

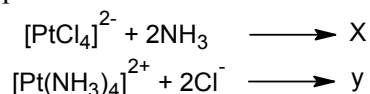
A

16604

120 MINUTES

- Which one of the following indicates the correct order of variation in atomic size?
A) $\text{Be} > \text{B} > \text{C} > \text{N} > \text{F}$ B) $\text{Be} < \text{B} > \text{C} < \text{N} < \text{F}$
C) $\text{Be} < \text{B} < \text{C} < \text{N} < \text{F}$ D) $\text{Be} > \text{B} > \text{C} < \text{N} < \text{F}$
- The “styx” number of B_6H_{10} is
A) 4202 B) 2402 C) 4220 D) 4620
- Layer polymeric silicates have the formula
A) $\text{Si}_3\text{O}_9^{6-}$ B) $[\text{Si}_4\text{O}_{10}]_n^{4n-}$
C) $[\text{Si}_4\text{O}_{11}]_n^{6n-}$ D) $\text{Si}_6\text{O}_{18}^{12-}$
- Which among the following has square pyramidal structure?
A) XeF_4 B) XeO_4 C) XeO_3F_2 D) XeOF_4
- The correct order of acidity among the transition metals hydroxides of Sc, Mn, Fe, Ni is
A) $\text{Sc}(\text{OH})_2 < \text{Mn}(\text{OH})_2 < \text{Fe}(\text{OH})_3 < \text{Fe}(\text{OH})_2 < \text{Ni}(\text{OH})_2$
B) $\text{Sc}(\text{OH})_2 < \text{Mn}(\text{OH})_2 < \text{Fe}(\text{OH})_2 < \text{Fe}(\text{OH})_3 < \text{Ni}(\text{OH})_2$
C) $\text{Sc}(\text{OH})_2 < \text{Mn}(\text{OH})_2 < \text{Fe}(\text{OH})_2 < \text{Ni}(\text{OH})_2 < \text{Fe}(\text{OH})_3$
D) $\text{Mn}(\text{OH})_2 < \text{Fe}(\text{OH})_3 < \text{Fe}(\text{OH})_2 < \text{Ni}(\text{OH})_2 < \text{Sc}(\text{OH})_2$
- Which among the following transition metals, Ti, Mn, V, Cr, Mo, W, Zr form polyoxometallates?
A) V, Cr, Mo & W B) Mn, Cr, Mo, W & Zr
C) Ti, Cr, Mo & W D) All of these
- Mischmetal is a mixture of
A) Ce, Pr, La & Eu B) Ce, Pr, Lu & Nd
C) Ce, Pr, La & Nd D) La, Pr, Nd & Lu
- The intense yellow colour of uranyl ion (UO_2^{2+}) in solution is due to
A) MLCT B) LMCT
C) f-f transition D) d-d transition
- The number of isomers possible for the square planar complex $[\text{PtBrCl}(\text{NH}_3)(\text{PH}_3)]$ is
A) 2 B) 3 C) 4 D) 5
- The spin only magnetic moments in BM of $\text{K}_4[\text{CoF}_6]$ and $[\text{Co}(\text{NH}_3)_6]\text{Cl}_2$ complexes is/are respectively
A) Both 1.73 B) Both 3.83
C) 1.73 & 3.83 D) 3.83 & 1.73

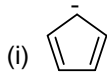



11. The products X & Y formed in the following reactions are



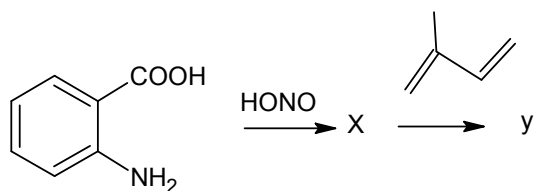
- A) Both X & Y = *cis*-[PtCl₂(NH₃)₂]
 B) Both X & Y = *trans*-[PtCl₂(NH₃)₂]
 C) X = *cis*-[PtCl₂(NH₃)₂] & Y = *trans*-[PtCl₂(NH₃)₂]
 D) X = *trans*-[PtCl₂(NH₃)₂] & Y = *cis*-[PtCl₂(NH₃)₂]
12. The mechanism followed in the following reaction is
- $$[\text{W}(\text{CO})_6] + \text{PPh}_3 \longrightarrow [\text{W}(\text{CO})_5(\text{PPh}_3)] + \text{CO}$$
- A) Associative mechanism
 B) Dissociative mechanism
 C) Outer- sphere mechanism
 D) Inner- sphere mechanism
13. Which among the following complexes does not obey the 18 electron rule?
 (i) [Fe(η^5 -Cp)₂], (ii) [Cr(η^5 -Cp)₂], (iii) [Cr(CO)₆], (iv) [V(η^5 -Cp)₂]
- A) i, ii & iv only B) i, iii & iv only
 C) i & iii only D) ii & iv only
14. Which of the following has a nido structure?
 A) Ir₄(CO)₁₂ B) Fe₄(CO)₁₅
 C) Os₅(CO)₁₆ D) Rh₆(CO)₁₆
15. The hapticity of cyclopentadienyl is/are
 A) 1 B) 3 C) 5 D) 1, 3 and 5
16. Match the following catalysts with the correct processes

Catalyst	Process
(i) Grubb's catalyst	(a) Hydrogenation of alkenes
(ii) Zeigler Natta catalyst	(b) Hydroformylation
(iii) Wilkinson's catalyst	(c) Polymerisation
(iv) Co ₂ (CO) ₈	(d) Alkene metathesis

- A) (i) – b, (ii) – c, (iii) – d (iv)- a
 B) (i) – d, (ii) – c, (iii) – a (iv)- b
 C) (i) – a, (ii) – c, (iii) – d (iv)- b
 D) (i) – b, (ii) – c, (iii) – a (iv)- d

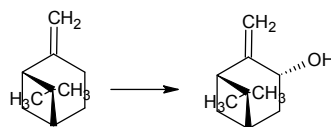
17. Which of the following metal ions has a high concentration in cytoplasm?
 A) K^+ B) Na^+ C) Ca^{2+} D) Fe^{2+}
18. Small polydentate ligands that have a high affinity for Fe (III) is known as
 A) Apocalmodulin B) Ferritin
 C) Siderophores D) Carboxypeptidase
19. A small iron-sulphur protein found in various sulphur-metabolizing bacteria is
 A) Ferridoxin B) Cytochrome
 C) Rubredoxin D) Haemerythrin
20. *Cis*- $[PtCl_2(NH_3)_2]$ known as cisplatin is used as
 A) Anti cancer drug B) Anti- arthritis drug
 C) Anti malarial drug D) Anti-histamine drug
21. The stability order of carbocations
 A) $C_6H_5^+ < p-ClC_6H_4-CH_2^+ < C_6H_5CH_2^+$ B) $C_6H_5^+ < C_6H_5CH_2^+ < p-ClC_6H_4-CH_2^+$
 C) $C_6H_5CH_2^+ < C_6H_5^+ < p-ClC_6H_4-CH_2^+$ D) $p-ClC_6H_4-CH_2^+ < C_6H_5^+ < C_6H_5CH_2^+$
22. Arrange the following in the increasing order of reactivity in S_N2 solvolysis.
 (a) $CH_3-CH_2-CH_2-Br$ (b) CH_3-O-CH_2-Br (c) C_6H_5Br
 A) $a < b < c$ B) $b < a < c$
 C) $c < b < a$ D) $c < a < b$
23. Which among the following is/are antiaromatic?
 (i)  (ii)  (iii)  (iv) 
- A) (i) & (ii) only
 B) (ii) & (iii) only
 C) (iv) only
 D) (ii) only

24. The intermediate X and the product Y formed in the following reaction is



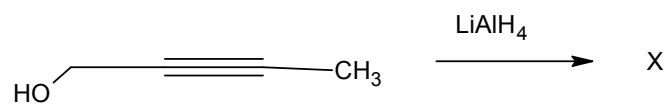
- A) X is carbocation and Y is
- B) X is carbanion and Y is
- C) X is benzyne and Y is
- D) X is nitrene and Y is

25. The best reagent for the conversion of



- A) NaIO_4 B) $\text{Pb}(\text{OAc})_4$ C) SeO_2 D) KMnO_4

26. The major product of the following reaction is



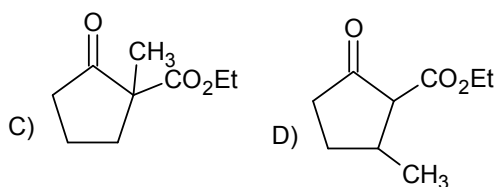
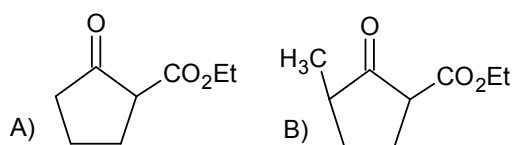
- A)
- B)
- C)
- D)

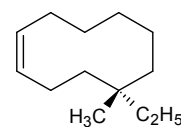
27. Match the following reagents with the correct reaction

a) Zn(Hg)/HCl	i) Shapiro reaction
b) $\text{H}_2\text{N-NH}_2$, KOH	ii) Clemmensen reduction
c) Tosyl hydrazone, RLi	iii) Birch reduction
d) Li/NH ₃	iv) WK reduction

- A) a- ii, b-i, c-iv, d-iii B) a- ii, b-iv, c-i, d-iii
 C) a- ii, b-i, c-iii, d-iv D) a- iii, b-i, c-iv, d-ii

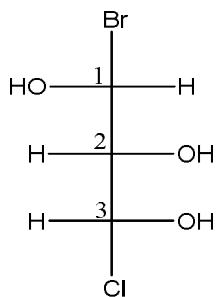
28. The major product of the following reaction is



29. The IUPAC name of the compound  is

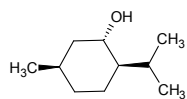
- A) (1E, 5R) 5-ethyl-5-methylclodec-1-ene
 B) (1Z, 5S) 5-ethyl-5-methylclodec-1-ene
 C) (1E, 5S) 5-ethyl-5-methylclodec-1-ene
 D) (4E, 1S) 1-ethyl-1-methylcyclodec-4-ene

30. The R and S nomenclature of the following compound is



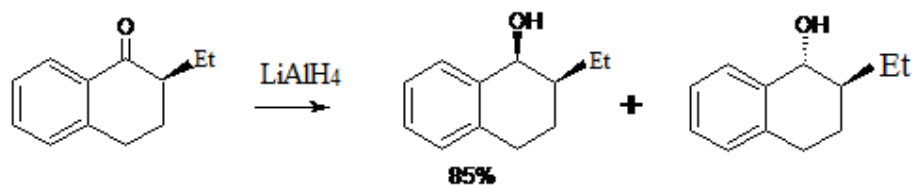
- A) 1- R, 2- R, 3-S B) 1-S, 2-S, 3-R
 C) 1- S, 2- R, 3-S D) 1-R, 2-S, 3-R

31. The most stable conformation of the following compound is



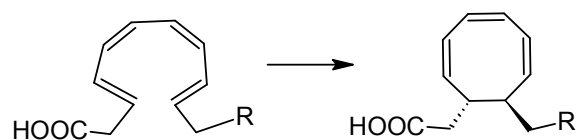
- A) Chair with OH equatorial, Me & iPr axial
- B) Boat with Me & iPr boat equatorial & OH at bowsprit
- C) Chair with iPr and OH equatorial & Me axial
- D) Chair with Me & OH equatorial, iPr axial

32. Which among the following is correct regarding the reaction



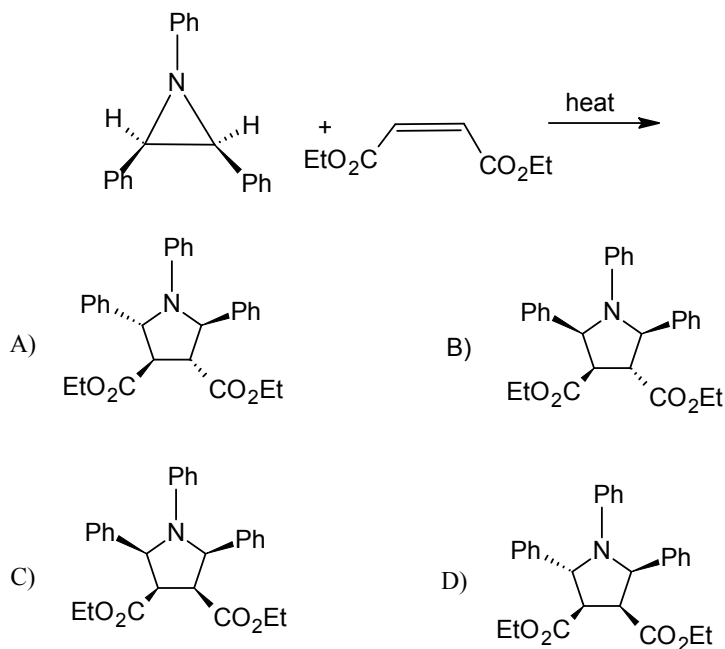
- A) It is a stereo specific reaction
- B) It is an enatio specific reaction
- C) It is a regeo selective reaction
- D) It is a diastereoselective reaction

33. The following pericyclic reaction is

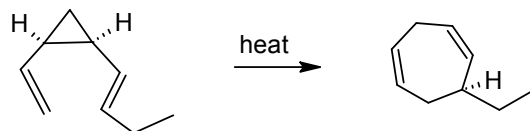


- A) Thermal π^{8s} disrotatory reaction
- B) Thermal π^{8a} conrotatory reaction
- C) Photochemical π^{8a} conrotatory reaction
- D) Photochemical π^{8s} disrotatory reaction

34. The major product of the following reaction is

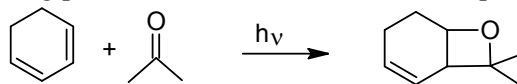


35. Which is /are the correct statements about the following reaction?



- (i) It is a [3,3] sigmatropic rearrangement
 - (ii) It is an example of Claisen-Cope rearrangement
 - (iii) It is an example of Cope rearrangement
- A) (i) & (iii) only B) (i) & (ii) only
 C) (ii) & (iii) only D) All the three

36. The following photochemical reaction is an example of



- A) Norrish type I reaction B) Norrish type II reaction
 C) Paterno-Buchi reaction D) Barton reaction

37. Camphor (C₁₀H₁₆O) is an example of

- A) Monoterpenoid B) Diterpenoid
 C) Sesquiterpenoid D) Triterpenoid

48. According to molecular partition function, Helmholtz free energy (A) is given by

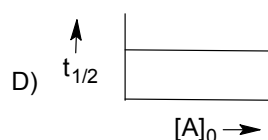
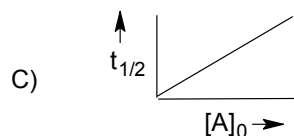
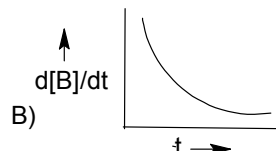
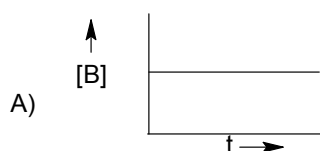
A) $kT^2 \left(\frac{\partial \ln Q}{\partial T} \right)_{V,N}$ B) $kT \left(\frac{\partial \ln Q}{\partial V} \right)_{T,N}$

C) $A(0) - kT \ln Q$ D) $A(0) + kT \ln Q$

49. For the reaction $2A + B \rightarrow C + 2D$ which is first order in A and also first order in B, the overall rate is given by

A) $k[A]^2[B]$ B) $k[A][B]^2$ C) $k[A]^2$ D) $k[A][B]$

50. Which graph represents correctly for the zero order reaction $A(g) \rightarrow B(g)$

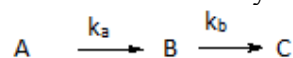


51. The expression for the rate constant according to the Absolute reaction rate theory is

A) $k = \frac{kT}{h} e^{\Delta S^*/R} e^{\Delta H^*/RT}$ B) $k = \frac{kT}{h} e^{\Delta S^*/R} e^{-\Delta H^*/RT}$

C) $k = \frac{kT}{h} e^{-\Delta S^*/R} e^{\Delta H^*/RT}$ D) $k = \frac{kT}{h} e^{\Delta S^*/R} e^{-E^*/RT}$

52. For a consecutive elementary first order reaction



Under steady state approximation the concentration of the product [C] is given by

A) $(1 - e^{-k_a t})[A]_0$ B) $(1 - e^{-k_b t})[A]_0$

C) $(1 + e^{-k_a t})[A]_0$ D) $(1 + e^{-k_b t})[A]_0$

53. The mean ionic activity of 'm' molal solution of $Ca_3(PO_4)_2$ is given by (γ_{\pm} is the mean ionic activity coefficient)

A) $a_{\pm} = 108m\gamma_{\pm}$ B) $a_{\pm} = 12m\gamma_{\pm}$

C) $a_{\pm} = \sqrt[5]{108} m\gamma_{\pm}$ D) $a_{\pm} = \sqrt[5]{108m\gamma_{\pm}}$

54. $\Lambda^0_{\text{NH}_4\text{Cl}} = 130\Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$, $\Lambda^0_{\text{KOH}} = 220\Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$, $\Lambda^0_{\text{KCl}} = 110\Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$
 If Λ_m of NH_4OH at a given concentration is $12.0\Omega^{-1} \text{ cm}^2 \text{ mol}^{-1}$, what is its degree of dissociation?
 A) 2% B) 3% C) 20% D) 5%

55. The relationship between temperature coefficient of e.m.f. of a cell and standard entropy change of the cell reaction is given by

A) $\Delta S^\circ = nF \left(\frac{\partial E}{\partial T} \right)_p$ B) $\Delta S^\circ = -nF \left(\frac{\partial E}{\partial T} \right)_p$
 C) $\Delta S^\circ = -F \left(\frac{\partial E}{\partial T} \right)_p$ D) $\Delta S^\circ = nFE^\circ - nF \left(\frac{\partial E}{\partial T} \right)_p$

56. Tafel plot is

- A) Plot of current density against electrode potential
 B) Plot of current density against over potential
 C) Plot of logarithm of current density against over potential
 D) Plot of logarithm of current density against electrode potential

57. Match the following

Column I	Column II
(i) Freundlich isotherm	a) $\frac{z}{(1-z)V} = \frac{1}{cV_{mon}} + \frac{(c-1)z}{cV_{mon}}$
(ii) Langmuir isotherm	b) $\theta = c_1 p^{1/c_2}$
(iii) BET isotherm	c) $\theta = \frac{Kp}{1+Kp}$

- A) (i) – a, (ii) – c, (iii) – b B) (i) – b, (ii) – c, (iii) – a
 C) (i) – c, (ii) – b, (iii) – a D) (i) – c, (ii) – a, (iii) – b

58. ESCA is usually used to study

- A) Reactions occurring at the bulk of the material
 B) Surface state of heterogeneous catalysts
 C) Electronic structure of molecules
 D) Homogeneous catalysis

59. The colour of lyophobic colloids is due to

- A) Electronic transition in colloidal particles
 B) Vibrational transition in colloidal particles
 C) Scattering of light by colloidal particles
 D) Electronic & vibrational transition

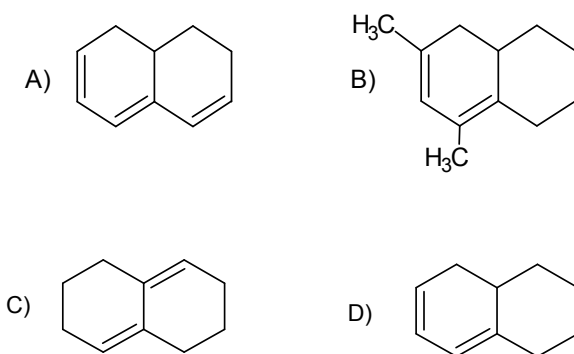
60. Oxidation of propene to acrolein by bismuth molybdate is best explained by

- A) Langmuir- Hinshelwood mechanism
 B) Eley – Rideal mechanism
 C) Mars van Krevelen mechanism
 D) None of the above

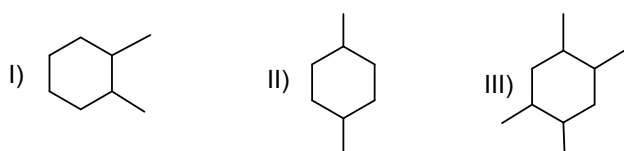
61. Which of the following is not a linear operator?
 A) $\frac{d^2}{dx^2}$ B) $\sqrt{\quad}$ C) \hat{P}_x D) \hat{H}
62. The probability that a particle to be found in between 0 and $a/2$ in a one dimensional box of length 'a' is
 A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\frac{1}{4}$ D) $\frac{3}{4}$
63. The angular momentum of an electron in the f-orbital is
 A) $\sqrt{2} \frac{h}{2\pi}$ B) $\sqrt{6} \frac{h}{2\pi}$ C) $\sqrt{3} \frac{h}{2\pi}$ D) $\sqrt{12} \frac{h}{2\pi}$
64. The ground state term symbol of Mn^{2+} is
 A) 3F B) 2D C) 2S D) 6S
65. According to the Born-Oppenheimer approximation, which of the following relative motion may be neglected?
 A) Electron to nucleus B) Electron to electron
 C) Nucleus to nucleus D) All of the above
66. For hydrogen molecule in the excited state $\sigma_g^1 \sigma_u^1$, the spin part of the triplet state with $m_s = 0$ is proportional to
 A) $\alpha(1)\beta(2)$ B) $\alpha(1)\beta(2) + \beta(1)\alpha(2)$
 C) $\alpha(1)\alpha(2)$ D) $\alpha(1)\beta(2) - \beta(1)\alpha(2)$
67. The term symbol of a molecule with the electronic configuration $(1\sigma_g)^2(1\sigma_u)^2(2\sigma_g)^2(2\sigma_u)^2(1\pi_u)^2(1\pi_g)^2(3\sigma_g)^1$ is
 A) $^1\Sigma_g^+$ B) $^3\Sigma_g^+$ C) $^2\Sigma_g^-$ D) $^2\Sigma_g^+$
68. According to Huckel MO treatment the four π -MO energies of butadiene are given by $\alpha \pm 1.62\beta$ and $\alpha \pm 0.62\beta$. The delocalization energy of butadiene is
 A) 0.62β B) 0.48β C) 1.62β D) 1.48β
69. The point group of eclipsed ethane is
 A) D_{3h} B) C_{3v} C) D_{3d} D) D_3
70. A point group has the following sets of elements $E, 2C_5, 2C_5^2, 5C_2, \sigma_h, 2S_5, 2S_5^2, 5\sigma_v$. The order and the number of irreducible representations of the group are respectively
 A) 8, 8 B) 20, 20 C) 20, 8 D) 10, 8
71. $C_6^3 \times \sigma_h$ is equivalent to
 A) σ_h B) C_3 C) σ_v D) i

72. Which of the following is a well-behaved function? (x lies between plus and minus infinity).
- A) $y = \exp(a x^2)$ B) $y = a x + b$
 C) $y = a x^2$ D) $y = \exp(-a x^2)$
73. Match the following
- | | | |
|-----|----------------------------------|---------------------|
| I | CH ₄ | a. Asymmetrical top |
| II | H ₂ O | b. Spherical top |
| III | CO ₂ | c. Symmetrical top |
| IV | CH ₃ Cl | d. Linear |
| V | C ₂ H ₅ OH | |
- A) I- a, II- c, III- d, IV- c, V- b
 B) I- b, II- a, III- d, IV- c, V- b
 C) I- b, II- a, III- d, IV- c, V- a
 D) I- c, II- a, III- b, IV- c, V- a
74. The fundamental and first overtone of H³⁵Cl occurs at 2885.64 cm⁻¹ and 5667.18 cm⁻¹ respectively. The fundamental vibrational frequency ($\bar{\nu}$) of the molecule is
- A) 2885.64 cm⁻¹ B) 2937.69 cm⁻¹
 C) 2833.59 cm⁻¹ D) 2989.74 cm⁻¹
75. A molecule containing a carbonyl group showed the following absorptions in the UV (a) λ_{\max} 295 nm with ϵ_{\max} =20 (b) λ_{\max} 175 nm with ϵ_{\max} =11000. Which among the following is true?
- A) (a) $n \rightarrow \pi$ (b) $\sigma \rightarrow \sigma$
 B) (a) $n \rightarrow \sigma$ (b) $\sigma \rightarrow \sigma$
 C) (a) $n \rightarrow \pi$ (b) $\pi \rightarrow \pi$
 D) (a) $n \rightarrow \sigma$ (b) $\pi \rightarrow \sigma$
76. Which of the following species show esr spectrum?
 (i) CO₂, (ii) N₂⁺, (iii) NO, (iv) H₂O, (v) O₂
- A) (ii),(iii) & (v) only B) (i), (ii) & (iv) only
 C) (i), (ii), (iii) & (iv) only D) All of these

77. A conjugated polyene showed a λ_{\max} 272 nm in the UV region. The possible structure of the compound is



78. The numbers of proton decoupled ^{13}C NMR signals shown by the following compounds are respectively



- A) 4, 4, 2 B) 4, 3, 3 C) 3, 4, 3 D) 8, 8, 10

79. The order of C=O stretching frequency in aldehyde, acyl chloride and amide is

- A) Amide > acyl chloride > aldehyde
 B) Acyl chloride > aldehyde > Amide
 C) Amide > aldehyde > acyl chloride
 D) Acyl chloride > Amide > aldehyde

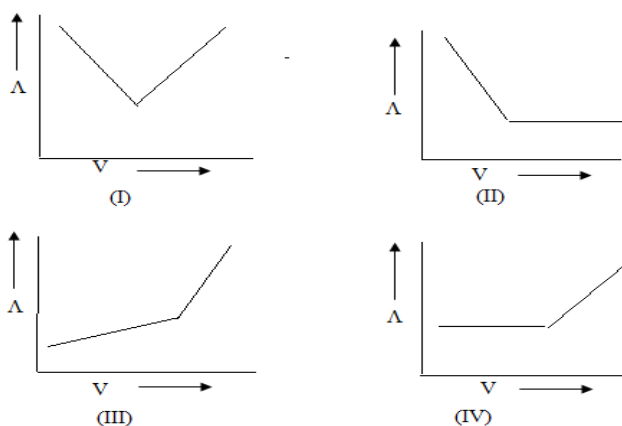
80. If Mossbauer spectrum of $\text{Fe}(\text{CO})_5$ is recorded in the presence of a magnetic field, the original spectrum of two lines changes into one with

- A) three lines B) four lines
 C) five lines D) six lines

81. The indicators that can be used to detect the equivalence points in the following two titrations (i) a strong acid and a weak base and (ii) a weak acid and a weak base are, respectively,

- A) (i) Methyl orange and (ii) no suitable indicator
 B) (i) no suitable indicator and (ii) Methyl orange
 C) (i) Phenolphthalein and (ii) Methyl orange
 D) (i) Diphenylamine and (ii) Ferroin

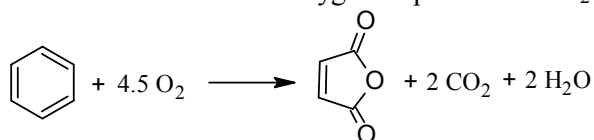
91. Clarity of water can be determined by
 A) Turbidimetry B) Nephelometry
 C) Flourimetry D) All the above
92. The information about the occupied MO energy levels of molecules can be determined by
 A) UV-visible spectroscopy
 B) IR spectroscopy
 C) Photoelectron spectroscopy
 D) Raman spectroscopy
93. Which among the following curves represent the conductometric titration of a weak acid against a strong base



- A) I B) II C) III D) IV
94. When hydrogen electrode and normal calomel electrode are immersed in a solution at 25°C a potential of 0.664V is obtained. The pH of the solution is
 ($2.303\frac{RT}{F} = 0.059V$, $E_{\text{calomel}} = 0.2802V$)
 A) 6.5 B) 5.5 C) 7.5 D) 4.5
95. Coulometric method of analysis is based on
 A) Ohms law B) Nernst equation
 C) Faraday's law D) Ilkovic equation
96. The working electrode used in polarographic analysis is usually
 A) Standard Calomel electrode B) Ag/AgCl electrode
 C) Hydrogen electrode D) Dropping mercury electrode
97. Exothermic and endothermic reactions can be easily identified by the thermograms
 A) TG B) DTG
 C) DSC D) Both B & C

98. Of the following, which one is wrong with respect to radiometric titration?
- A) Gives sharp and accurate end point.
 B) Weight and chemical purity of the reagents have no consideration.
 C) Radiochemical purity of the reagent and precipitate have no consideration.
 D) Quantities required for the estimation are usually small.
99. The SI unit of radioactivity is
 A) becquerel B) curie C) rad D) rem
100. A liquid scintillating counter converts the energy of the nuclear emissions to
 A) Heat energy B) Light energy
 C) Electrical energy D) Chemical energy

101. Benzene combines with oxygen in presence of V_2O_5 according to the equation



If the desired product is maleic anhydride, the atom economy of the reaction is

- A) 44.14% B) 83.78% C) 35.13% D) 52.18%
102. Which among the following is not true with respect to ionic liquids?
- A) They are organic salts with melting point lower than 100°C
 B) They generally consist of large N- containing cation and a smaller inorganic anion
 C) They are regarded as designer solvents
 D) They exist in super critical fluid state
103. Which among the following statements is/are true for microwave assisted organic synthesis?
- (i) It can be used for reactions involving heterogeneous metal catalysts
 (ii) It can be used for reactions in non-polar solvents
 (iii) It increases the reaction rate more effectively than the rate of conventional methods
- A) (i) & (ii) only B) (ii) & (iii) only
 C) (iii) only D) (ii) only
104. Which among the following is a phase transfer catalyst?
- A) Benzyltrimethylammonium chloride
 B) Pentadecyltributyl phosphonium sulphate
 C) Vanadium pentoxide
 D) Invertase
105. Nanomaterials are solid substances with the dimension
 A) 0.01 nm to 10 nm B) 10 nm to 1000 nm
 C) 1 nm to 100 nm D) 0.1 nm to 1000 nm

106. The colour of nano-metallic particles dispersed in a dielectric medium is mainly due to
 A) Scattering of radiation
 B) Localised surface Plasmon absorption
 C) Electronic transition
 D) None of the above
107. The nano- crystals employed for QD colour production in HD LED TV is
 A) ZnS B) Si C) CdSe D) AlN
108. Bottom-up fabrication of nanomaterials can be done by
 A) Photolithography
 B) Electron beam lithography
 C) Soft lithography
 D) Solution method and vapour phase methods
109. Photochemical smog is formed in
 A) Summer during the morning time
 B) Summer during the day time
 C) Winter during the day time
 D) Winter during the morning time
110. Which among the following gases in the atmosphere are the main causes of green house effect?
 (i) CO₂ (ii) N₂ (iii) CH₄ (iv) H₂O (v) N₂O
- A) (i), (iii), (iv), (v) only B) (i), (ii), (iii), (v) only
 C) (i), (iii), (v) only D) All
111. Acid rain is caused by which of the following?
 i. NO₂ ii. SO₂ iii. CFC
- A) i and iii only B) ii only
 C) i only D) i and ii only
112. During the Bhopal tragedy the toxic gas released into the atmosphere was
 A) HCN B) Carbaryl
 C) Methyl isocyanate D) Methyl mercaptan
113. Which among the following are true for thermoplastics?
 I) They have ordered crystalline regions
 II) They have amorphous regions
 III) They are hard at room temperature
- A) (I) & (III) only B) (II) & (III) only
 C) (I) & (II) only D) All the three
114. Protective clothing of fire fighters are made by the polymer
 A) Nylon 66 B) Kevlar C) Dacron D) Kodel

115. Lexan the transparent polymer used to make bullet proof windows is made by the copolymerisation of
- A) Phosgene and bisphenol A
 - B) Alkyl isocyanate and alcohol
 - C) Terephthalic acid and ethyleneglycol
 - D) Formaldehyde and melamine

116. Match the following

Column I	Column II
(a) A strongest adhesive	(i) Polyacetylene
(b) Conducting polymer	(ii) Neoprene
(c) Thermosetting polymer	(iii) Epoxy resin
(d) Synthetic rubber	(iv) Melmac

- A) a- ii, b- i, c- iv, d- iii
 - B) a- ii, b- iii, c- iv, d- i
 - C) a- iii, b- i, c- iv, d- ii
 - D) a- i, b- iv, c- ii, d- iii
117. Which among the following is not correct in designing an agonist drug?
- A) The drug must have the correct binding groups
 - B) The drug must have these binding groups correctly positioned
 - C) The drug must be the right size for the binding site
 - D) The drug must alter the shape of the binding site
118. A drug that is antipyretic as well as analgesic
- A) Quinine
 - B) p- acetamidophenol
 - C) Penicillin
 - D) Chloramphenicol
119. Which among the following is not a sulpha drug?
- A) Hydrochlorothiazide
 - B) Sulphamethaxazole
 - C) Chlorthalidone
 - D) Diazepam
120. Which among the following is a sedative drug?
- A) Phenobarbital
 - B) Paracetamol
 - C) Ibuprofen
 - D) Oxamniquine
