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 : 18-12-2024

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

HINT – SHEET

1. **Ans (4)**
NCERT Pg. # 201

2. **Ans (3)**
NCERT Pg. # 201

3. **Ans (3)**
NCERT Pg. # 197

4. **Ans (2)**
NCERT Pg. # 202

5. **Ans (1)**
NCERT Pg. # 199

6. **Ans (4)**
NCERT Pg # 206

7. **Ans (1)**
NCERT Pg. # 201, 202

8. **Ans (2)**
NCERT Pg. # 194, 196, 199

9. **Ans (1)**
NCERT Pg. # 199

10. **Ans (4)**
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11. **Ans (1)**
NCERT Pg. # 209

12. **Ans (1)**
NCERT, Pg. # 206

13. **Ans (1)**
NCERT Pg. # 210

14. **Ans (2)**
NCERT Pg. # 213

15. **Ans (3)**
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16. **Ans (2)**
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17. **Ans (2)**
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18. **Ans (1)**
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19. **Ans (2)**
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20. **Ans (3)**
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21. **Ans (1)**
NCERT, Pg. # 225

22. **Ans (2)**
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23. **Ans (1)**
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24. **Ans (2)**
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25. **Ans (2)**
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26. **Ans (3)**
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27. **Ans (3)**
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28. **Ans (1)**
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29. **Ans (2)**
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30. **Ans (3)**
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31. **Ans (1)**
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32. **Ans (1)**
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33. **Ans (2)**
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34. **Ans (3)**
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35. **Ans (1)**
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36. **Ans (2)**
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37. **Ans (4)**
NCERT Pg. # 208

38. **Ans (1)**
NCERT Pg. No. # 214

39. **Ans (4)**
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40. **Ans (1)**
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41. **Ans (3)**
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42. **Ans (3)**
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43. **Ans (2)**
NCERT, Pg. # (E)-225, (H)-245

44. **Ans (2)**
NCERT, Pg. # 219

45. **Ans (3)**
NCERT, Pg # 220-221

54. **Ans (4)**
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55. **Ans (3)**
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56. **Ans (4)**
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57. **Ans (4)**
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58. **Ans (3)**
NCERT, Pg. # 137

59. **Ans (3)**
NCERT Pg # 149

60. **Ans (3)**
NCERT Pg#131,133

61. Ans (1)

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62. Ans (1)

NCERT Pg. # 135

63. Ans (2)

NCERT Pg#137

64. Ans (2)

NCERT Pg # 113,115,118,119

75. Ans (3)

NCERT, Pg. # 124(E), 136(H)

76. Ans (3)

NCERT- Pg.No. 111, 118, 119

Work of Thomas Malthus on population influenced Darwin.

77. Ans (2)

NCERT Pg. # 120,121

78. Ans (3)

NCERT, Pg. # 120, 121(E), 131(H)

85. Ans (1)

NCERT Pg # 158, 159

90. Ans (2)

NCERT Pg. # 112, 113

91. Ans (2)

$6CN^{\ominus} + Fe^{+2} \longrightarrow [Fe(CN)_6]^{-4}$

$3[Fe(CN)_6]^{-4} + 4Fe^{+3} \longrightarrow Fe_4[Fe(CN)_6]_3$

92. Ans (2)

$$\%N = \frac{1.4}{w} \times NV = \frac{1.4}{0.1} \times 4 = 56\%$$

93. Ans (3)

Aromatic aldehyde donot give Fehling's test

94. Ans (1)

NCERT XII / Part II / Page-393

95. Ans (4)

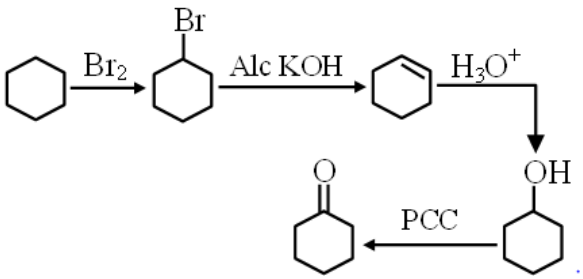
Cannizzaro Reaction

96. Ans (2)

Only 1° amine is soluble in alkali during Hinsberg's test.

NCERT (XIIth) Part II, Pg. # 393

99. Ans (1)



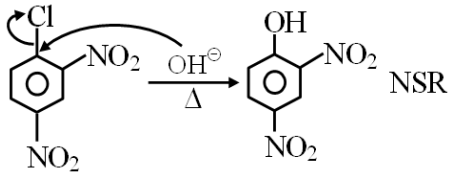
101. Ans (4)

S_N1 rate for halide $\longrightarrow$ Check Inductive effect

102. Ans (2)

For SN^2 rate $\propto$ Electron withdrawing groups

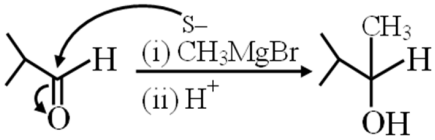
104. Ans (3)



105. Ans (1)

H bonding

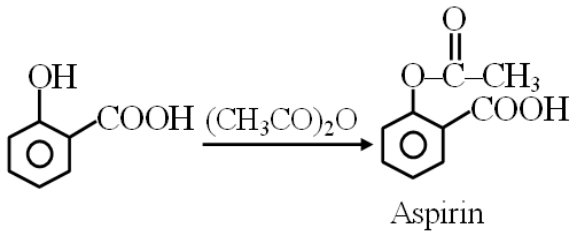
106. Ans (1)



107. Ans (2)

Intramolecular dehydration

109. Ans (2)

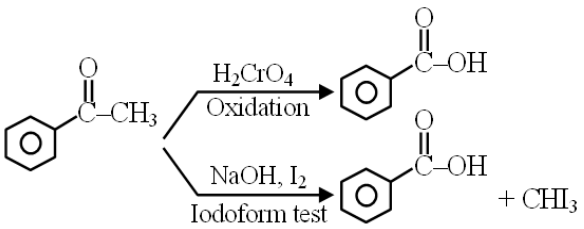


Aspirin

112. Ans (4)

Cross aldol condensation

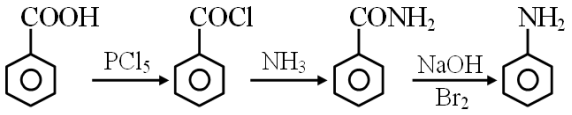
115. Ans (1)



116. Ans (3)

Alcohol has more BP due to H bonding.

118. Ans (1)



121. Ans (3)

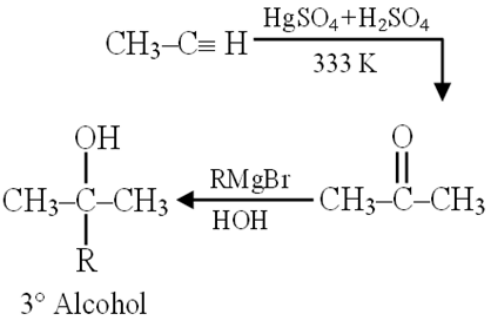
Kjeldahl method is not use for nitro and Hetorocyclic compound in which 'N' is present in ring.

122. Ans (2)

$$\%Br = \frac{80 \times 0.12}{188 \times 0.15} \times 100$$

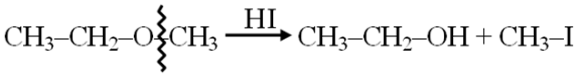
$$= 34.04\ \%$$

123. Ans (4)

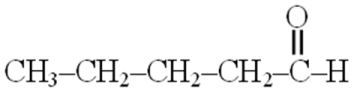


3° Alcohol

127. Ans (4)



132. Ans (2)



2,4,-DNP test

Tollen's test

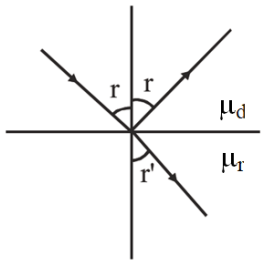
136. Ans (4)

$$f = \frac{1.6}{2} m = 0.8m, \quad u = -1\ m$$

$$\frac{1}{v} = \frac{1}{0.8} - \frac{1}{-1} = \frac{9}{4}$$

$$\boxed{v = +\frac{4}{9}}$$

137. Ans (1)



$$\sin i_c = \frac{1}{{}_r\mu_d} \ldots.(1)$$

or $r + r' = 90°$

or $r' = (90 - r)$

According to Snell's law

(स्नैल के नियमानुसार)

$\mu_d \sin r = \mu_r \sin r' \Rightarrow {}_r\mu_d \sin r = \sin (90 - r)$

$$\frac{\sin r}{\cos r} = \frac{1}{{}_r\mu_d} \quad \ldots.(2)$$

Hence, from equation (1) and (2), we get

(समीकरण (1) व (2) से)

$\sin i_c = \tan r \Rightarrow i_C = \sin^{-1}(\tan r)$

138. Ans (2)

For second surface.

$$\frac{\mu_2}{v} - \frac{\mu_3}{\infty} = \frac{\mu_2 - \mu_3}{+R} \Rightarrow v = \frac{\mu_2 R}{\mu_2 - \mu_3}$$

for v positive $\mu_2 > \mu_3$ and $\mu_1 = \mu_3$

139. Ans (1)

$$\lambda_m = \frac{c}{\mu_m f}$$

$$\mu_m = \frac{c}{\lambda_m \times f} = \frac{3 \times 10^8}{5 \times 10^{-7} \times 4 \times 10^{14}} = \frac{3}{2}$$

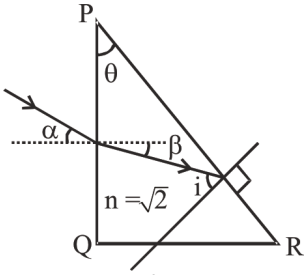
140. Ans (1)

$i = \beta + \theta$

For $\alpha = 45°$; by Snell's law

$1 \times \sin 45° = \sqrt{2} \sin \beta$

$\Rightarrow \beta = 30°$



For TIR on face PR,

$$\beta + \theta = i = \sin^{-1}\left(\frac{1}{\sqrt{2}}\right) = 45^o$$

$\Rightarrow \theta = 45° - \beta = 15°$

141. Ans (1)

$$\frac{1}{v} - \frac{3}{2(30)} = \frac{1 - 3/2}{20}$$

$$\frac{1}{v} - \frac{1}{20} = \frac{-1}{40}$$

$$\frac{1}{v} = \frac{-1}{40} + \frac{1}{20} = \frac{1}{40}$$

V = 40 cm

142. Ans (4)

Distance $|V_0|$ + $|u_e|$; use lens formula for objective

V_0 = 6 cm

lens formula for eye piece $|u_e| = 5$

distance = 6 + 5 = 11 cm

143. Ans (4)

$m = m_0 \times m_e$

$-20 = m_0 \times 5$

$m_0 = -4$

$m_e = \frac{D}{f_e}$ $\quad v_0 + f_e = 14$

$5 = \frac{20}{f_e}$ $\quad v_0 + 4 = 14$

$f_e = 4$ cm $\quad v_0 = 10$

$$m_0 = \frac{f_0 - v_0}{f_0}$$

$$-4 = \frac{f_0 - 10}{f_0}$$

$$-4f_0 = f_0 - 10$$

$$f_0 = 2\text{cm}$$

144. Ans (3)

For path difference λ, phase difference = 2π rad

For path difference $\frac{\lambda}{4}$, phase difference = $\frac{\pi}{2}$ rad

As $K = 4I_0$ so intensity at given point where path difference is

$$K' = 4I_0 \cos^2\left(\frac{\pi}{4}\right) = 2I_0 = \frac{K}{2}$$

145. Ans (1)

$a \sin\theta = 2\lambda$

$$\lambda = \frac{a \sin\theta}{2} = \frac{24 \times 10^{-7} \times \sin 30^\circ}{2}$$

$= 6000$ Å

146. Ans (4)

Due to thin glass plate, there is only shift of fringe pattern but no change in the fringe width.

147. Ans (4)

For first minima, $\sin 30^\circ = \frac{\lambda}{a} = \frac{1}{2}$

First secondary maxima will be at

$$\sin\theta = \frac{3\lambda}{2a} = \frac{3}{2}\left(\frac{1}{2}\right) \Rightarrow \theta = \sin^{-1}\left(\frac{3}{4}\right)$$

148. Ans (2)

$$I = \frac{I_0}{2}\cos^2 45 = \frac{I_0}{4} = 25\%\, I_0$$

149. Ans (4)

$$\lambda_p = \frac{h}{\sqrt{2m_p k}}$$

$$\lambda_\alpha = \frac{h}{\sqrt{2(4m_p k)}} = \frac{\lambda_p}{2}$$

$\lambda_p = 2\lambda_\alpha$

150. Ans (1)

Saturation current is proportional to intensity while stopping potential increases with increase in frequency. Hence A & B same intensity. B & C same frequency. Therefore, the correct option is (1)

151. Ans (1)

$KE = h\nu - \phi$

$\Rightarrow h\nu - \phi = 1.2$ eV ...(1)

$\nu' = 1.5\ \nu$,

$\Rightarrow 1.5\ h\nu - \phi = 3.6$ eV ...(2)

by equation (1) & (2)

$\phi = 3.6$ eV

152. Ans (2)

$$\frac{h(\nu_1 - \nu_{th})}{h(\nu_2 - \nu_{th})} = \frac{1}{K}$$

$$\nu_{th} = \frac{k\nu_1 - \nu_2}{k - 1}$$

153. Ans (4)

If threshold wavelength is λ_t then

$$eV = \frac{hc}{\lambda} - \frac{hc}{\lambda_t} \quad ...(1)$$

$$\frac{eV}{6} = \frac{hc}{4\lambda} - \frac{hc}{\lambda_t} \quad ...(2)$$

multiply eq. (2) by 6 and subtract from eq.(1)

$\lambda_t = 10\ \lambda$

154. Ans (3)

$\vec{V} = V_0\hat{i} + \frac{eE_0t}{m}\hat{j}$, $V = \sqrt{V_0^2 + \left(\frac{eE_0}{m}t\right)^2}$

$\lambda = \frac{h}{mV} = \frac{h}{m\sqrt{V_0^2 + \left(\frac{eE_0t}{m}\right)^2}}$

$\lambda = \frac{h}{mV_0\sqrt{1 + \left(\frac{eE_0t}{mV_0}\right)^2}}$

$\lambda = \frac{\lambda_0}{\sqrt{1 + \frac{e^2E_0^2t^2}{m^2V_0^2}}}$

155. Ans (2)

$\lambda \propto \frac{1}{\sqrt{m}}$

156. Ans (3)

$2\pi r_n = n\lambda \Rightarrow r_n = \frac{n\lambda}{2\pi}$

$r_3 = \frac{3\lambda}{2\pi}$

157. Ans (1)

(i) $Z = 92 - 35 = 57$

$A = (235 + 1) - (85 + 3 \times 1)$

$= 148$

(ii) $Z = 4 - 2 = 2$

$A = (6 + 2) - 4 = 4$

158. Ans (1)

$\Delta E = 24 \times 7.48 - 23 \times 7.68$

$= 2.88$ MeV

159. Ans (2)

$\left(\begin{matrix}\text{Number}\\ \text{of hole}\end{matrix}\right)_{\substack{\text{Valence}\\ \text{bond}}} > \left(\begin{matrix}\text{Number}\\ \text{of electron}\end{matrix}\right)_{\substack{\text{Conduction}\\ \text{bond}}}$

$N_h >> N_e$

So, p−type semiconductor

160. Ans (1)

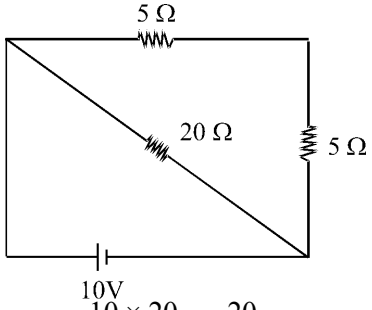
If $V_P - V_N$ = +ve then diode is F.B.

161. Ans (1)

$6 = 0.125\,(R + 4) \Rightarrow R = 44\ \Omega$ combination of diode , 16 Ω and 16 Ω is 4Ω

162. Ans (3)

D_1 is in reverse bias, D_2, D_3 in forward bias.



$R_{eq} = \frac{10 \times 20}{10 + 20} = \frac{20}{3}$

$i = \frac{10}{20/3} = 1.5A$

163. Ans (2)

$I_{Load} = \frac{6}{1 \times 10^3} = 6mA$

$I_{100\Omega} = \frac{9 - 6}{100} = 30$ mA

$I_Z = I_{100} - I_L = 30 - 6 = 24$ mA

164. Ans (1)

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

AND gate

165. Ans (3)

This is NAND gate result $= \overline{0.1} = \bar{0} = 1$

166. Ans (4)

Out put of NOR $= \overline{X + Y}$

Out put of given circuit

$W = \overline{(X + Y)}Z = (\bar{X} \cdot \bar{Y})Z$

167. Ans (4)

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

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

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

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

$\delta_1 = i_1 + e - A$

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

the δ versus i curve is not parabolic

168. Ans (1)

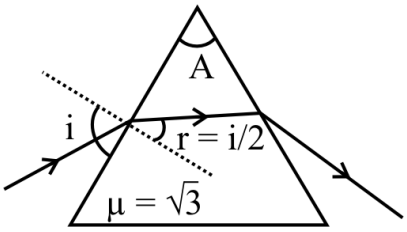
Here the image of the object pin moves faster than the image of image pin. Hence the position of object pin is nearer to his eyes.

169. Ans (1)

In case of minimum deviation,

$\angle i = \angle e$, and ray passes parallel to base and symmetric in above case.

170. Ans (1)



Using Snell's law

$1 \times \sin i = \sqrt{3} \times \sin r$

$\sin 2r = \sqrt{3} \sin r \Rightarrow 2 \sin r \cos r = \sqrt{3}$

$\Rightarrow r = 30° \Rightarrow i = 60°$

In case of minimum deviation $r_1 = r_2 = r$

$A = 2r \Rightarrow A = 60°$

171. Ans (3)

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

Apparent depth

= (23.25 − 11.25) cm = 12.00 cm

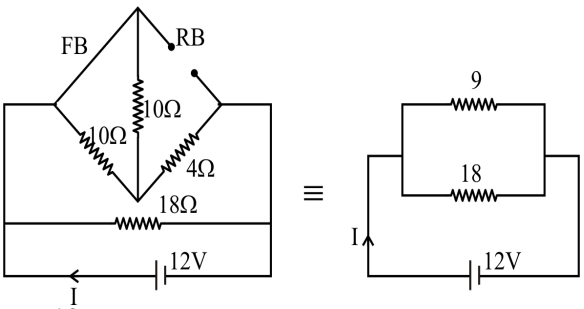
$$RI = \frac{\text{Real depth}}{\text{App. depth}} = \frac{18.00}{12.00} = 1.5$$

172. Ans (4)

Dynamic resistance

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

173. Ans (3)



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

174. 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.

175. 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

176. Ans (1)

$A = 60^o$ for minimum deviation

$$\mu = \frac{\sin\frac{(A+\delta_m)}{2}}{\sin\frac{A}{2}}$$

$$\Rightarrow \mu = \frac{\sin\left(\frac{120^o}{2}\right)}{\sin 30^0}$$

$$\mu = \frac{\sqrt{3}}{2} \times 2 = \sqrt{3}$$

$\mu = \sqrt{3}$ in air

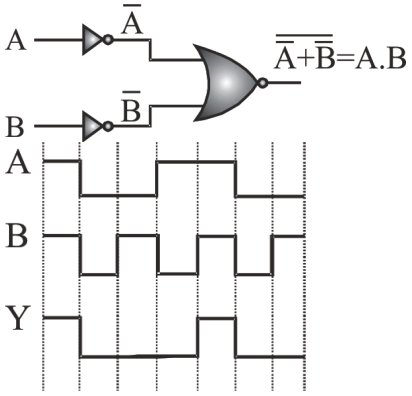
If prism is kept in a medium, the critical angle for face of prism

$$\sin\theta_C = \frac{\mu_R}{\mu_D}$$

$$= \frac{\sqrt{3}}{2 \times \sqrt{3}}$$

$\theta_C = 30^o$

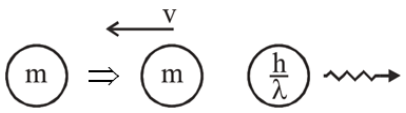
177. Ans (4)



178. Ans (3)

$\lambda = \frac{h}{mv}$, Since v is increasing in case (i), but it is not changing in case (ii). Hence, in the first case de-Broglie wavelength will change, but it second case, it remain the same

179. Ans (1)



COLM $\vec{P}_i = \vec{P}_f$

$O = +mv + \frac{h}{\lambda}$

$V = -\frac{h}{\lambda \times m}$

$KE = \frac{1}{2}mv^2 = \frac{1}{2}\, m\, \frac{h^2}{\lambda^2 m^2} = \frac{h^2}{2\lambda^2 m}$

180. Ans (3)

According to question $n_1\lambda_1 = n_2\lambda_2$

So $\frac{n_1}{n_2} = \frac{\lambda_2}{\lambda_1} = \frac{10000}{12000} = \frac{5}{6}$

so minimum n_1 and n_2 are 5 and 6 respectively.

$X_{min} = \frac{n_1\lambda_1 D}{d} = \frac{5\left(12000 \times 10^{-10}\right)(2)}{2 \times 10^{-3}}$

$= 6 \times 10^{-3}$ m = 6 mm