I. Choose and write the correct answer:

1. The phenomenon which proves the particle nature of electron is
   a) diffraction  b) interference  c) photoelectric effect  d) all the above

2. The wave associated with a particle is called as
   a) electromagnetic wave  b) matter wave  c) micro wave  d) all the above

3. If the momentum of a particle B is half of A, then wavelength of B is equal to
   a) $\lambda_B/2$  b) $\lambda_A$  c) $2\lambda_A$  d) $\lambda_A^2$

4. de-Broglie concept is significant for
   a) electrons  b) protons  c) neutrons  d) all the above

5. The energy required to shift an electron from $n=1$ to $n=\infty$ is
   a) $+1312 \text{ kJmol}^{-1}$  b) $+146 \text{ kJmol}^{-1}$  c) $-1312 \text{ kJmol}^{-1}$  d) zero

6. The nodal plane for $2p_x$ orbital is
   a) XY plane  b) YZ plane  c) XZ plane  d) all the above

7. Which of the following molecule is having shortest bond length
   a) hydrogen  b) nitrogen  c) oxygen  d) lithium

8. The molecule with greater bond dissociation energy is
   a) H$_2$  b) Li$_2$  c) O$_2$  d) N$_2$

9. Energy levels of the molecular orbitals have been determined experimentally by
   a) Crystallographic studies  b) X-ray analysis  c) spectroscopic studies  d) None

10. Which of the following will have lowest boiling point
    a) o-nitro phenol  b) m-nitro phenol  c) p-nitro phenol  d) all the above

11. The correct order of electronegativity is
    a) F>O>N  b) O>F>N  c) N>O>F  d) F<N<O

12. The number of nodes in s-orbital of any energy level is equal to
    a) $2n+1$  b) $n+1$  c) $2n-1$  d) $n-1$

13. G.P. Thomson performed experiments to prove the wave nature of electrons using
    a) Nickel crystal  b) silver foil  c) gold foil  d) zinc sulphide

14. The hybridisation in ICl$_4^-$ is
    a) sp$^3$d  b) sp$^3$d$^3$  c) sp$^3$  d) sp$^3$d$^2$

15. Which of the following is a weak bond
    a) covalent bond  b) hydrogen bond  c) ionic bond  d) dipole-dipole interactions

16. Pauling’s method of calculation of ionic radii is not applicable for
    a) NaF  b) KCl  c) CsCl  d) RbBr

17. The correct order of successive ionisation potentials is
    a) $I_1>I_2>I_3$  b) $I_1=I_2=I_3$  c) $I_3<I_1<I_2$  d) none

18. The contribution of other electrons present in 1s orbital to ‘S’ value is
    a) 0  b) 0.35  c) 0.85  d) 0.30

19. The metal with negative electron affinity is
    a) Gold  b) Copper  c) Zinc  d) Silver

20. The metal with comparatively high electron affinity is
    a) Chlorine  b) Copper  c) Gold  d) Cadmium

21. The ionic crystal in which the anion and cation are isoelectronic with neon is

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22. Inert pair effect is a characteristic feature of elements
   a) s-block    b) p-block    c) d-block    d) f-block

23. Chloropplumbic acid is
   a) H₄PbCl₂    b) H₂PbCl₂    c) HPbCl₂    d) H₂PbCl₄

24. The oxyacid of phosphorus which is a powerful reducing agent (reduces silver nitrate) is
   a) H₃PO₃    b) H₃PO₄    c) H₄P₂O₇    d) PH₃

25. The oxyacid of phosphorus which gives yellow precipitate with AgNO₃ is
   a) H₃PO₃    b) H₃PO₄    c) H₄P₂O₇    d) PH₃

26. The compound with rotten fish odour is
   a) P₂O₃    b) H₃PO₃    c) PH₃    d) P₂O₅

27. The halogen which is the strongest oxidising agent is
   a) fluorine    b) chlorine    c) bromine    d) iodine

28. Which of the following is not possible
   a) I₃⁻    b) F₃⁻    c) Br₃⁻    d) Cl₃⁻

29. During the hydrolysis of interhalogen compound, the larger halogen forms
   a) halide ion    b) oxyhalide ion    c) both a and b    d) none

30. Which of the following inert gas is not found in air
   a) helium    b) neon    c) krypton    d) radon

31. The element which is extremely toxic in boron family is
   a) gallium    b) indium    c) thallium    d) boron

32. The compound with garlic taste is
   a) P₂O₃    b) H₃PO₃    c) PH₃    d) P₂O₅

33. The compound used as souring agent in the preparation of soft drinks is
   a) H₃PO₃    b) H₃PO₄    c) H₄P₂O₇    d) P₂O₅

34. The mixture which is used to prevent bends
   a) He/Ne    b) Ar/N₂    c) Ar/O₂    d) He/O₂

35. The compound used to prevent knocking is
   a) Pb₃O₄    b) Pb(OH)₂    c) Pb(C₂H₄)₄    d) PbO

36. The catalyst used in the manufacture of polythene is
   a) V₂O₅    b) Cr₂O₃    c) TiCl₄    d) Fe₂O₃

37. The transition metal which shows zero oxidation state in its compound is
   a) Sc    b) Cu    c) Ni    d) Os

38. The magnetic moment in BM for Ti³⁺ is equal to
   a) √2    b) √8    c) √3    d) √15

39. Which of the following transition metal is attacked by alkali
   a) copper    b) zinc    c) silver    d) chromium

40. Aquaregia contains conc. HCl and conc. HNO₃ in the ratio
   a) 3: 9    b) 1:3    c) 3:1    d) 1:2

41. 18 carat gold contains parts by weight of copper
   a) four    b) eight    c) six    d) eighteen

42. The colour of pottasium dichromate in alkaline solution is
43. In acidic medium, one mole of $K_2Cr_2O_7$ gives ------------ atoms of oxygen
   a) five   b) one   c) three   d) six

44. Bordeaux mixture contains
   a) $ZnSO_4 + H_2SO_4$   b) $CuSO_4$ + lime   c) $AgNO_3$ + lime   d) $CuSO_4 + NH_4OH$

45. The oxidation state of Fe in $Fe(CO)_5$ is
   a) +3   b) +2   c) +5   d) 0

46. During smelting process of copper pyrites, the matte formed chiefly contains
   a) $Cu_2S + FeS$   b) $FeSiO_3$   c) $Cu_2S + FeO$   d) $Cu_2S + Cu_2O$

47. Blister copper contains -----------% impurities
   a) 1   b) 2   c) 3   d) 98

48. Gun metal is an alloy containing
   a) Cu+Sn   b) Cu+Zn   c) Cu+Sn+Zn   d) Cu+Sn + Ni

49. The metal used for galvanizing iron sheets is
   a) copper   b) chromium   c) silver   d) zinc

50. The compound of transition metal which decompose on exposure to light is
   a) $AuCl_3$   b) $CuSO_4$   c) $AgNO_3$   d) $ZnCO_3$

51. Which of the following is a ferromagnetic substance
   a) Sc   b) Ti   c) Zn   d) Fe

52. Which of the following are also known as rare earth elements
   a) s-block   b) p-block   c) d-block   d) f-block

53. Which of the following has the maximum tendency to act as reducing agent
   a) Lu   b) Ce   c) Pm   d) La

54. Which of the following hydroxide is most basic
   a) $La(OH)_3$   b) $Ce(OH)_3$   c) $Nd(OH)_3$   d) $Lu(OH)_3$

55. The major constituent of mish metals is
   a) cerium   b) lutitium   c) lanthanum   d) neodimium

56. The colour of $U^{4+}$ ion is
   a) red   b) yellow   c) green   d) colourless

57. Uranium exhibits maximum oxidation state in
   a) $UO_2$   b) $UF_6$   c) $UO_2Cl_2$   d) both b and c

58. The existence of an actinide series analogous to the lanthanide series was postulated by
   a) Neils Bohr   b) Mary Curie   c) Henry Becquerel   d) Pierre Curie

59. The actinide which is present as an impurity along with lanthanides in monozite sand is
   a) Ac   b) U   c) Th   d) Pu

60. Which of the following is called as lattice compounds
   a) simple salt   b) a complex   c) double salt   d) all the above

61. Which serves as a lewis acid in a complex compound
   a) Central metal ion   b) ligand   c) cation   d) anion

62. The number of Cl- ions formed by $[Cr(H_2O)_5Cl]Cl_2.H_2O$ on reaction with $AgNO_3$ is
   a) 1   b) 2   c) 3   d) 0

63. Geometrical isomers are not possible for ------- complex
   a) octahedral   b) tetrahedral   c) square planar   d) none

64. The chelating ligand used to form insoluble complex of Nickel is
65. The masking agent used to remove a metal ion which would interfere with the analysis of a second metal ion is
   a) en    b) CN-    c) oxine    d) EDTA

66. If the half life of a substance is 100 sec, its average life is
   a) 1.44 sec    b) 50 sec    c) 144 sec    d) 100 sec

67. The radioactive decay series finally results in the formation of stable isotope of
   a) lead    b) thorium    c) actinium    d) bismuth

68. Nuclear fusion reaction takes place at very high temperature of about
   a) 10 K    b) 10^{10} K    c) 10^{8} K    d) 10^{33} K

69. The isotope used in the detection of eye tumours is
   a) ^{15}P^{32}    b) ^{33}I^{131}    c) ^{80}Hg^{197}    d) ^{11}Na^{24}

70. Radio isotopes which are useful in industry and agriculture is
   a) ^{15}P^{32}    b) ^{77}Co^{60}    c) ^{37}K^{197}    d) ^{90}Sr^{90}

71. Actinium decay series is known as
   a) 4n series    b) 4n+2 series    c) 4n+1 series    d) 4n+3 series

72. In nuclear reactions, __________ is / are balanced on both sides
   a) mass    b) number of atoms    c) mass number    d) mass & atomic number

73. A fossil will lose half the amount of carbon-14 present in its living state in about
   a) 6500 years    b) 5700 years    c) 4700 years    d) 6700 years

74. In radio carbon dating, the age can be determined by knowing the number of ______ particles emitted per gram per minute
   a) +1e^{0}    b) α    c) β    d) \text{none}

75. The wavelength of X-rays is in the order of
   a) 10^{-8} cm    b) 10^{-8} m    c) 10^{-9} cm    d) 10^{-9} m

76. In Bragg’s spectrometer method, which of the following are in the ratio 1:2:3
   a) \lambda_{1}:\lambda_{2}:\lambda_{3}    b) \sin\theta_{1}:\sin\theta_{2}:\sin\theta_{3}    c) \theta: \lambda:d    d) d_{1}:d_{2}:d_{3}

77. In ionic crystals, the ions are held by
   a) dipole-dipole force    b) coulombic force    c) Vanderwaals force    d) all the above

78. The crystal used as a three dimensional diffraction grating in Laue’s experiment is
   a) Nickel    b) Zinc sulphide    c) Sodium chloride    d) Cesium chloride

79. The number of cesium chloride units per unit cell of CsCl is
   a) 1    b) 2    c) 3    d) 4

80. Glasses are regarded as
   a) super cooled liquid    b) amorphous solids    c) optically isotropic    d) all the above

81. The example for covalent crystals is
   a) Arsenic    b) Bismuth    c) Boron    d) both a) and c)
86. In a fcc arrangement, the corner atoms are A type and those at face centres are B type. The simplest formula of the compound is
   a) $AB_2$      b) $A_3B_8$      c) $AB_3$      d) $AB_4$
87. The standard entropies of either elements or compounds at any temperature above $0^0K$ is
   a) zero       b) positive       c) negative       d) infinite
88. Which of the following will not obey Troutan's rule
   a) $CCl_4$      b) $H_2S$      c) $CHCl_3$      d) $H_2O$
89. Standard free energies of formation of elements are taken as
   a) unity       b) zero       c) infinity       d) none
90. In an equilibrium reaction forward reaction is favoured when
   a) $Q > K_c$       b) $Q = K_c$       c) $Q < K_c$       d) none
91. In an equilibrium reaction, if the number of moles of gaseous products are lesser than the number of moles of gaseous reactants, then
   a) $K_p > K_c$       b) $K_p < K_c$       c) $K_p = K_c$       d) none
92. For the dissociation of $PCl_5$ reaction, the order of the reaction is
   a) 1       b) 2       c) 3       d) 5
93. The optimum temperature maintained in contact process is nearly
   a) 500-550$^0$C      b) 300-500$^0$C      c) 400-450$^0$C      d) 700-1200$^0$C
94. The rate equation for, $2HCrO_4^- + 6I^- + 14H^+ \rightarrow 2Cr^{3+} + 3I_2 + 8H_2O$ is
   $r = k [HCrO_4^-] [I^-]^2 [H^+]^2$, the order of the reaction is
   a) 1       b) 2       c) 3       d) 5
95. For the decomposition of $H_2O_2$ reaction, the progress of the reaction is followed by titrating equal volumes of reaction mixture against standard
   a) $NaOH$      b) $HCl$      c) $KMnO_4$      d) all the above
96. In acid catalysed hydrolysis of ester, the rate of the reaction is followed by titrating the reaction mixture against standard
   a) $NaOH$      b) $HCl$      c) $KMnO_4$      d) all the above
97. The number of moles of water present in 1 litre is
   a) 18      b) 1      c) 55.55      d) 1000
98. Keeping the concentration constant, when measured at a temperature 10 K greater than the initial temperature, the rate becomes
   a) Same      b) two times greater      c) two times lower      d) ten times greater
99. For Arrhenius equation, a plot of log $k$ against $1/T$ gives a straight line with slope equal to
   a) $E_a / R$      b) $E_a/2.303 R$      c) $-E_a/2.303 R$      d) $-2.303 E_a/R$
100. Higher the value of $E_a$, the rate of the reaction is
    a) higher      d) moderate      c) slower      d) zero
101. The time required to complete $1/u$ th fraction is independent of
    a) rate constant      b) initial concentration      c) half-life period      d) all the above
102. Which of the following gases are adsorbed more easily
    a) hydrogen      b) oxygen      c) chlorine      d) nitrogen
103. Which of the following process is homogeneous catalysis
    a) Haber's process      b) Contact process      c) Ostwald's process      d) lead chamber process
104. The oxidation of sodium sulphite by air is retarded by
   a) Glycerine  b) As₂O₃  c) alcohol  d) H₂S

105. In the oxidation of oxalic acid by KMnO₄, the auto catalyst is
   a) K₂SO₄  b) KMnO₄  c) MnSO₄  d) H₂SO₄

106. The catalytic poison used in contact process is
   a) Mo  b) As₂O₃  c) H₂S  d) V₂O₅

107. The intermediate formed in the catalytic oxidation of SO₂ to SO₃ in lead chamber process is
   a) NO  b) O₂  c) NO₂  d) SO

108. The promoter used in Bosch’s process for the manufacture of hydrogen is
   a) Nickel  b) Chromic oxide  c) ferric oxide  d) Molybdenum

109. Which of the following is a crystalloid
   a) gelatin  b) sugar  c) albumen  d) glue

110. An example for aerosol type of colloid is
   a) cloud  b) haze  c) mist  d) all the above

111. Silver chloride can be converted into sol by adding
   a) HCl  b) H₂SO₄  c) NaOH  d) KOH

112. The colour of As₂S₃ sol is
   a) red  b) black  c) yellow  d) colourless

113. Electrodialysis method is not applicable for impurities like
   a) urea  b) sugar  c) HCl  d) both a and b

114. The colloid used in curing kalazar is
   a) argyrol  b) milk of magnesia  c) colloidal gold  d) colloidal antimony

115. An example for W/O type emulsion is
   a) milk  b) butter  c) vanishing cream  d) all the above

116. The emulsifying agent used to stabilise O/W type emulsion is
   a) lampblack  b) long chain alcohols  c) proteins  d) all the above

117. Emulsions can be broken into constituent liquids by
   a) heating  b) freezing  c) centrifuging  d) all the above

118. An example for semiconductors is
   a) benzene  b) glass  c) cobalt oxide  d) none

119. The enthalpy of neutralisation of a strong acid by strong base is equal to
   a) 57.32 kJ/mol  b) 22.0 kJ/mol  c) -47 kJ/mol  d) -57.32 kJ/mol

120. Which of the following shows abnormal colligative properties
   a) sugar  b) urea  c) NaCl  d) all the above

121. For strong electrolytes, the degree of dissociation (α) is equal to
   a) 0.1  b) 0  c) 1.0  d) infinite

122. According to Ostwald dilution law, the concentration of H⁺ for weak electrolytes is given by
   a) vKa/C  b) vKa/C  c) α².C  d) α²/C

123. Equivalent conductance is equal to molar conductance for electrolytes like
   a) AlCl₃  b) K₂SO₄  c) NaCl  d) all the above

124. Using Debye Huckel Onsager equation, the plot of λc versus VC for strong electrolytes gives
   intercept equal to
   a) A+ B λ∞  b) 1-α  c) λ∞  d) α

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125. The quantity of electricity needed to deposit 1 gm equivalent of Al\(^{3+}\) is
a) 1F   b) 2F   c) 3F   d) 0.5F

126. The degree of dissociation of AgCl is reduced by adding
a) NaF   b) NH\(_2\)OH   c) NaCl   d) CH\(_3\)COONa

127. The value of ionic product of water at 298 K is
a) \(10^{-14}\) mol\(^2\)dm\(^{-6}\)   b) \(10^{-7}\) mol\(^2\)dm\(^{-6}\)   c) \(10^{-14}\) mol\(^2\)dm\(^{-6}\)   d) \(10^{-7}\) mol\(^2\)dm\(^{-6}\)

128. Which of the following is not a buffer solution
a) CH\(_3\)COOH + CH\(_3\)COONa   b) NH\(_2\)OH + NH\(_4\)Cl   c) H\(_2\)SO\(_4\) + Na\(_2\)SO\(_4\)   d) none

129. For a buffer solution having equimolar amounts of acid and salt
a) pH = pKa   b) pH = pOH   c) pH = 1   d) pKa = 0

130. The pH of buffer containing equimolar amounts of acetic acid and sodium acetate is
a) 1.0   b) 14.0   c) 4.77   d) 0

131. The pH range of phenolphthalein indicator is
a) 6.8-8.4   b) 3.1-4.4   c) 4.4 – 6.2   d) 8.3 – 10

132. The suitable indicator for the titration of CH\(_3\)COOH Vs NH\(_4\)OH is
a) methyl orange   b) phenolphthalein   c) phenol red   d) none

133. The carbinol name of sec-butyl alcohol is
a) dimethyl carbinol   b) isopropyl carbinol   c) ethyl methyl carbinol   d) trimethyl carbinol

134. The alcohol which is called ‘wood spirit’ is
a) methyl alcohol   b) ethyl alcohol   c) benzyl alcohol   d) phenol

135. When alcohols are converted to alkyl chlorides by thionyl chloride in presence of pyridine, the reaction belongs to
a) S\(_N\)\(^1\)   b) S\(_N\)\(^2\)   c) S\(_N\)\(^i\)   d) none

136. In breath analysis test the oxidation state of chromium in potassium dichromate changes from
a) III to IV   b) VI to III   c) III to VI   d) IV to III

137. The alcohol which does not answers iodoform test is
a) ethanol   b) methanol   c) isopropyl alcohol   d) none

138. Denatured spirit is ethanol containing
a) 95% methanol   b) 5% water   c) 5% methanol   d) 95% water

139. Diols are isomeric with
a) di ethers   b) aldehydes   c) hydroxy ethers   d) both a) and c)

140. The molecular formula for stearic acid is
a) C\(_{17}\)H\(_{33}\)COOH   b) C\(_{18}\)H\(_{35}\)COOH   c) C\(_{15}\)H\(_{31}\)COOH   d) C\(_{16}\)H\(_{33}\)COOH

141. Glycerol reacts with metallic sodium at high temperature to give
a) monosodium glycerolate   b) disodium glycerolate   c) trisodium glycerolate   d) all the above

142. Glycerol forms mesoxalic acid with
a) con HNO\(_3\)   b) FeSO\(_4\)/H\(_2\)O\(_2\)   c) bismuth nitrate   d) KMnO\(_4\)

143. Glycerose is a mixture of glyceraldehyde and
a) mesoxalic acid   b) tartronic acid   c) dihydroxy acetone   d) oxalic acid

144. Benzyl alcohol is isomeric with
a) phenols   b) anisole   c) cresols   d) both b) and c)

145. The compound present in jasmine oils is

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146. The compound used in the treatment of asthma is
a) phenyl benzoate   b) benzyl acetate  c) phenyl acetate   d) benzyl benzoate

147. The IUPAC name of Pyrogallol is
a) 1,2,3 trihydroxy benzene b)1,2,4 trihydroxy benzene   c)1,3,5 trihydroxy benzene d) none

148. The compound which dissolves in sodium hydroxide but not in sodium bicarbonate is
a) ethyl alcohol    b) benzyl alcohol  c) phenol    d) acetic acid

149. Phenols are stronger acids than
a) alcohols b) mineral acids c) carboxylic acids   d) carbonic acids

150. Which of the following is most acidic
a) p-nitro phenol   b) phenol   c) p-cresol   d) p-amino phenol

151. The main product obtained in the reaction of phenol with PCl₅ is
a) C₆H₅Cl b) POCI₃ c) (C₆H₅O)₃PO d) HCl

152. Bakelite is a polymer of phenol and
a) methanal   b) ethanol   c) formic acid   d) none

153. The number of ether isomers possible for a compound with molecular formula C₃H₈O is
a) 1 b)3 c) 2 d)4

154. The intermediate formed in the reaction of alkyl halides with dry silveroxide is
a) R-O-X   b) R-O-Ag   c) AgX   d) R-O- R

155. Ethers do not react with
a) acids   b) alkalis   c) Sodium   d) all the above

156. Which of the following is used as a solvent for Grignard reagent
a) alcohol    b)water    c) ether    d) all the above

157. The alkyl halide formed in the reaction of HI with C₂H₅-O-CH₃
a) C₂H₅I   b) CH₃I   c) both a and b d)none

158. The reagent used in Ziesel’s method is
a) KMnO₄   b) PCl₅    c) BF₃    d) HI

159. Ziesel’s method is used to detect which of the following groups in alkaloids
a) –CH₃   b) –O-   c) –OCH₃   d) all the above

160. Which of the following is used as a medium in the preparation of Grignard reagent
a) CH₃ – O – C₂H₅   b) C₂H₅ – O – CH₃    c) C₂H₅ – O – C₂H₅ d) C₃H₇ – O – C₂H₅

161. Which is not formed in the reaction of anisole with HI
a) phenol   b) methyl iodide   c) iodobenzene   d)none

162. ‘Pyridoxal’ an aldehyde is derived from
a) vitamin D   b) vitamin B₁₂   c) vitamin K   d) vitamin B₆

163. Aldehydes are functional isomers of
a) ketones    b) carboxylic acids   c) unsaturated alcohols d) both a and c

164. The product in Rosenmund reduction in the absence of BaSO₄ is
a) acid chloride   b) aldehyde c) primary alcohol  d) ketone

165. Which of the following cannot be prepared by Rosenmund reduction
a) acetaldehyde   b) formaldehyde c) benzaldehyde  d) none

166. The reaction used to locate the position of double bond is
a) Haloform reaction    b) hydrolysis  c) oxidation d) ozonolysis

167. Which of the following is least reactive carbonyl compound

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168. Aldol on heating forms
   a) acrilon        b) cinnamaldehyde       c) crotonaldehyde       d) allyl alcohol

169. A cyanohydrin of a compound X on hydrolysis gives mandelic acid. The X is
   a) HCHO         b) CH₃CHO        c) (CH₃)₂CO        d) C₆H₅CHO

170. The electron source used in Clemmenson reduction is
   a) mercury      b) zinc metal     c) HCl        d) aldehyde

171. The intermediate formed in Wolff kishner reduction is
   a) alkanes      b) hydrazine      c) ketone      d) hydrazone

172. The compound used as a hypnotic under the name ‘hypnone’ is
   a) acetone      b) benzophenone   c) acetophenone   d) acetaldehyde

173. The compound which does not form addition product with sodium bisulphite is
   a) acetone      b) benzophenone   c) acetophenone   d) acetaldehyde

174. Which of the following is obtained from Laurel oil
   a) C₃H₇COOH       b) C₁₁H₂₃COOH       c) C₄H₉COOH       d) CH₃COOH

175. The acid which undergo intermolecular dehydration is
   a) formic acid   b) succinic acid   c) acetic acid   d) all the above

176. The stable product formed when formic acid reacts with PCl₅ is
   a) CH₃COCl       b) HCOCl          c) C₆H₅COCl       d) HCl+CO

177. The reagent used to convert CH₃COOH → CH₃–CH₃ is
   a) LiAlH₄        b) H₂/Ru          c) H₂/P         d) NaOH/CaO

178. The acid used in the treatment of ‘gout’ is
   a) acetic acid   b) oxalic acid    c) salicylic acid   d) formic acid

179. The acid which undergo haloform reaction is
   a) acetic acid   b) formic acid    c) lactic acid    d) salicylic acid

180. The acid which is used as urinary antiseptic is
   a) acetic acid   b) formic acid    c) benzoic acid    d) salicylic acid

181. Which is the most reactive derivative of carboxylic acid
   a) ester        b) amide         c) acid chloride   d) acid anhydride

182. Which of the following compound is used as soldering flux
   a) acetyl chloride   b) acetamide   c) methyl acetate   d) acetic anhydride

183. Which of the following does not exhibit tautomerism
   a) CH₃CH₂-NO₂    b) (CH₃)₂CH-NO₂   c) CH₃-NO₂        d) (CH₃)₃C-NO₂

184. Nitro alkanes are functional isomers of
   a) Amines       b) alkyl nitrites   c) Alkyl cyanides  d) Aldehydes

185. Which of the following is insoluble in NaOH
   a) 2-nitro propane   b) Nitro ethane   c) 1-nitro propane   d) 2-nitro 2-methyl propane

186. Which of the following is a stronger base
   a) methyl amine    b) Dimethyl amine  c) Benzyl amine    d) Trimethyl amine

187. Which of the following gives secondary amines on reduction
   a) Nitro methane   b) methyl cyanide  c) Acetamide     d) methyl isocyanide

188. The electron deficient species formed during Hoffmann bromamide reaction is
   a) Carbene       b) diazonium ion   c) Nitrene       d) Carbonium ion
189. The compound which has fishy odour is
   a) Nitrobenzene    b) Nitriles    c) Amines    d) All the above

190. The substance with musturd like smell is
   a) methyl isocyanate   b) Methyl isocyanide  c) methyl isothiocyanate d) methyl cyanide

191. Which of the following does not form Schiff’s base
   a) CH₃NH₂   b) CH₃CH₂-NH₂   c) C₆H₅NH₂   d) CH₃-NH-CH₃

192. Which of the following does not undergo coupling reaction with C₆H₅N₂Cl
   a) phenol   b) Aniline   c) Anisole   d) Nitrobenzene

193. Which of the following reagent reacts with aniline giving meta product
   a) Br₂/H₂O   b) Fuming H₂SO₄   c) Con. HNO₃/Con.H₂SO₄   d) CH₃COCI

194. Nitromethane forms nitro alcohols in presence of alkali on condensation with
   a) alcohols   b) aldehyde   c) amines   d) carboxylic acids

195. Which of the following is used as soil sterilising agent
   a) picric acid   b) chloral   c) chloropicrin   d) all the above

196. The nitrile used in the manufacture of PAN is
   a) acrylonitrile   b) propionitrile   c) aceto nitrile   d) formonitrile

197. Which of the following aryl diazonium salt is stable in dry condition
   a) ArN₂Cl⁻   b) ArN₂NO₂⁻   c) ArN₂BF₄⁻   d) None

198. An amine which forms quarternary ammonium salt with two molar proportion of alkyl halide is
   a) Nitrobenzene   b) Methyl amine   c) acetamide   d) Aniline

199. Nitration of nitrobenzene with fuming nitric acid gives
   (a) o-dinitro benzene (b) 1,3,5-trinitro benzene (c) p-dinitro benzene   (d) m-dinitro benzene

200. An amine which forms quaternary ammonium salt with two molar proportion of alkyl halide is
   (a) ¹° amine   (b) ²° amine   (c) ³° amine   (d) None

201. Which of the following is a trisaccharide
   a) sucrose   b) glucose   c) lactose   d) raffinose

202. Which is called grape sugar
   a) glucose   b) fructose   c) galactose   d) starch

203. Mixture of equal molecules of D(+) glucose and D(-) fructose is called
   a) fruit sugar   b) invert sugar   c) cane sugar   d) non sugar

204. The number of assymetric carbon atoms present in fructose is
   a) one   b) two   c) three   d) four

205. Sucrose on heating upto 200°C forms
   a) barley sugar   b) caramel   c) dextrin   d) burnt sugar

206. In polysaccharides the monosaccharide units are linked together by ----- linkage
   a) peptide   b) amide   c) glycosidic   d) ester

207. Starch yields maltose when treated with the enzyme
   a) zymase   b) maltase   c) diastase   d) invertase

208. The colour formed when starch solution is added with a drop of iodine
   a) yellow   b) green   c) pink   d) blue

209. Starch when heated to a temperature between 200-250°C, it changes to
   a) barley sugar   b) caramel   c) dextrin   d) burnt sugar

210. The most abundunt of all carbohydrates is
211. Cellulose on boiling with \( \text{dil.} \text{H}_2\text{SO}_4 \), gets completely hydrolysed to
   a) D-glucose          b) L-fructose       c) d- fructose
                                  d) L- glucose

212. In proteins amino acids are linked through --------- linkage
   a) peptide            b) amide          c) glycosidic
                                  d) ester

213. In acidic solution an amino acid exists in the form of
   a) cation              b) zwitter ion     c) anion
                                  d) neutral molecule

214. Which of the following is a phospholipid
   a) wax                 b) fat            c) cephalin
                                  d) all the above

215. Which lipid is involved in the organisation of cell structure
   a) cephalin            b) lecithin       c) glycolipid
                                  d) fat

216. Which lipid has been implicated in the process of blood coagulation
   a) cephalin            b) lecithin       c) glycolipid
                                  d) fat
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