# CLASSROOM CONTACT PROGRAMME
(Academic Session : 2024 - 2025)

# ENTHUSIAST ADVANCE COURSE
## PHASE : MEA, B, C, D, L, M, N, O, P & Q
## TARGET : PRE MEDICAL 2025

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

## TEST DATE : 01-01-2025

## 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. | 1 | 1 | 1 | 1 | 3 | 2 | 3 | 4 | 1 | 4 | 1 | 3 | 4 | 3 | 3 | 1 | 4 | 2 | 1 | 3 | 3 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 3 | 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 | 1 | 2 | 4 | 1 | 1 | 4 | 1 | 1 | 1 | 2 | 3 | 1 | 2 | 4 | 1 | 4 | 4 | 2 | 1 | 4 | 2 | 2 | 3 | 3 | 3 | 1 | 3 | 1 | 2 |
| 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. | 2 | 2 | 4 | 3 | 3 | 2 | 3 | 1 | 4 | 2 | 4 | 1 | 4 | 3 | 1 | 3 | 1 | 4 | 3 | 1 | 2 | 2 | 2 | 2 | 3 | 1 | 4 | 2 | 2 | 4 |
| 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. | 2 | 1 | 4 | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 2 | 1 | 1 | 3 | 3 | 2 | 3 | 4 | 3 | 3 | 4 | 2 | 4 | 3 | 3 | 3 | 2 | 3 | 4 | 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. | 3 | 3 | 3 | 3 | 4 | 1 | 3 | 2 | 3 | 2 | 4 | 1 | 4 | 2 | 1 | 4 | 4 | 4 | 3 | 3 | 3 | 1 | 2 | 4 | 2 | 2 | 2 | 3 | 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. | 3 | 1 | 4 | 4 | 4 | 2 | 3 | 4 | 1 | 4 | 2 | 1 | 2 | 1 | 2 | 3 | 2 | 3 | 4 | 1 | 1 | 3 | 3 | 1 | 1 | 4 | 1 | 4 | 2 | 4 |
| Q. | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | | | | | | | | | | |
| A. | 3 | 3 | 4 | 1 | 1 | 3 | 3 | 1 | 1 | 3 | 3 | 1 | 2 | 2 | 4 | 2 | 3 | 4 | 4 | 1 | | | | | | | | | | |

## HINT – SHEET

### SUBJECT : BOTANY

#### SECTION-A

**1.** **Ans ( 1 )**
NCERT-XII Pg. No. # 77

**2.** **Ans ( 1 )**
XII NCERT Pg # 85, 86, 87

**3.** **Ans ( 1 )**
NCERT-XII Pg. # 80
Mendel considered seed shape and seed colour in dihybrid cross which were present on non homologous chromosomes that showed independent assortment leading to new phenatype.

**4.** **Ans ( 1 )**
XII NCERT Page No. # 77, 90, (E), 85, 98 (H)

**5.** **Ans ( 3 )**
XII NCERT Page No. # 89, 91

**6.** **Ans ( 2 )**
XII NCERT Page No. # 69 and 74

**7.** **Ans ( 3 )**
NCERT XII, Pg. # 82

**8.** **Ans ( 4 )**
NCERT XII, Pg. # 83

**9.** **Ans ( 1 )**
NCERT XII Pg. # 117

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

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

**12.** **Ans ( 3 )**
NCERT-XII, Pg. # 104

**13.** **Ans ( 4 )**
NCERT-XII, Pg. # 114, 115

14. **Ans ( 3 )**
NCERT XII Pg. # 104

15. **Ans ( 3 )**
XII NCERT Pg # 99

16. **Ans ( 1 )**
NCERT-XII, Pg # 111

17. **Ans ( 4 )**
NCERT-XII, Pg. # 95

19. **Ans ( 1 )**
XII NCERT Page No. # 224

20. **Ans ( 3 )**
NCERT-XII Page No. # 224,225

21. **Ans ( 3 )**
XII NCERT page No. # 219

22. **Ans ( 1 )**
NCERT XII Page No. 223

23. **Ans ( 2 )**
XII-NCERT Page No. # 223

24. **Ans ( 1 )**
NCERT XII$^{th}$ Page No. 217, 226 (summary)

25. **Ans ( 1 )**
NCERT XII Pg. # 201

26. **Ans ( 1 )**
NCERT-XII, Pg. # 197 to 201

27. **Ans ( 1 )**
XII NCERT Page No. # 197 to 201

28. **Ans ( 1 )**
NCERT XII, Page No. 198

29. **Ans ( 3 )**
NCERT, Pg. # 200

30. **Ans ( 4 )**
NCERT XII, Page No. 207,208

31. **Ans ( 4 )**
NCERT-XII, Pg. No. # 207

32. **Ans ( 1 )**
NCERT XII, Page No. 212

33. **Ans ( 2 )**
NCERT-XII Pg. # 210

34. **Ans ( 4 )**
NCERT-XII Pg. # 209

35. **Ans ( 1 )**
NCERT-XII Pg. # 207,209

**SECTION-B**

36. **Ans ( 1 )**
NCERT-XII Pg. No. # 61

37. **Ans ( 4 )**
NCERT XII Pg # 90

38. **Ans ( 1 )**
XII NCERT Page No. # 77, 87, (E), 85, 96 (H)

39. **Ans ( 1 )**
NCERT-XII Page No. # 77

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

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

42. **Ans ( 3 )**
XII NCERT Pg # 97, 101

43. **Ans ( 1 )**
NCERT XII Pg. No :- 220

44. **Ans ( 2 )**
NCERT XII, Page No. 222,223

45. **Ans ( 4 )**
NCERT-XII, Pg. # 222,223

46. **Ans ( 1 )**
NCERT XII$^{th}$ Page No. 197,199

47. **Ans ( 4 )**
NCERT XII Page No. 197

48. **Ans ( 4 )**
NCERT XII Pg#206

49. **Ans ( 2 )**
NCERT XII, Page No. 208

50. **Ans ( 1 )**
NCERT-XII Pg no. 212,213

## SUBJECT : ZOOLOGY

### SECTION-A

55. Ans ( 3 )
NCERT XII Pg. No. # 131

56. Ans ( 3 )
NCERT XII Pg. No. # 138

57. Ans ( 1 )
NCERT (XIIth) Pg. # 149 (para-8.1)

59. Ans ( 1 )
NCERT-XII, Pg. # 138

61. Ans ( 2 )
NCERT(XII) Pg# 135 Para: 7.6

66. Ans ( 2 )
NCERT Page No. # 135

68. Ans ( 1 )
NCERT, Pg # 157-158

69. Ans ( 4 )
NCERT, Pg. # 156, 157, 158

70. Ans ( 2 )
NCERT, Pg. # 155

71. Ans ( 4 )
NCERT, Pg. # 173

72. Ans ( 1 )
NCERT, Pg. # 168

73. Ans ( 4 )
NCERT, Pg. # 165

74. Ans ( 3 )
NCERT Pg#169

75. Ans ( 1 )
NCERT, Pg. # 183

76. Ans ( 3 )
NCERT, Pg. # 182

77. Ans ( 1 )
NCERT, Pg. # 183

78. Ans ( 4 )
NCERT, Pg. # 185

79. Ans ( 3 )
NCERT, Pg. # 180

80. Ans ( 1 )
NCERT Pg. No. # 179

81. Ans ( 2 )
NCERT, Pg. # 169

82. Ans ( 2 )
NCERT Pg. # 165, 167

83. Ans ( 2 )
NCERT Pg. # 171

84. Ans ( 2 )
NCERT Pg. # 170 - 171

85. Ans ( 3 )
NCERT, Pg. # 152

### SECTION-B

86. Ans ( 1 )
NCERT (XII) Pg#130/141(H) para 7.2

87. Ans ( 4 )
NCERT(XII) Pg # 132/143(H) Para:7.3

88. Ans ( 2 )
NCERT Pg. # 138

90. Ans ( 4 )
NCERT (XII) Pg # 132/142(H) Para : 7.3

92. Ans ( 1 )
NCERT XII, Page # 142

93. Ans ( 4 )
NCERT, Pg. # 151, 155

94. Ans ( 3 )
NCERT, Pg # 165,168,169

95. Ans ( 3 )
NCERT, Pg. # 164, 165

96. Ans ( 1 )
NCERT, Pg. # 174

97. Ans ( 3 )
NCERT, Pg. # (E)-182, (H)-200

98. Ans ( 3 )
NCERT, Pg # 208

99. Ans ( 1 )
NCERT, Pg. # 184

100. Ans ( 1 )
NCERT Pg. # 177

## SUBJECT : PHYSICS

### SECTION-A

**101. Ans ( 2 )**

Shift $\Delta x = t\left(1-\frac{1}{\mu}\right)$

$= 3\left(1-\frac{1}{1.5}\right)$

$= 2$ cm

2 cm upwards

**102. Ans ( 1 )**

From graph $\delta_{min} = 30°$; $i = 45°$ & $e = 45°$

As $\delta_{min} = i + e - A$

$\Rightarrow A = 45 + 45 - 30 = 60°$

$$\mu = \frac{\sin\left(\frac{\delta_{min}+A}{2}\right)}{\sin\left(\frac{A}{2}\right)} = \frac{\sin\left(\frac{30+60}{2}\right)}{\sin\left(\frac{60}{2}\right)} = \frac{\frac{1}{\sqrt{2}}}{\frac{1}{2}} = \sqrt{2}$$

**103. Ans ( 1 )**

In case of minimum deviation

$\angle i = \angle e$, and ray passes parallel to base and incident-ray and emergent ray are symmetric to prism.

**104. Ans ( 3 )**

Real depth = (23.25 − 5.25) cm = 18.00 cm

Apparent depth

= (23.25 − 11.25) cm = 12.00 cm

$$RI = \frac{\text{Real depth}}{\text{App. depth}} = \frac{18.00}{12.00} = 1.5$$

**105. Ans ( 3 )**

Cut in voltage of diode $V_C = 0.4$ V

$$I = \frac{V - V_C}{R}$$

(Forward resistance is very small in comparison to R)

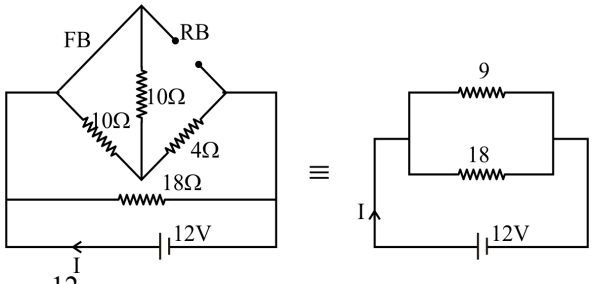
$$I = \frac{10 - 0.4}{12000}$$

I = 0.8 mA

**106. Ans ( 2 )**

In forward bias PN junction, due to lowering of potential barrier, more majority charge carriers flow across the junction, resulting more diffusion current, than drift current in magnitude. Reason is incorrect, because diffusion current is from P-side to N side, as holes move from P to N side and electrons more from N side to P side.

**107. Ans ( 3 )**




$$i = \frac{12}{6} = 2A$$

**108. Ans ( 4 )**

Magnetic lines inside bar magnet is from S⟶N and outside N⟶S.

**109. Ans ( 3 )**

$$B_Q = \mu_0 n\left(\frac{I}{3}\right) = B$$

$$(B_P)_{center} = \mu_0 nI = 3B$$

$$(B_P)_{end} = \frac{(B_P)_{Center}}{2} = \frac{3B}{2}$$

**110. Ans ( 3 )**

$$\frac{B_{in}}{B_{out}} = \frac{\mu_0 I r_1}{2\pi R^2} \times \frac{2\pi r_2}{\mu_0 I} = \frac{\mu_0 I(a/3)}{2\pi a^2} \times \frac{2\pi(2a)}{\mu_0 I}$$

**111. Ans ( 4 )**

$\mu_r = 1 + \chi$

$\chi > 0$ for paramagnetic substance.

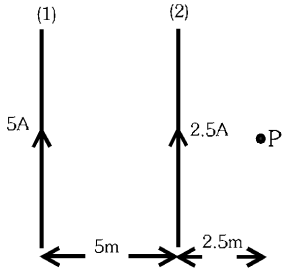
**112. Ans ( 2 )**

Magnetic field due to wire (1)

$$B_1 = \frac{\mu_0 (5)}{2\pi (7.5)} \otimes$$

Magnetic field due to wire (2)

$$B_2 = \frac{\mu_0 (2.5)}{2\pi (2.5)} \otimes$$

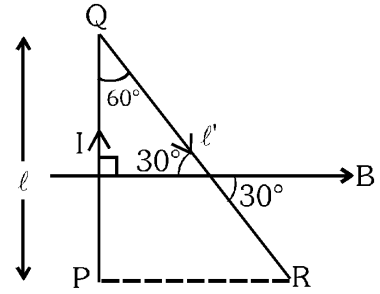



Net magnetic field at point 'P' due to both wires

$$B_p = B_1 + B_2 = \frac{\mu_0 (5)}{2\pi (7.5)} + \frac{\mu_0 (2.5)}{2\pi (2.5)}$$

$$= \frac{\mu_0}{2\pi}\left(\frac{2}{3} + 1\right) = \frac{5\mu_0}{6\pi} \otimes$$

**113. Ans ( 4 )**




$|\vec{F}_{PQ}| = I\ell B\sin\theta = I\ell B \sin90° = I\ell B$ ...(1)

$|\vec{F}_{QR}| = I\ell' B \sin30°$

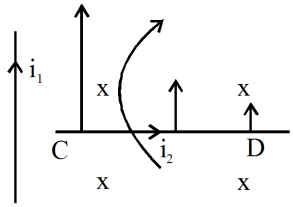
$= I \dfrac{\ell}{\cos 60°} B \sin30°$

$= I(2\ell) B \times \dfrac{1}{2} = I\ell B$ ...(2)

from (1) & (2)

$\dfrac{|\vec{F}_{PQ}|}{|\vec{F}_{QR}|} = \dfrac{I\ell B}{I\ell B} = 1 : 1$

**114. Ans ( 3 )**




**115. Ans ( 3 )**

If charge particle remains undeflected then

$\bar{E} \rightarrow \bar{B} \times \bar{v}$

$\hat{i} \rightarrow -\hat{k} \times [\hat{n}]$

so $\hat{n} \rightarrow \hat{j}$

**116. Ans ( 3 )**

Formula $\left( R = \dfrac{h}{\sqrt{\mu^2 - 1}} \ \& \ d = 2R \right)$

**117. Ans ( 2 )**

$i_c = \sin^{-1}\left(\dfrac{\mu_R}{\mu_D}\right) = \sin^{-1}\left(\dfrac{v_D}{v_R}\right)$ For T.I.R $i \geq i_c$

$i \geq \sin^{-1}\left(\dfrac{1.5 \times 10^8}{2 \times 10^8}\right)$

$i \geq \sin^{-1}\left(\dfrac{3}{4}\right)$

**118. Ans ( 3 )**

$\delta = 30°$ ; $A = 30°$ ; $i = 60°$

$\delta = i + e - A$

$e = 0°$ & from face $90 - e = 90°$

**119. Ans ( 4 )**

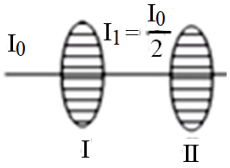
$\sin\theta = \dfrac{\lambda}{a}$

$\sin30^o = \dfrac{5000 \times 10^{-10}}{a}$

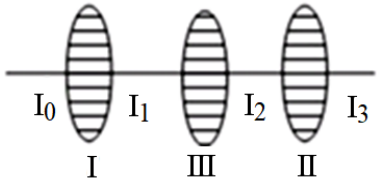
$a = 10^{-6}$ m

$a = 10 \times 10^{-5}$ cm

**120. Ans ( 1 )**




If no light comes from 2nd polaroid , i.e. angle between them = 90




If 3rd polaroid has polarization axis at angle $\theta$

$I_2 = I_1\cos^2\theta$

$I_2 = \dfrac{I_0}{2}\cos^2\theta$

As polarizing axis of 1st and 2nd are mutually perpendicular

Hence angle between polarizing axis of 2nd and 3rd is $90^o - \theta$

$I_3 = I_2\cos^2(90^o - \theta)$

$\Rightarrow I_3 = \dfrac{I_0}{2}\cos^2\theta\sin^2\theta$

$\Rightarrow I_3 = \dfrac{I_0}{2} \times \dfrac{4}{4}\cos^2\theta\sin^2\theta$

$\Rightarrow I_3 = \dfrac{I_0}{8}(2\cos\theta\sin\theta)^2$

$\Rightarrow I_3 = \dfrac{I_0}{8}\sin^2(2\theta)$

**121. Ans ( 3 )**

$\dfrac{W_1}{W_2} = \dfrac{I_1}{I_2}$

$\dfrac{I_{max}}{I_{min}} = \left(\dfrac{\sqrt{\frac{I_1}{I_2}} + 1}{\sqrt{\frac{I_1}{I_2}} - 1}\right)^2 = \left(\dfrac{\frac{2}{3} + 1}{\frac{2}{3} - 1}\right)^2 = \dfrac{25}{1}$

**122. Ans ( 3 )**

$i_{rms} = \sqrt{\dfrac{i_1^2 + i_2^2}{2}}$

**123. Ans ( 3 )**

$\phi = 5t^3 - 100t + 300$

$e = -\frac{d\phi}{dt} = -[15t^2 - 100]$

$E_{(at\ t = 3s)} = -[15(3)^2 - 100]$

$= -35$ Volt

Magnitude of emf at t = 3s

= 35 V

**125. Ans ( 4 )**

When conductor move along M it cut magnetic field lines.

**126. Ans ( 1 )**

$I = \frac{E_0^2}{2\mu_0 C}$

$\frac{P}{A} = \frac{E_0^2}{2\mu_0 C}$

$E_0 = 3\sqrt{3}$ v/m So $E_{rms} = \frac{3\sqrt{3}}{\sqrt{2}}$ V /m

**128. Ans ( 2 )**

In a purely inductive or purely capacitive circuit there is no power loss. So, current flow in these circuit are wattless current.

**129. Ans ( 3 )**

$f_0 = \frac{1}{2\pi\sqrt{LC}}$

$C_1 \rightarrow 2C$

$L_1 \rightarrow \frac{L}{2}$

$f_1 = \frac{1}{2\pi\sqrt{2C \times \frac{L}{2}}} = \frac{1}{2\pi\sqrt{LC}} = f_0$

**130. Ans ( 2 )**

$\cos\phi = \frac{R}{Z} = \frac{R}{\sqrt{R^2 + X_L^2}} = \frac{R}{\sqrt{R^2 + \omega^2 L^2}}$

**133. Ans ( 4 )**

$1 \sin 2x = \sqrt{2n} \sin x$

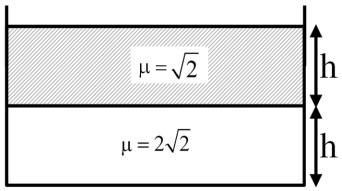
$2 \sin x \cos x = \sqrt{2n} \sin x$

$\cos x = \frac{\sqrt{2n}}{2} = \sqrt{\frac{n}{2}}$

$x = \cos^{-1}\left(\sqrt{\frac{n}{2}}\right)$

Incident angle $2x = 2\cos^{-1}\left(\sqrt{\frac{n}{2}}\right)$

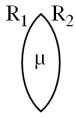
**134. Ans ( 2 )**




$\frac{h}{\sqrt{2}} + \frac{h}{2\sqrt{2}}$

$= \frac{2h + h}{2\sqrt{2}} = \frac{3h}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{3h\sqrt{2}}{4}$

**135. Ans ( 1 )**



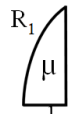

$P = \frac{1}{f} = (\mu - 1)\left(\frac{1}{R_1} + \frac{1}{R_2}\right)$

If $R_1 = R_2 \Rightarrow P = \frac{(\mu - 1)2}{R}$

When cut along principle axis


$P^1 = \frac{1}{f'} = (\mu - 1)\left(\frac{1}{R_1} + \frac{1}{R_2}\right) = P$

When cut along perpendicular to principle axis




$R_2 = \infty \quad P^1 = \frac{1}{f'} = (\mu - 1)\left(\frac{1}{R_1} + \frac{1}{\infty}\right)$

If $R^1 = R$

$P^1 = \frac{(\mu - 1)}{R} = \frac{P}{2}$

**SECTION-B**

**136. Ans ( 4 )**

$\Rightarrow \delta = i + e - A$ (for minimum derivation i = e)

$\therefore$ minimum deviation = $2i - A$

$60° = 2 \times 60° - A \quad \Rightarrow \therefore A = 60°$

$\Rightarrow n = \frac{\sin\left(\frac{A + \delta_m}{2}\right)}{\sin\left(\frac{A}{2}\right)} = \frac{\sin\left(\frac{60° + 60°}{2}\right)}{\sin\left(\frac{60°}{2}\right)} = \sqrt{3}$

$\Rightarrow \delta_1 = i_1 + e - A$

$65° = i_1 + 70° - 60°$ or $i_1 = 55°$

$\Rightarrow$ the $\delta$ versus i curve is not parabolic

**137. Ans ( 4 )**

$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$(0.1) - (-0.1) = \frac{1}{f}$

or, f = 5 cm

$P = \frac{100}{f} = \frac{100}{5}$

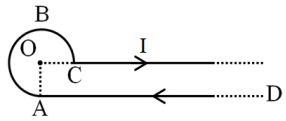
P = 20 D

**138. Ans ( 4 )**

Dynamic resistance

$$= \frac{1.7 - 1.5}{(8-4)\times 10^{-3}} = 50\ \Omega$$

**140. Ans ( 3 )**




For the circular part ABC, the angle subtended at the centre is $3\pi/2$.

Due to ABC, $B_1 = \frac{\mu_0}{4\pi}\cdot\frac{I}{r}\left(\frac{3\pi}{2}\right)$ .....(i)

Due to AD, A is at the end of the wire, therefore at O,

$B_2 = \frac{\mu_0 I}{2\pi r}\times\frac{1}{2} = \frac{\mu_0 I}{4\pi r}$ ....(ii)

$\therefore$ Total induction $= \frac{\mu_0 I}{4\pi r}\left(\frac{3\pi}{2}+1\right)$

**141. Ans ( 3 )**

Since $i_1\ell_1 = i_2\ell_2$

$\Rightarrow \frac{B_1}{B_2} = 1$

**142. Ans ( 1 )**

$\sin i < \sqrt{\mu_2^2 - \mu_1^2}$

$\Rightarrow \sin i < \sqrt{1.3^2 - 1.2^2} = \sqrt{2.5\times 0.1} = 0.5$

$\Rightarrow i < 30°$

Thus the range $0 < i < 30°$

**143. Ans ( 2 )**

$n_1\lambda_1 = n_2\lambda_2$

$n_2 = 62\times\frac{5893}{5461}$

$= 67$

**144. Ans ( 4 )**

$\Delta\phi = \frac{2\pi}{\lambda}\cdot\frac{\lambda}{6} = \frac{\pi}{3}$

$I = I_0 + I_0 + 2\sqrt{I_0^2}\left(\frac{1}{2}\right) = I_0 + I_0 + I_0 = 3I_0$

$I_{max} = \left[\sqrt{I_1}+\sqrt{I_2}\right]^2 = 4I_0$

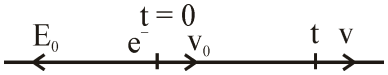
$\frac{I}{I_{max}} = \frac{3I_0}{4I_0} = \frac{3}{4}$

**146. Ans ( 2 )**

$\vec{E}\times\vec{B} = \hat{K}$

$\vec{E}.\vec{B} = 0$

**147. Ans ( 2 )**




$\because F = eE_0 = ma$

$a = \frac{eE_0}{m}$, $v = u + at$

$v = v_0 + \frac{eE_0}{m}t$

$\because \lambda = \frac{h}{mv} = \frac{h}{m\left[v_0 + \frac{eE_0}{m}t\right]}$

$\lambda = \frac{\lambda_0}{\left[1 + \frac{eE_0}{mv_0}t\right]}$

**148. Ans ( 3 )**

In +ve half cycle of input signal,

D $\longrightarrow$ FB $\longrightarrow$ S/C So, we get output across load.

In −ve half cycle, D $\longrightarrow$ RB $\longrightarrow$ O/C. So, we will get zero voltage across load.

So, it will be H.W.R. with +ve cycle in output.

**150. Ans ( 4 )**

$P_{in} = P_{out}$

$I_i \times 220 = 60$

$I_i = 0.27$ A

$I_i > I_2$

$\therefore V_L > V_i$

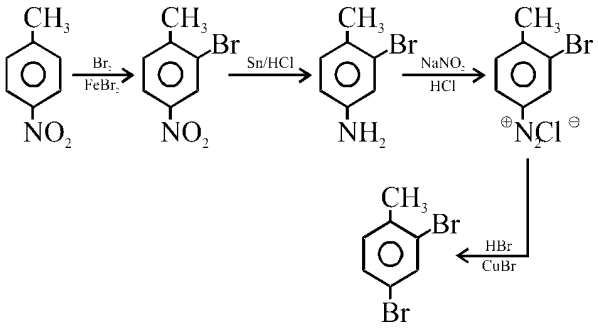
## SUBJECT : CHEMISTRY

### SECTION-A

**160. Ans ( 4 )**

$CH_3-CH_2-N\equiv C \xrightarrow{H_2/Pd-C} CH_3-CH_2-NH-CH_3$

**161. Ans ( 2 )**




**169. Ans ( 4 )**

$Cr^{+3} = 3d^3 -$ | 1 | 1 | 1 | | |

**170. Ans ( 1 )**

$[Fe \quad N_3 \quad O_2 \quad (SCN)_4]^{-4}$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$

$(+2) \quad (-1) \quad (-1) \quad (-4)$

**171. Ans ( 1 )**

$[Co(CN)_6]^{3-}$

Co in + 3 O.S. & $CN^-$ SFL

**172. Ans ( 3 )**

dien is a tridentale ligand number of chelating ring = denticity-1

**173. Ans ( 3 )**

$E \propto \frac{1}{\lambda} \propto$ strength of ligand

**174. Ans ( 1 )**

$I^- \longrightarrow IO_3^-$

**175. Ans ( 1 )**

On moving T to B higher o.s. stability

**176. Ans ( 4 )**

Due to lanthanoid contraction Ionic radii continueous decreases $Yb^{+3} < Pm^{+3} < Ce^{+3} < La^{+3}$.

**177. Ans ( 1 )**

On moving L to R

acidic nature ↓↓

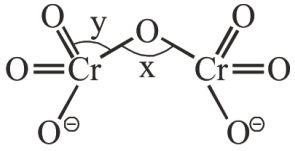
**178. Ans ( 4 )**

$[Rn]\ 5f^0\ 6d^2\ 7s^2$

**179. Ans ( 2 )**

$_{90}Th = {}_{86}[Rn]\ 5f^0\ 6d^2\ 7s^2$

**180. Ans ( 4 )**



x < y

**181. Ans ( 3 )**

$2CuSO_4 + K_4[Fe(CN_6)] \longrightarrow Cu_2[Fe(CN)_6] \downarrow + 2K_2SO_4$

(Chocolate brown)

**182. Ans ( 3 )**

Only for chloride

**183. Ans ( 4 )**

$NH_3$ gas brown colour solution with Nesseler reagent

**184. Ans ( 1 )**

Para ion give coloured metaborate bead test.

**185. Ans ( 1 )**

Nessler reagent is used to detect $NH_4^+$ ion.

**SECTION-B**

**187. Ans ( 3 )**

rate of R–OH is 1° > 2° > 3°

**190. Ans ( 3 )**

Primary amine give isocynide.

**192. Ans ( 1 )**

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**193. Ans ( 2 )**

$[Sc(H_2O)_6]Cl_3 \longrightarrow Sc^{+3} = 3d^\circ$ colourless.

**194. Ans ( 2 )**

| | | unpaired $e^-$ | |
|---|---|---|---|
| $CrF_6^{4-}$ | $Cr^{+2}$ | 4 | with WFL ligand |
| $MnF_6^{4-}$ | $Mn^{+2}$ | 5 | |
| $[Cr(CN)_6]^{4-}$ | $Cr^{+2}$ | 2 | with SFL ligand |
| $[Mn(CN)_6]^{4-}$ | $Mn^{+2}$ | 1 | |

**195. Ans ( 4 )**

$Ma_4b_2$ doesn't show O.I.

**196. Ans ( 2 )**

trans-$[Co(NH_3)_4I_2]^{\oplus}$,

trans-$[Co(NH_3)_2(en)_2]^{3+}$ (Optically inactive)

Cis-$[Co(NH_3)_2(en)_2]^{3+}$ (Optically active)

$[NiI_4]^{2-}$, $[CoF_6]^{3-}$ (Coloured) ($Ni^{+2}$, $d^8$)($Co^{+3}$, $d^6$)

$[TiF_6]^{2-}$ (Colourless) ($d^0$, $Ti^{+4}$)

**197. Ans ( 3 )**

Wavelength ↑ Engery ↓ Strength of ligand ↓

**198. Ans ( 4 )**

$T_b = [Xe]\ 6s^2\ 4f^9$

$Tb^{4+} = [Xe]\ 4f^7$

Common oxidation state of lanthanide is +3.

so act as a oxidising agent.

**199. Ans ( 4 )**

$KMnO_4 \xrightarrow{\Delta} K_2MnO_4 + MnO_2 + O_2$

**200. Ans ( 1 )**

$K_2Cr_2O_7 + H_2O_2 + \text{org. solvent} \downarrow CrO_5$