which one of the following complexes is an outer orbital complex ?  
 (a)  $[\text{Fe}(\text{CN})_6]^{1-}$  (b)  $[\text{Mn}(\text{CN})_6]^{4-}$   
 (c)  $[\text{Co}(\text{NH}_3)_6]^{3+}$  (d)  $[\text{Ni}(\text{NH}_3)_6]^{2+}$   
 (Atomic numbers Mn = 25, Fe = 26, Co = 27, Ni = 28)
125. Co-ordination compounds have great importance in biological systems. In this context which of the following statements is incorrect ?  
 (a) Chlorophylls are green pigments in plants and contain calcium  
 (b) Haemoglobin is the red pigment of blood and contains iron  
 (c) Cyanocobalamin is vitamin  $\text{B}_{12}$  and contains cobalt  
 (d) Carboxypeptidase-A is an enzyme and contains zinc
126. Cerium ( $Z = 58$ ) is an important member of the lanthanides. Which of the following statements about cerium is incorrect ?  
 (a) The common oxidation states of cerium are + 3 and + 4  
 (b) The +3 oxidation state of cerium is more stable than the + 4 oxidation state  
 (c) The + 4 oxidation state of cerium is not known in solutions  
 (d) Cerium (IV) acts as an oxidising agent
127. Which one of the following has largest number of isomers ?  
 (a)  $[\text{Ru}(\text{NH}_3)_4\text{Cl}_2]^+$   
 (b)  $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$   
 (c)  $[\text{Ir}(\text{PR}_3)_2\text{H}(\text{CO})]^{2+}$   
 (d)  $[\text{Co}(\text{en})_2\text{Cl}_2]^+$   
 ( $R = \text{alkyl group}$ ,  $\text{en} = \text{ethylenediamine}$ )
128. The correct order of magnetic moments (spin only values in BM) among the following is :  
 (a)  $[\text{MnCl}_4]^{2-} > [\text{CoCl}_4]^{2-} > [\text{Fe}(\text{CN})_6]^{4-}$   
 (b)  $[\text{MnCl}_4]^{2-} > [\text{Fe}(\text{CN})_6]^{4-} > [\text{CoCl}_4]^{2-}$   
 (c)  $[\text{Fe}(\text{CN})_6]^{4-} > [\text{MnCl}_4]^{2-} > [\text{CoCl}_4]^{2-}$   
 (d)  $[\text{Fe}(\text{CN})_6]^{4-} > [\text{CoCl}_4]^{2-} > [\text{MnCl}_4]^{2-}$   
 (Atomic numbers Mn = 25, Fe = 26, Co = 27)
129. Consider the following nuclear reactions :  
 ${}_{92}^{238}\text{M} \rightarrow {}_x^y\text{N} + 2 {}_2^4\text{He}$ ;  ${}_x^y\text{N} \rightarrow {}_8^A\text{L} + 2\beta^+$   
 The number of neutrons in the element L is :  
 (a) 142 (b) 144  
 (c) 140 (d) 146
130. The half-life of a radioisotope is four hours. If the initial mass of the isotope was 200g, the mass remaining after 24 hours undecayed is :  
 (a) 1.042 g (b) 2.084 g  
 (c) 3.125 g (d) 4.167 g
131. The compound formed in the positive test for nitrogen with the Lassaigne solution of an organic compound is :  
 (a)  $\text{Fe}_2[\text{Fe}(\text{CN})_6]_3$   
 (b)  $\text{Na}_3[\text{Fe}(\text{CN})_6]$   
 (c)  $\text{Fe}(\text{CN})_3$   
 (d)  $\text{Na}_4[\text{Fe}(\text{CN})_5\text{NOS}]$
132. The ammonia evolved from the treatment of 0.30g of an organic compound for the estimation of nitrogen was passed in 100 mL of 0.1 M sulphuric acid. The excess of acid required 20 mL of 0.5 M sodium hydroxide solution for complete neutralization. The organic compound is :  
 (a) acetamide (b) benzamide  
 (c) urea (d) thiourea
133. Which one of the following has the minimum boiling point ?  
 (a) *n*-butane (b) 1-butyne  
 (c) 1-butene (d) isobutene
134. The IUPAC name of the compound  
 is :  
 (a) 3,3-dimethyl-1-hydroxy cyclohexane  
 (b) 1,1-dimethyl-3-hydroxy cyclohexane  
 (c) 3,3-dimethyl-1-cyclohexanol  
 (d) 1,1-dimethyl-3-cyclohexanol
135. Which one of the following does not have  $sp^2$  hybridised carbon ?  
 (a) Acetone (b) Acetic acid  
 (c) Acetonitrile (d) Acetamide
136. Which of the following will have a meso-isomer also ?  
 (a) 2-chlorobutane  
 (b) 2,3-dichlorobutane  
 (c) 2,3-dichloropentane  
 (d) 2-hydroxypropanoic acid
137. Rate of the reaction  

$$\text{R}-\text{C} \begin{array}{l} \text{O} \\ \parallel \\ \text{Z} \end{array} + \text{Nu}^- \longrightarrow \text{R}-\text{C} \begin{array}{l} \text{O} \\ \parallel \\ \text{Nu} \end{array} + \text{Z}^-$$
 is fastest when Z is :  
 (a) Cl (b)  $\text{NH}_2$   
 (c)  $\text{OC}_2\text{H}_5$  (d)  $\text{OCOCH}_3$

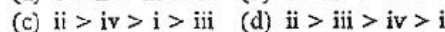
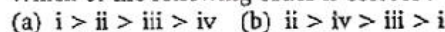
138. Amongst the following compounds, the optically active alkane having lowest molecular mass is :



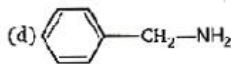
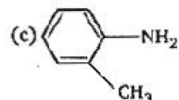
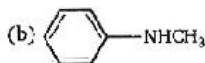
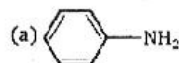
139. Consider the acidity of the carboxylic acids :



Which of the following order is correct ?



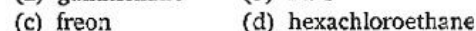
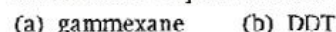
140. Which of the following is the strongest base ?



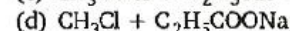
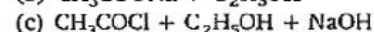
141. Which base is present in RNA but not in DNA ?



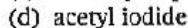
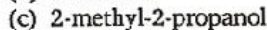
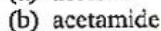
142. The compound formed on heating chlorobenzene with chloral in the presence of concentrated sulphuric acid is :



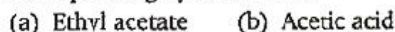
143. On mixing ethyl acetate with aqueous sodium chloride, the composition of the resultant solution is :



144. Acetyl bromide reacts with excess of  $\text{CH}_3\text{MgI}$  followed by treatment with a saturated solution of  $\text{NH}_4\text{Cl}$  gives :



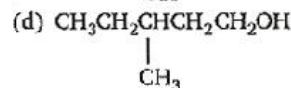
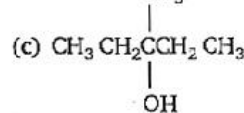
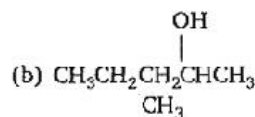
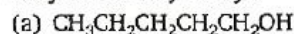
145. Which one of the following is reduced with zinc and hydrochloric acid to give the corresponding hydrocarbon ?



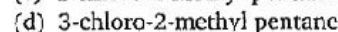
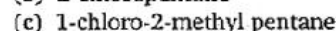
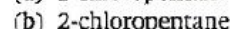
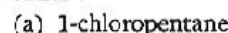
146. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid ?



147. Among the following compounds which can be dehydrated very easily ?



148. Which of the following compounds is not chiral ?



149. Insulin production and its action in human body are responsible for the level of diabetes. This compound belongs to which of the following categories ?



150. The smog is essentially caused by the presence of :

