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 : 21-03-2025

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	1	1	1	4	2	3	1	1	1	4	4	2	2	4	4	1	4	4	2	3	1	2	2	4	2	1	2	2	1
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.	3	3	4	4	3	1	4	1	3	2	3	1	2	1	4	2	1	1	1	3	2	3	3	2	4	4	4	4	4	4
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	4	4	2	3	4	3	1	2	3	3	2	1	1	3	3	2	3	2	2	3	4	1	3	3	2	2	2	1	3
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	2	1	1	3	2	2	2	2	1	3	2	2	2	1	3	4	2	3	2	1	3	3	1	3	3	1	1	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.	3	1	1	2	4	3	1	3	4	1	1	3	2	3	1	3	4	3	1	3	2	2	3	3	4	1	1	4	3	3
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	2	2	2	1	3	3	1	1	4	1	1	2	2	3	3	1	4	1	2	1	2	2	3	1	1	2	3	3	4

HINT – SHEET

1. **Ans (3)**
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2. **Ans (1)**
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3. **Ans (1)**
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4. **Ans (1)**
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5. **Ans (4)**
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6. **Ans (2)**
NCERT-XII, Pg. # 194, 195, 207, 220

7. **Ans (3)**
NCERT XII, Page No. 193, 208, 213, 206

8. **Ans (1)**
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9. **Ans (1)**
NCERT-XII, Pg. # 207

10. **Ans (1)**
NCERT-XII, Pg. # 198

11. **Ans (4)**
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12. **Ans (4)**
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13. **Ans (2)**
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19. **Ans (4)**
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20. **Ans (2)**
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22. **Ans (1)**
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25. **Ans (4)**
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26. **Ans (2)**
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28. **Ans (2)**
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32. **Ans (3)**
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34. **Ans (4)**
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36. **Ans (1)**
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44. **Ans (1)**
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48. **Ans (1)**
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50. **Ans (3)**
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52. **Ans (3)**
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53. **Ans (3)**
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54. **Ans (2)**
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55. **Ans (4)**
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56. **Ans (4)**
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58. **Ans (4)**
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59. **Ans (4)**
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60. **Ans (4)**
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61. **Ans (2)**
Macrophage

62. **Ans (4)**
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63. **Ans (4)**
Module No. # 11, Pg. No. # 3

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69. **Ans (2)**
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72. **Ans (2)**
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81. **Ans (3)**
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82. **Ans (4)**
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83. **Ans (1)**
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84. **Ans (3)**
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85. **Ans (3)**
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86. **Ans (2)**
Module 11 Pg # 91

87. **Ans (2)**
Homo erectus

88. **Ans (2)**
Module-11, Pg. # 91

89. **Ans (1)**
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90. **Ans (3)**
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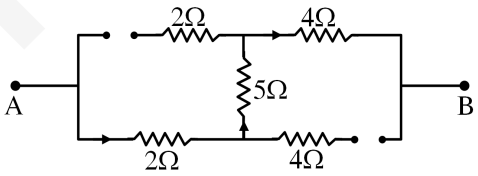
91. **Ans (3)**
Here both diode are R.B.



$R_{AB} = 2 + 5 + 4 = 11\ \Omega$

92. **Ans (2)**
$\because\ n_i = 10^{10}$ & $n_h = N_A = 10^{15}$ atom / cm^3
From mass-action law
$n_i^2 = n_e \cdot n_h$

$$\therefore\ n_e = \frac{n_i^2}{n_h} = \frac{(10^{10})^2}{10^{15}} = \frac{10^{20}}{10^{15}} = 10^5\ cm^{-3}$$

93. **Ans (1)**
In forward bias

$i_{diffusion}$ > i_{drift}
↓ ↓
due to majority charge carriers — due to minority charge carriers

$\therefore$ $I_{forward}$ is always greater than $I_{reverse}$

94. Ans (1)

$Y = A \cdot B + (A + B) \cdot A$

$= A \cdot B + A \cdot A + A \cdot B$

$= A \cdot B + A + A \cdot B$

$= A (B + 1 + B)$

$= A$

95. Ans (3)

In LED photons are emitted due to recombination of e-holes.

96. Ans (2)

Antimony is pentavalent impurity so semiconductor becomes N type and impurity becomes donor impurity.

Due to impurity conductivity increase so resistance decrease.

97. Ans (2)

The order of energy band gap is

Conductors < Semiconductors < Insulators

0 eV 1 eV 3 eV

98. Ans (2)

Depletion layer produce due to diffusion of majority charge carriers.

99. Ans (2)

$I = \dfrac{V - V_0}{R} = \dfrac{3 - 0.7}{300} = 7.67 \text{ mA}$

100. Ans (1)

$I_z = \dfrac{P_z}{V_z} = \dfrac{600 \times 10^{-3}}{24} = 25 \times 10^{-3} \text{ A}$

Voltage drop across R = 32 – 24 = 8 V

$R = \dfrac{8}{25 \times 10^{-3}} = 320\ \Omega$

101. Ans (3)

$Y = (A + B) \cdot \bar{B}$

102. Ans (2)

$Y = \bar{A} \cdot B + \bar{A}$

$= \bar{A}(B + 1)$

$= \bar{A}$

103. Ans (2)

$v = \dfrac{C}{\mu} = \dfrac{3 \times 10^8}{1.33} = \dfrac{9}{4} \times 10^8 \text{ m/s}$

$t = \dfrac{\text{dist}}{\text{speed}} = \dfrac{500 \times 4}{9 \times 10^8} = 2.22\ \mu\text{s}$

104. Ans (2)

$_2\mu_1 \times {}_3\mu_2 \times {}_4\mu_3 = \dfrac{\mu_1}{\mu_2} \times \dfrac{\mu_2}{\mu_3} \times \dfrac{\mu_3}{\mu_4}$

$\dfrac{\mu_1}{\mu_4} = {}_4\mu_1$

105. Ans (1)

$m = -\dfrac{v}{u} = -\left(\dfrac{-10}{-30}\right) = -\dfrac{1}{3}$

$v_I = |m|^2 v_0 = 1 \text{ cm/s}$

106. Ans (3)

$i = 45°$; $A = 60°$; $e = 45°$

$\therefore \delta_{min} = i + e - A = 45 + 45 - 60$

$\delta_{min} = 30°$

$\mu = \dfrac{\sin\left(\frac{\delta_{min}+A}{2}\right)}{\sin\left(\frac{A}{2}\right)}$

$= \dfrac{\sin\left(\frac{30+60}{2}\right)}{\sin\left(\frac{60}{2}\right)} = \dfrac{1/\sqrt{2}}{1/2}$

$\mu = \sqrt{2}$

107. Ans (4)

$\dfrac{\mu_2}{v} - \dfrac{\mu_1}{u} = \dfrac{\mu_2 - \mu_1}{R}$

$\mu_1 = 1$; $\mu_2 = \dfrac{3}{2}$; $u = 30$

$R = 10$ cm

$\therefore \dfrac{1}{v} - \dfrac{3}{2 \times 30} = \dfrac{\left(1 - \frac{3}{2}\right)}{10}$

$\dfrac{1}{v} = \dfrac{1}{20} + \dfrac{1}{20}$

$\dfrac{1}{v} = 0 \Rightarrow v = \infty$

108. Ans (2)

$$P = \frac{100}{f(cm)} = (\mu - 1)\left[\frac{2}{R(cm)}\right] \times 100$$

$$(\mu - 1)\left(\frac{2}{5}\right) \times 100 = 20$$

$$\mu - 1 = \frac{1}{2} \Rightarrow \mu = \frac{3}{2}$$

109. Ans (3)

$$M.P. = \frac{\beta}{\alpha} = \frac{f_o}{f_e}$$

$\alpha = \frac{1^\circ}{2}$; $f_o = 100$ cm; $f_e = 2$ cm

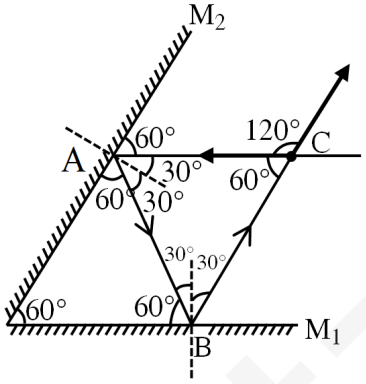
$$\beta = \frac{f_o}{f_e}\alpha = \frac{100}{2} \times \frac{1^\circ}{2} = 25^\circ$$

110. Ans (2)

$f_o = 60$ cm; $f_e = ?$; M.P. = 20

$$M.P. = \frac{f_o}{f_e} \Rightarrow f_e = \frac{60}{20} = 3\text{cm}$$

111. Ans (1)



112. Ans (3)

Angle of incidence i = 45°

For blue and green

$i_c > i$

For red $i_c < i$.

113. Ans (3)

When light ray travels parallel to the base, the light suffers minimum deviations.

So, for minimum deviation, $\delta_{min} = 40^\circ$

$i = e = 45^\circ$ (from graph)

114. Ans (1)

Using the lens formula:

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

Here, $u = -30$, cm, $v = 20$, cm

$$\frac{1}{f} = \frac{1}{20} - \frac{1}{-30} = \frac{1}{20} + \frac{1}{30} = \frac{5}{60} = \frac{1}{12}$$

So, f = 12 cm

115. Ans (3)

$\lambda = 500$ nm; d = 1 mm; D = 1 m

$$I = \frac{I_{max}}{2} = I_{max}\cos^2(\phi/2)$$

$$\frac{\phi}{2} = \frac{\pi}{4} \Rightarrow \phi = \frac{\pi}{2} \text{ (phase difference)}$$

$\therefore$ Path difference

$$\Delta x = \frac{\phi}{2\pi}.\lambda = \frac{\pi\lambda}{2 \times 2\pi}$$

$$\Delta x = \frac{\lambda}{4} \quad .....(i)$$

As $\Delta x = \frac{yd}{D}$ ....(ii)

From (i) and (ii) $y = \frac{\lambda}{4} \times \frac{D}{d}$

$$y = \frac{500 \times 10^{-9} \times 1}{4 \times 10^{-3}}$$

$$= 1.25 \times 10^{-4} \text{ m}$$

116. Ans (3)

$$\frac{A}{B} = \frac{3}{5}$$

$$\frac{I_{max}}{I_{min}} = \left(\frac{A+B}{A-B}\right)^2 = \left(\frac{5+3}{5-3}\right)^2 = \frac{16}{1}$$

117. Ans (1)

$d' = 3d$; $\beta' = \frac{\lambda D}{d'}$

$$\beta' = \frac{\lambda D}{3d} = \frac{\beta}{3}$$

118. Ans (1)

$\lambda_{blue} < \lambda_{yellow}$

$\beta = \frac{\lambda D}{d}$; $\beta \propto \lambda$

119. Ans (3)

Width of central maxima = $\frac{2\lambda D}{d}$

As per question,

Width = d

$\therefore d = \frac{2\lambda D}{d}$

or $D = \frac{d^2}{2\lambda}$

120. Ans (1)

$n\lambda_1 = \frac{(2n+1)}{2}\lambda_2 \quad [n = 1]$

$n_2 = \frac{2\lambda_1}{3} = \frac{2 \times 660}{3}$nm

440 nm

121. Ans (3)

$n_1\lambda_1 = \frac{(2n_2+1)\lambda_2}{2}$

$n_1 = 1 \qquad n_2 = 3$

$\therefore \lambda_1 = \frac{7}{2}\lambda_2$

$\lambda_1 = 3.5\ \lambda_2$

122. Ans (1)

$< I >= I_o\ < \cos^2\theta >_o^{2\pi}$

$= \frac{I_o}{2}$

124. Ans (2)

NCERT-XII, Pg. # 282, Part-2

Because photo-current exists only for $\lambda < \lambda_0$

125. Ans (4)

Using photoelectric equation

$eV_s = E - \phi$

1.24 eV = E − 2.48 eV

$\Rightarrow E = 3.72\ eV = \frac{12400}{\lambda}\ eV - Å$

$\Rightarrow \lambda = \frac{12400}{3.72}Å = \frac{1000}{3}Å$

NCERT-XII, Pg. # 284, Part-2

126. Ans (3)

Intensity $I = \frac{xhc}{A\lambda}$ and for same I $\Rightarrow x \propto \lambda$

from the graphs, it is clear that $(i_p)_1 < (i_p)_2 \Rightarrow x_1 < x_2$

$\Rightarrow \lambda_1 < \lambda_2$ or $\nu_1 > \nu_2$

but here V_o is same, therefore from photo electric equation

$eV_0 = h\nu - \phi \Rightarrow \nu_1 > \nu_2$ means $\phi_1 > \phi_2$

127. Ans (1)

$p = \frac{h\nu}{c} = \frac{6.6 \times 10^{-34} \times 1.5 \times 10^{13}}{3 \times 10^8}$

$p = 3.3 \times 10^{-29}$ Kg m/s

128. Ans (3)

$\lambda = \frac{h}{\sqrt{2mqV_{P.D}}} \Rightarrow \lambda \propto \frac{1}{\sqrt{mqV}}$

$\frac{\lambda_P}{\lambda_\alpha} = \sqrt{\frac{m_\alpha q_\alpha V_\alpha}{m_P q_P V_P}} = \sqrt{\frac{4m_P \times 2e \times 400}{m_P \times e \times 100}} = \sqrt{\frac{32}{1}}$

$= \frac{4\sqrt{2}}{1}$

129. Ans (4)

$\because \lambda = \frac{h}{P} = \frac{h}{mv}$

$= \frac{6.62 \times 10^{-34}}{9.1 \times 10^{-31} \times 1.45 \times 10^6}$

$= 0.5 \times 10^{-9} = 5 \times 10^{-10}$ m

= 5 Å

130. Ans (1)

NCERT, Pg. # 320

Electron & positron has charges equal in magnitude but their nature is opposite.

131. Ans (1)

Conceptual

132. Ans (3)

NCERT, Pg. # 299

$L = mvr = \frac{nh}{2\pi}$

133. Ans (2)

NCERT Pg. # 311

$E = mc^2$

$m = \frac{E}{c^2} = \frac{18 \times 10^8}{(3 \times 10^8)^2}$

$= 2 \times 10^{-8}$

$= 20\ \mu g$

134. Ans (3)

(1) Fission and fusion, both are exothermic nuclear reaction.

(2) $\left(\frac{B.E}{A}\right)$ depends on mass no.not on the atomic no.

135. Ans (1)

NCERT, Pg. # 312

141. Ans (2)

NCERT-XII, Part-II ; Page No: 166, Article No: 6.4.3, Edition 2023 - 24.

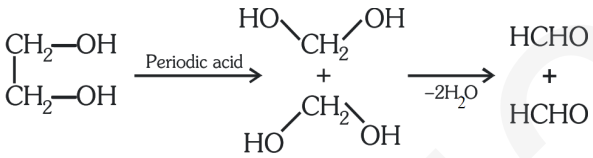
143. Ans (3)

Phenol + NaOH $\longrightarrow$ Sodium Phenoxide

Sodium Phenoxide + $CO_2 \longrightarrow$ Salicyclic acid

Kolbe-Schmidt reaction.

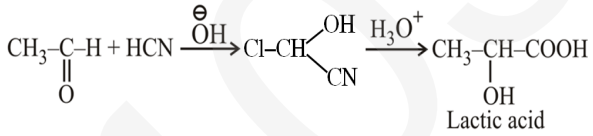
146. Ans (1)



147. Ans (1)

p-Dichlorobenzene being most symmetrical; so have strongest lattice to melt.

152. Ans (2)



154. Ans (2)

Aldol is β-Hydroxy carbonyl compound.

157. Ans (3)

Vitamin C is water soluble.

159. Ans (1)

Na_2S + conc. $HNO_3 \longrightarrow H_2S\uparrow$

NaCN + conc. $HNO_3 \longrightarrow$ HCN