CLASSROOM CONTACT PROGRAMME
(Academic Session : 2024 - 2025)

LEADER & ACHIEVER COURSE

PHASE : MLA, MAZA, MAZB, MAZC, MAZD, MAZL, MAZN, MAZO, MAAX, MAAY, MAPA, MAPB, LAKSHYA

TARGET : PRE MEDICAL 2025

Test Type : **MAJOR** Test Pattern : **NEET (UG)**

TEST DATE : 16-03-2025

ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A.	3	2	2	2	1	2	3	3	2	1	2	2	1	1	2	3	4	3	2	4	1	3	3	2	2	4	3	3	4	4
Q.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	4	2	2	3	4	3	3	3	2	4	2	4	4	2	2	1	2	1	1	2	4	1	3	2	2	3	4	4	4	3
Q.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
A.	3	1	2	2	1	1	2	1	1	4	1	1	3	3	3	3	4	1	4	2	2	2	3	2	2	1	3	4	3	2
Q.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	3	1	4	2	4	4	1	4	4	3	1	1	3	2	1	3	3	1	4	3	3	3	4	3	4	2	4	3	3	1
Q.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
A.	2	2	4	2	4	2	1	2	2	2	4	4	3	3	4	1	1	2	1	2	2	3	2	2	1	2	4	1	2	4
Q.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	1	1	2	2	4	2	4	2	1	2	2	2	1	1	2	2	2	3	1	4	1	2	1	4	2	3	4	4	1	3

HINT – SHEET

10. Ans (1)

NCERT Pg. # 172

16. Ans (3)

Monodentate ligands do not show chelation.

17. Ans (4)

	EAN
$Ni(CO)_4$	36
$[Ni(CN)_4]^{-2}$	34

19. Ans (2)

Metal with –ve ion shows more synergic bond.

20. Ans (4)

Ncert , Class12th , Part-I, Article no. 5.7

Pg.No:137 , Edition-2023-2024.

21. Ans (1)

Conductivity $\propto$ No. of ions

$[Co(NH_3)_6]Cl_3$ = 4 ions

$[Co(NH_3)_5Cl]Cl_2$ = 3 ions

$[Co(NH_3)_4Cl_2]Cl$ = 2 ion

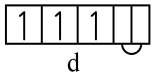
$[Co(NH_3)_3Cl_3]$ = 0 ions.

24. Ans (2)

cis isomer do not have plane of symmetry and will show optical isomerism.

27. Ans (3)

$S_1 \longrightarrow [Cr(NH_3)_6]^{+3}$ O.N. of Cr = +3 | & CN = 6

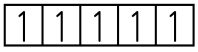
$Cr^{+3} = 3d^3$  Hyb. d^2sp^3 (inner orbital complex)

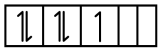
$CFSE = \left[-0.4 \times t_{2g} + 0.6 \times eg\right] \Delta_0 + P.E.$

$= -0.4 \times 3 + 0 + 0$

$= -1.2\ \Delta_0 \longrightarrow$ True

$S_2 \longrightarrow$ ligand $CN^{\ominus}$ C.M.I. $\longrightarrow Fe^{+3}$

$Fe^{+3} \longrightarrow 3d^5 \longrightarrow$  Ligand is strong field (SFL) then pairing occur.

 unpair $e^- = 1$

magnetic moment = 1.73 B.M. True.

$S_3 \longrightarrow$

$Na_2S + Na_2[Fe(CN)_5NO] \longrightarrow Na_4[Fe(CN)_5NOS]$

O.S. of Fe in both side will be same.

* $Na_2[Fe(CN)_5NO]$

$+2 + x - 5 + 1 = 0$

$x = +2$

* $Na_4[Fe(CN)_5\ NOS]$

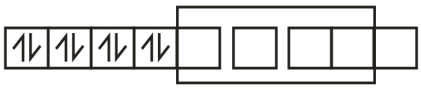
$= +4 + x - 5 - 1 = 0$

$x - 2 = 0$

$x = +2$ True.

28. Ans (3)

$[PtCl_4]^{-2}$

$Pt^{+2} = 5d^8 =$ 

5d 6s 6p

29. Ans (4)

sp^3d^2 and d^2sp^3.

31. Ans (4)

Br^- does not interfere with the chromyl chloride test, because Br^- converted into Br_2 and liberated which leaves NaOH solution colourless.

33. Ans (2)

$KMnO_4 + HCl \longrightarrow KCl + MnCl_2 + Cl_{2(g)} + H_2O$

(O.A)

36. Ans (3)

CN^- & I^- Both

are strong R.A.

39. Ans (2)

Colour of $BaCrO_4$ is yellow

H_2S is a weak acid it does not produce free S^{2-} ion

43. Ans (4)

$PbCl_2 \xrightarrow{H_2S} \underset{\text{Black ppt.}}{PbS} \longrightarrow$ soluble in conc. HNO_3

$\downarrow$ conc. H_2SO_4

$\underset{\text{white ppt.}}{PbSO_4} \downarrow$

46. Ans (1)

NCERT Pg. No. # 77

47. Ans (2)

NCERT-XII, Pg. # 81, 83

48. Ans (1)

XII NCERT Pg # 85, 86, 87

49. Ans (1)

NCERT-XII, Pg. # 77, 76, 85

50. Ans (2)

NCERT XII Pg. # 60, 61, 69

51. Ans (4)

XII NCERT Pg # 77

52. Ans (1)

NCERT XII Pg # 89

53. Ans (3)

NCERT XII Page-No.71

54. Ans (2)

NCERT XII Pg # 79

55. Ans (2)

NCERT Pg. # 57, 58, 59, 64 (E)

64, 65, 66, 71 (H)

56. Ans (3)

NCERT Pg. # 58

57. Ans (4)

Concept

58. Ans (4)

NCERT XII Pg. # 74

59. Ans (4)

NCERT, Pg. # 75

60. Ans (3)
NCERT, Pg. # 67

61. Ans (3)
NCERT, Pg. # 73

62. Ans (1)
Module

63. Ans (2)
NCERT-XII, Pg. # 89, Fig. 5.14

64. Ans (2)
NCERT-XII, Pg # 59

65. Ans (1)
NCERT-XII, Page # 60

66. Ans (1)
NCERT-XII Pg. No. # 104

67. Ans (2)
NCERT-XII, Pg. # 104

68. Ans (1)
NCERT XII Pg. # 100

69. Ans (1)
NCERT-XII, Pg. # 104

70. Ans (4)
NCERT XII Pg. # 104

71. Ans (1)
NCERT-XII, Pg # 80, 88, 98, 99

72. Ans (1)
NCERT-XII, Pg. # 84

73. Ans (3)
NCERT XII, Pg. # 85

74. Ans (3)
NCERT-XII, Page No. # 81, 83

75. Ans (3)
NCERT-XII Page No. # 90

76. Ans (3)
NCERT XII Pg#87

77. Ans (4)
NCERT XII Pg#87

78. Ans (1)
NCERT XII Pg#87

79. Ans (4)
NCERT XII Pg#112

80. Ans (2)
NCERT-Page-No. 88

81. Ans (2)
NCERT, Pg. # 89-90

82. Ans (2)
NCERT Pg. # 98

83. Ans (3)
NCERT Pg. # 98, 99

84. Ans (2)
NCERT Pg. # 91, 92, 93

85. Ans (2)
NCERT Pg. # 105

86. Ans (1)
NCERT Pg. # 157

87. Ans (3)
NCERT, Pg. # 155,157,158

88. Ans (4)
NCERT-XII, Pg. # 153

89. Ans (3)
NCERT-XII, Pg. # 155

90. Ans (2)
NCERT, Pg. # 152

91. Ans (3)
NCERT Pg. # 164

92. Ans (1)
NCERT XII, Pg. # 195

93. Ans (4)
NCERT Pg. # 165, 166

94. Ans (2)
NCERT, Pg. # 165, 166

95. Ans (4)
NCERT XII, Pg. # 195

96. **Ans (4)**
NCERT, Pg. # 185

97. **Ans (1)**
NCERT-XII, Pg. # 200 (Para - 11.2.2)

98. **Ans (4)**
NCERT, Pg. # 168, 169

99. **Ans (4)**
NCERT, Pg. # 169

100. **Ans (3)**
NCERT, Pg. # 170, 171

101. **Ans (1)**
NCERT, Pg # 170,171

102. **Ans (1)**
NCERT Pg. # 165-170

103. **Ans (3)**
NCERT-XII, Pg # 201

104. **Ans (2)**
NCERTG Pg#168

105. **Ans (1)**
NCERT Pg # 172

106. **Ans (3)**
NCERT-XII, Pg # 201 (E), 220 (H)

107. **Ans (3)**
NCERT Pg. # 175

108. **Ans (1)**
NCERT Pg. # 171

109. **Ans (4)**
NCERT, Pg # 179, 180, 181, 182

110. **Ans (3)**
NCERT Pg. # 210

111. **Ans (3)**
NCERT Pg. # 179,482

112. **Ans (3)**
XII NCERT Pg # 212-213

113. **Ans (4)**
NCERT Pg. # 179,184

114. **Ans (3)**
NCERT Pg. # 177,182,184

115. **Ans (4)**
NCERT Pg. 180 (E)/197 (H)

116. **Ans (2)**
NCERT Page # 211

117. **Ans (4)**
NCERT XII Pg.# 212

118. **Ans (3)**
NCERT XII, Page # 178

119. **Ans (3)**
NCERT-XII, Page # 184

120. **Ans (1)**
NCERT-XII, Pg # 212, 213

122. **Ans (2)**
NCERT-XII, Pg. # 213

123. **Ans (4)**
NCERT XII Pg # 209

124. **Ans (2)**
NCERT-XII, Pg. # 212

125. **Ans (4)**
NCERT-XII, Pg. # 208

126. **Ans (2)**
NCERT Pg.# 165, 166

128. **Ans (2)**
NCERT XII Pg # 173

129. **Ans (2)**
NCERT-XII Pg # 170

131. **Ans (4)**
NCERT XII, Pg. No. 214

136. **Ans (1)**

$B = N\dfrac{\mu_0 I}{2R}$

$M = NIA$

$\dfrac{B}{M} = \dfrac{\mu_0 NI}{2R(NI)\pi R^2}$

$= \dfrac{4\pi \times 10^{-7}}{2 \times 10^{-3} \times \pi} = 2 \times 10^{-4}$

137. Ans (1)

For a given perimeter the area of circle is maximum so it will take the shape of circle so that flux is maximum.

138. Ans (2)

$\overrightarrow{M} = \frac{q}{2m}\vec{L}$ $q = +e$

$\overrightarrow{M} = \frac{e}{2m}\vec{L}$

139. Ans (1)

$F_{ABC} = I(2R)B$

$F_{ADC} = I(2R)B$

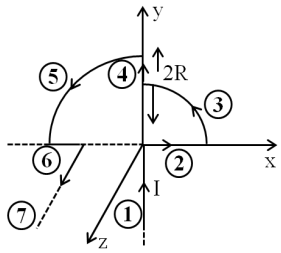
$\frac{F_{ABC}}{F_{ADC}} = \frac{1}{1}$

140. Ans (2)

$\oint \vec{B}.\overrightarrow{d\ell} = \mu_0 \Sigma I_{en}$

$= \mu_0 \left(\frac{1}{4\pi}\right) = 10^{-7}$ Wb/m

141. Ans (2)



$B_1 = B_2 = B_4 = B_6 = 0$

$B_3 = \frac{\mu_0 I}{8R}\hat{k}$

$B_5 = \frac{\mu_0 I}{4\pi(2R)}\frac{\pi}{2}\hat{k}$

$\vec{B}_{net} = \frac{\mu_0 I}{4R}\left[\frac{3}{4}\hat{k} + \frac{1}{\pi}\hat{j}\right]$

$B_7 = \frac{\mu_0 I}{4\pi R}\hat{j}$

142. Ans (3)

$-1 < \chi < 0$

$\mu_r = 1 + \chi$

$0 < \mu_r < 1$

144. Ans (2)

$\frac{M}{L} = \frac{q}{2m}$ $(L = I\omega)$ for rigid body

For Ring

$M = \frac{q}{2m}\left(mR^2\omega\right) = \frac{q\omega R^2}{2}$

For Spherical shell

$M = \frac{q}{2m}\left(\frac{2}{3}mR^2\omega\right) = \frac{q\omega R^2}{3}$

For Partical

$M = \frac{q}{2m}\left(mR^2\omega\right) = \frac{qR^2\omega}{2}$

145. Ans (1)

$F = \frac{\mu_0 I_1 I_2}{2\pi d} = \frac{\mu_0(2)(2)}{2\pi d}$

$F^1 = \frac{\mu_0(1)(1)}{2\pi d} = \frac{F}{4}$

Direction remain same.

146. Ans (2)

For diamagnetic material

$\chi \propto (T)^0$

147. Ans (4)

I opposite to H then it has to be diamagnetic.

148. Ans (1)

$H = nI$

$4 \times 10^4 = \frac{40}{10^{-2}} \times I$

$I = 10A$

149. Ans (2)

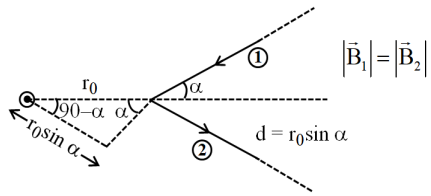
As per circulation shown in loop

$I_4 = +ve$ $I_2 = -ve$ $I_3 = -ve$

So

$\oint_{loop} \vec{B}.\overrightarrow{d\ell} = \mu_0[-4 + 8 - 6] = -2\mu_0$

150. Ans (4)



$B_{net} = 2B_1 = 2\left[\frac{\mu_0 I}{4\pi r_0 \sin\alpha}\right][\sin 90^\circ - \sin(90-\alpha)]$

$B_{net} = \frac{\mu_0 I}{2\pi r_0}\left(\frac{1-\cos\alpha}{\sin\alpha}\right)$

151. Ans (1)

Since angle between $\vec{B}$ and $\vec{v}$ is not amongst (0°/180°/90°) so path will be Helix.

152. Ans (1)

$F = I\ell B \sin\theta$

$F = 10 \times \frac{1}{2} \times \sin 90° = 0.5$ N

Direction = $I(\vec{\ell} \times \vec{B})$

$= [-\hat{i} \times (\hat{k})]$

$= -\hat{j}$ (South)

153. Ans (2)

If layers are there

$B = (X)(\mu_o nI)$

$B = (5)\left(4\pi \times 10^{-7} \times \frac{400}{80 \times 10^{-2}} \times 8\right)$

$= 8\pi \times 10^{-3}$ T

155. Ans (4)

For moving coil galvanometer

$NIAB = C\phi \Rightarrow \frac{\phi}{I} = \frac{NAB}{C}$

As no of turns increase voltage sensitivity doesn't increases.

$\frac{\phi}{V} = \frac{\phi}{IR} = \frac{NAB}{CR}$

157. Ans (4)

$I = 3\sin\omega t + 4\cos\omega t$

$I = 5[\sin\omega t.\cos 53 + \cos\omega t.\sin 53]$

$I = 5\sin(\omega t + 53)$

Peak value of current $I_0 = 5$ Amp

Peak to Peak value of current $= 2I_0 = 10$ Amp

158. Ans (2)

Rising half to peak

$t = \frac{T}{6} \Rightarrow t = \frac{2\pi}{\omega} \times \frac{1}{6} = \frac{\pi}{3\omega}$

$t = \frac{\pi}{3 \times 100\pi} = \frac{1}{300}$ sec.

$t = 3.3$ ms

159. Ans (1)

$X_C = \frac{1}{\omega C}$

$Z = \sqrt{R^2 + \frac{1}{(\omega C)^2}}$

$I = \frac{V}{Z}$

$f \uparrow \longrightarrow Z \downarrow \longrightarrow I \uparrow$ Brightness $\uparrow$

160. Ans (2)

$P = \frac{V^2}{R} = \frac{30 \times 30}{10} = 90$ W

161. Ans (2)

$\tan\phi = \frac{X_L}{R} = \frac{2\pi fL}{R}$

$= \frac{2\pi \times 50 \times 20\pi \times 10^{-3}}{15}$

$\tan\phi = \frac{4}{3}$

$\Rightarrow \phi = 53°$

163. Ans (1)

(a) $R = \frac{40}{2} = 20\Omega$

(b) $V_C = 30 \times 2 = 60$

(c) $V_L = 15 \times 2 = 30$

164. Ans (1)

Rod Moving towards left

= Area A $\downarrow$

= Magnetic Flux $\phi_B \otimes \downarrow$

= Induced Magnetic field $\vec{B}_{induced} = \otimes$

= Induced Current $I_{induced}$ = CW

= Induced Current in rod QR = from Q to R

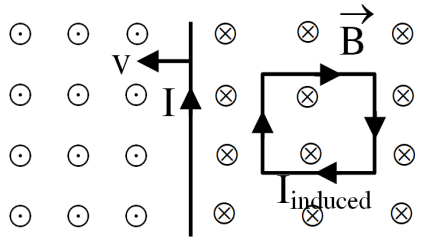
165. Ans (2)

Straight current carrying wire moving away from square loop

$\phi_B \otimes \downarrow$

$\vec{B}_{Induced}$ will be along $\otimes$

$I_{induced}$ will be along CW Direction.



167. Ans (2)

Induced electric field in this loop

$E(2\pi R) = \pi R^2 \frac{dB}{dt}$ (r = R, on the surface)

$E = \frac{R}{2}\frac{dB}{dt} = 2 \times 10^{-2} \times 0.2 = 4 \times 10^{-3}$ v/m

Force applied by this electric field

$F = qE = 2 \times 4 \times 10^{-3} = 8 \times 10^{-3}$ N

168. Ans (3)

$e = -\frac{d\phi}{dt} = -\frac{d}{dt}(10t^2 - 50t + 250) = -(20t-50)$

Put t = 3 sec

$e = -(20 \times 3 - 50) = -10V$

169. Ans (1)

$\frac{V_S}{V_P} = \frac{N_S}{N_P} = \frac{1}{20} \Rightarrow V_S = \frac{1}{20} \times V_P$

$V_S = \frac{2500}{20}$ volt

170. Ans (4)

An emf or a current is induced in a wire loop by changing the external magnetic flux linked with it. This can be achieved by changing the external magnetic field, area of the loop, number of turns in the loop and the angle between magnetic field vector & area vector.

The change in external magnetic field is not the only reason for induction of emf or current in a wire-loop.

171. Ans (1)

Average induced current (from t = 0 sec to t = 4 sec.)

$i_{avg.} = \frac{e_{avg.}}{R} = \frac{-(\Delta\phi_B/\Delta t)}{R}$

$= \frac{-\left(\int_{t_1}^{t_2} edt/\Delta t\right)}{R} = \frac{-\int_{t_1}^{t_2} edt}{R\Delta t}$

$= \frac{-\int_{t_1}^{t_2} edt}{R(t_2 - t_1)}$

$= \frac{-[\text{Area enclosed between "e - t" graph and t - axis}]}{\text{Resistance} \times (\text{time - interval})}$

$= \frac{-\left[\left(\frac{1}{2} \times 2 \times 10\right) + (2 \times 10)\right]}{5 \times (4-0)}$

$= \frac{[-30]}{5 \times 4} = \frac{-3}{2}\text{Amp} = -1.5 \text{ Amp}$

$(i_{avg.})_{magnitude} = 1.5$ Amp

172. Ans (2)

$e = \frac{LdI}{dt} \Rightarrow L = e\frac{dt}{dI}$

$L = \frac{12}{48} \times \frac{60}{1} = 15$ H

173. Ans (1)

No flux change linkage with loop.

174. Ans (4)

Average energy density $= \frac{1}{2}\epsilon_0 E^2 + \frac{B^2}{2\mu_0}$

$= \frac{1}{2}\epsilon_0 E_0^2 = \frac{B^2}{2\mu_0} = \epsilon_0 E_{rms}^2$

175. Ans (2)

$C = \frac{1}{\sqrt{\mu_0\epsilon_0}}$

$\sqrt{\mu_0\epsilon_0} = \frac{1}{C} = L^{-1}T^{1}$

176. Ans (3)

$\vec{S} = \frac{\vec{E} \times \vec{B}}{\mu_0}$

177. Ans (4)

$B = \frac{E_0}{C} = \frac{6 \times 10^6}{3 \times 10^8}$

$= 0.02$ T

178. Ans (4)

Theory

179. Ans (1)

$I_d = \epsilon_0 \frac{d\phi_E}{dt}$

180. Ans (3)

$V = \frac{W}{R} = \frac{3 \times 10^{11}\pi}{5000\pi} = 6 \times 10^7$ m/s