



ENTHUSIAST, LEADER & ACHIEVER COURSE
PHASE : ALL PHASE
TARGET : PRE-MEDICAL 2024

Test Type : MAJOR

Test Pattern : NEET (UG)

TEST DATE : 02-05-2024

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

HINT – SHEET

SUBJECT : PHYSICS

SECTION-A

1. **Ans (4)**

$$\text{I.E.} = 13.6 \frac{z^2}{n^2}$$

$$= 13.6 \frac{(3^2)}{(1)^2} = \frac{13.6 \times 9}{1}$$

4. **Ans (3)**

$$\lambda = \frac{h}{\sqrt{2mqV}}$$

5. **Ans (3)**

For longer frequency

$$v = \frac{\omega}{2\pi} = \frac{8 \times 10^{15}}{2\pi} \text{ s}^{-1}$$

$$\text{K.E.}_{\text{max.}} = hv - \phi$$

$$\text{K.E.}_{\text{max.}} = \frac{6.6 \times 10^{-34} \times 8 \times 10^{15}}{1.6 \times 10^{-19} \times 2 \times 3.14} - 2$$

$$= 5.27 - 2 = 3.27 \text{ eV}$$

6. **Ans (2)**

Truth table

A B C

0 0 0

1 1 1

0 1 0

1 0 0

Here C = 1 only when A = 1, B = 1 & C = 0 for all other cases so It is C = A.B AND gate

7. **Ans (2)**

$$E = \frac{V_0}{d} \Rightarrow V_0 = Ed$$

$$= (6 \times 10^5) \times (500 \times 10^{-9})$$

$$= 0.3 \text{ V}$$

$$\text{K.E.} = qV_0$$

$$= e(0.3 \text{ V})$$

$$= 0.3 \text{ eV}$$

8. Ans (3)

$$\vec{P}_{\text{net}} = 15D - 5D = 10D$$

$$\Rightarrow P = \frac{100}{F} \Rightarrow F_{\text{net}} = \frac{10}{P_{\text{net}}} = \frac{100}{10}$$

$$F_{\text{net}} = 10 \text{ cm}$$

$$\text{Now } \frac{1}{v} - \frac{1}{-20} = \frac{1}{10} \Rightarrow v = 20 \text{ cm}$$

9. Ans (3)

$$u = +0.2 \text{ m} \quad V = -0.5 \text{ m}$$

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u} = \frac{1}{-0.5} + \frac{1}{0.2} = \frac{1}{f} = +3 \Rightarrow f = \frac{+1}{3} \text{ m}$$

$$f = \frac{R}{2} \Rightarrow R = 2f = 2 \times \frac{1}{3} \times 100 = \frac{200}{3} = 66.67 \text{ cm}$$

10. Ans (3)

$$d = \frac{t}{\cos r} \sin(i - r)$$

For small angles $\sin(i - r) \approx i - r$; $\cos r \approx 1$

$$d = t(i - r), d = it \left[1 - \frac{r}{i} \right]$$

12. Ans (4)

$$\frac{K \cdot E_R}{E} = \frac{2 \times \frac{1}{2} KT}{7 \times \frac{1}{2} KT} = \frac{2}{7}$$

13. Ans (4)

$$E \propto T^4$$

$$E_2 = E_1 \left(\frac{T_2}{T_1} \right)^4$$

$$E_2 = 7 \left(\frac{1000}{500} \right)^4 = 112 \text{ cal cm}^{-2} \text{s}^{-1}$$

14. Ans (1)

$$x = 3\sin 2t + 4\cos 2t = 5 \sin(2t + \phi)$$

$$\Rightarrow a = 5, v_{\max} = a\omega = (5)(2) = 10$$

15. Ans (4)

Put $-x$ in place of x ,

phase will be differ by π

$$\text{amplitude will become } \frac{2}{3} \times 0.09 = 0.06$$

$$y = 0.06 \sin 8\pi \left[t + \frac{x}{20} + \pi \right]$$

$$y = -0.06 \sin 8\pi \left[t + \frac{x}{20} \right]$$

17. Ans (2)

$$p = \sqrt{2mE} = \sqrt{2mqV}$$

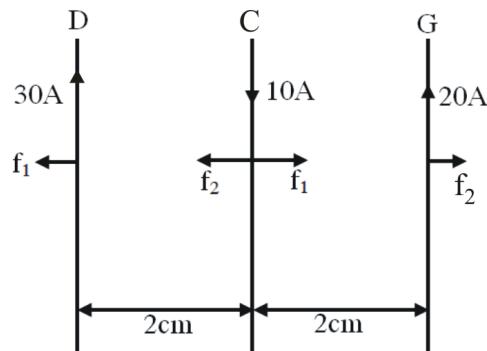
$$\frac{p_a}{p_p} = \sqrt{\frac{m_a q_a}{m_p q_p}} = \sqrt{\frac{4}{1} \times \frac{2}{1}}$$

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

20. Ans (4)

$$I_{\text{net}} = \frac{E_{\text{net}}}{R_{\text{net}}}$$

21. Ans (3)



$$f_{\text{net}} = f_1 - f_2$$

$$= \frac{\mu_0 (30)(10)}{2\pi (2 \times 10^{-2})} - \frac{\mu_0 (20)(10)}{2\pi (2 \times 10^{-2})}$$

$$= 1 \times 10^{-3} \text{ N/m}$$

force on 25 cm length of wire

$$F_C = f_{\text{net}} \times 25 \times 10^{-2} \text{ N or } 2.5 \times 10^{-4} \text{ N}$$

22. Ans (3)

$$B \propto \frac{1}{x^3} \Rightarrow \frac{B_1}{B_2} = \left(\frac{x_2}{x_1} \right)^3 = \left(\frac{3x}{x} \right)^3 = \frac{27}{1}$$

24. Ans (2)

$$\vec{V} \rightarrow \vec{E} \times \vec{B}$$

$$\hat{j} \rightarrow \hat{k} \times \hat{i}$$

26. Ans (2)

$$\text{Average speed} = \frac{\text{total distance}}{\text{total time}} = \frac{2d}{2+3} = \frac{2d}{5}$$

$$\text{Av. velocity} = \frac{\text{Total displacement}}{\text{total time}} = \frac{0}{5} = 0$$

27. Ans (3)

$$y = x \tan \theta \left(1 - \frac{x}{R} \right) \dots (i)$$

$$y = 16x - \frac{x^2}{4}$$

$$y = 16x \left(1 - \frac{x}{64} \right) \dots (ii)$$

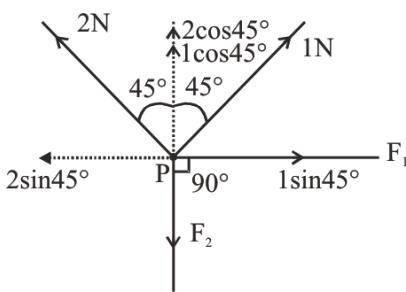
From (i) and (ii)

$$R = 64 \text{ m}$$

28. Ans (1)

$$\sum F_x = 0$$

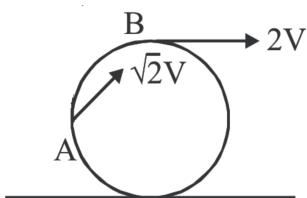
$$\sum F_y = 0$$



$$F_1 = 1 \sin 45^\circ = \frac{1}{\sqrt{2}}$$

$$F_2 = 3 \cos 45^\circ = \frac{3}{\sqrt{2}}$$

30. Ans (3)



$$\frac{V_B}{V_A} = \frac{2V}{\sqrt{2}V} = \frac{\sqrt{2}}{1}$$

31. Ans (2)

$$I = 0 + 0 + m \left(\frac{\ell}{\sqrt{2}} \right)^2 + m \left(\frac{\ell}{\sqrt{2}} \right)^2 \\ = m \ell^2$$

32. Ans (3)

$$\because g = \frac{GM}{R^2} \quad \frac{\Delta g}{g} = -\frac{2\Delta R}{R} = -2(-1\%) = 2\% \\ \text{increases by } 2\%$$

33. Ans (2)

$$y = \frac{Mg/A}{\Delta L/L} \Rightarrow M = \frac{YA\Delta L}{gL}$$

34. Ans (4)

$$A_1 V_1 = A_2 V_2$$

$$\frac{\pi D^2}{4} \times v_1 = \frac{\pi d^2}{4} v_2$$

$$v_2 = \left(\frac{D}{d} \right)^2 \cdot v_1$$

$$= \left(\frac{8}{2} \right)^2 \times 4 = 16 \times 4$$

$$= 64 \text{ ms}^{-1}$$

35. Ans (3)

Area ↓

Surface energy ↓

Internal energy ↑

Temperature ↑

SECTION-B

36. Ans (1)

For best contrast we require perfect black or zero as minima which is only possible for equal intensity of light.

37. Ans (1)

$$\frac{W}{Q_1} = \frac{T_1 - T_2}{T_1}$$

$$\Rightarrow \frac{W}{25 \times 10^5} = \frac{500 - 375}{500}$$

If Q_1 is for per cycle then

$$\Rightarrow W = 6.25 \times 10^5 \text{ J per cycle}$$

38. Ans (3)

$$\frac{d\theta}{dt} = -k(\theta - \theta_0)$$

By solving

$$\ln(\theta - \theta_0) = -kt + C$$

39. Ans (2)

$$T = 2\pi \sqrt{\frac{m}{k}} \Rightarrow T^2 \propto \frac{1}{k}$$

$$t_1^2 \propto \frac{1}{k_1} \text{ & } t_2^2 \propto \frac{1}{k_2} \Rightarrow t_1^2 + t_2^2 \propto \frac{1}{k_1} + \frac{1}{k_2}$$

$$\text{But } \frac{1}{k_1} + \frac{1}{k_2} = \frac{1}{k} \propto T^2 \Rightarrow t_1^2 + t_2^2 = T^2$$

40. Ans (2)

$$v = A \omega \cos \omega t, a = -\omega^2 A \sin \omega t$$

$$\Rightarrow \left(\frac{v}{A\omega} \right)^2 + \left(\frac{a}{\omega^2 A} \right)^2 = 1$$

 \Rightarrow Straight line in v^2 and a^2

41. Ans (3)

$$v_p = -v \frac{dy}{dx}$$

v_p along +y direction

$$v = \omega \sqrt{A^2 - y^2}$$

given $A = 10 \text{ cm}$, $y = 5 \text{ cm}$

$$v = \frac{\omega}{k} \Rightarrow \omega = vk = v \frac{2\pi}{\lambda}$$

given $v = 10 \frac{\text{cm}}{\text{s}}$, $\lambda = 0.5 \text{ m}$

43. Ans (3)

For maximum power transfer

$$R_{eq} = 7R \parallel 12R = 4R = \frac{19}{21}$$

$$\Rightarrow x = 19$$

44. Ans (2)

$$\eta = \frac{V_S I_S}{V_P I_P} \Rightarrow 0.9 = \frac{V_S(6)}{3 \times 10^3} \Rightarrow V_S = 450 \text{ V}$$

$$\text{As } V_P I_P = 3000 \text{ so } I_P = \frac{3000}{200} \text{ A} = 15 \text{ A}$$

45. Ans (4)

$$Q = \frac{\omega}{\Delta\omega} = \frac{\omega L}{R} \Rightarrow \Delta\omega = \frac{R}{L} = \frac{80}{8} = 10 \text{ Hz}$$

$$\omega = \frac{1}{\sqrt{LC}} = \frac{1}{\sqrt{8 \times 50 \times 10^{-6}}} = 50$$

$$\omega_L = \omega - \frac{\Delta\omega}{2} = 50 - 5 = 45 \text{ rad/s}$$

$$\omega_H = \omega + \frac{\Delta\omega}{2} = 50 + 5 = 55 \text{ rad/s}$$

46. Ans (3)

$$\begin{aligned} \text{We have, } S_{rel} &= u_{rel}t + \frac{1}{2}a_{rel}t^2 \\ \Rightarrow 0 &= ut - \frac{1}{2}(a+g)t^2 \\ \Rightarrow a &= \frac{2u}{t} - g = \frac{2u-gt}{t} \end{aligned}$$

47. Ans (1)

$$a = \frac{80 - 40}{4 + 16} \Rightarrow \frac{40}{20} = 2 \text{ m/s}^2$$

48. Ans (4)

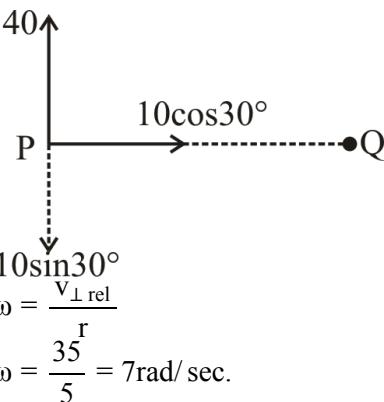
When $\vec{F} \perp \vec{d}$ [$\theta = 90^\circ$]

$$\therefore W = \vec{F} \cdot \vec{d} = F d \cos\theta$$

$$\therefore W = 0 \quad [\cos 90^\circ = 0]$$

49. Ans (2)

w.r.t. Q



$$\omega = \frac{v_{\perp rel}}{r}$$

$$\omega = \frac{35}{5} = 7 \text{ rad/sec.}$$

50. Ans (3)

Apply C.O.E.

$$-\frac{GMm}{R} + \frac{1}{2}m\left(\frac{v_e}{4}\right)^2 = -\frac{GMm}{R+h} \dots(I)$$

$$v_e^2 = \frac{2GM}{R} \dots(II)$$

From (I) and (II)

$$h = \frac{R}{15}$$

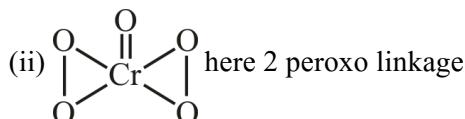
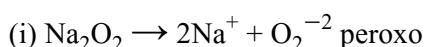
SUBJECT : CHEMISTRY

SECTION-A

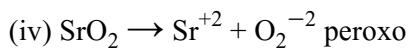
52. Ans (2)

NCERT-XI Pg. # 86 (Part-I)

60. Ans (1)



(iii) PbO_2 is a normal oxide



61. Ans (3)

NCERT Pg. No. # 231

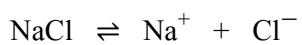
66. Ans (4)

NCERT-XII, Part-I, Pg # 89, Ist paragraph

67. Ans (1)



$$K_{sp} = [\text{Pb}^{+2}] [\text{Cl}^-]^2$$



$$0.1 \text{ M} \quad 0.1 \text{ M}$$

$$K_{sp} = [\text{Pb}^{+2}] [\text{Cl}^-]^2$$

$$4 \times 10^{-6} = S \times (0.1)^2$$

$$S = 4 \times 10^{-4} \text{ M}$$

69. Ans (2)

$$\begin{aligned} \text{Moles of PH}_3 &= \frac{56 \times 10^{-3}}{22.4} \\ &= 2.5 \times 10^{-3} \end{aligned}$$

$$\text{Moles of atoms} = 4 \times 2.5 \times 10^{-3}$$

$$= 10^{-2}$$

$$\begin{aligned} \text{Number of atoms} &= 6.02 \times 10^{23} \times 10^{-2} \\ &= 6.02 \times 10^{21} \end{aligned}$$

73. Ans (2)

$$\Delta T_b = i K_b \cdot m$$

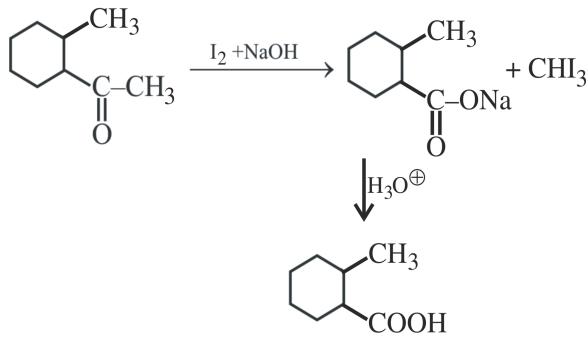
$$0.1 = 1 \times K_b \times \frac{\left(\frac{1.8}{180}\right)}{0.1}$$

$$\Rightarrow K_b = 1 \text{ K kg/mol}$$

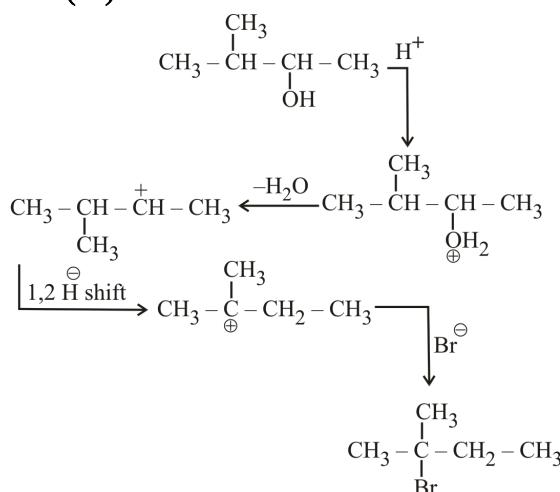
76. Ans (2)

The configuration of α -and β -forms differ only at the anomeric carbon, i.e., C-1.

80. Ans (3)



82. Ans (3)



85. Ans (3)

It is Cannizarro reaction.

SECTION-B

86. Ans (2)

NCERT-XI Pg. # 110 (Part-I)

91. Ans (1)



$$1 \quad - \quad -$$

$$1-x \quad x \quad x$$

given x = 0.3

Total moles at equilibrium

$$= 1 - x + x + x$$

$$= 1 + x = 1.3$$

93. Ans (3)

NCERT-XII, Part-I, Pg # 81, Last Para.

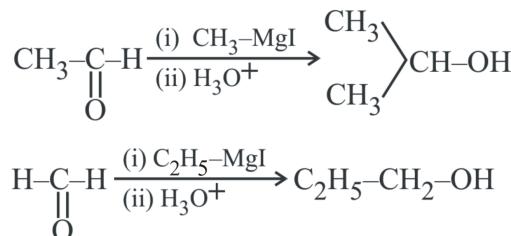
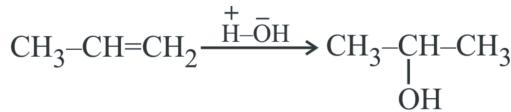
94. Ans (4)

$$\text{pOH} = \text{pK}_b + \log \frac{[\text{Salt}]}{[\text{Base}]}$$

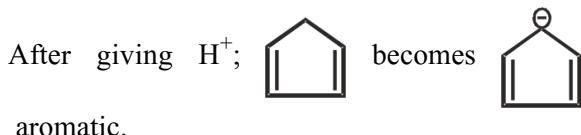
$$\text{pOH} = 5 + \log \frac{0.1}{0.01}$$

$$\text{pOH} = 6 \Rightarrow \text{pH} = 8$$

96. Ans (1)



98. Ans (2)



100. Ans (2)

$$\begin{aligned} S.I. &= 2^n \\ &= 2^2 = 4 \end{aligned}$$

SUBJECT : BOTANY

SECTION-A

101. Ans (2)

NCERT Pg#8

102. Ans (1)

NCERT-XI Pg.21

103. Ans (2)

NCERT Pg. No. # 26

104. Ans (1)

NCERT-XI, Pg. # 38

105. Ans (3)

NCERT-XI, Pg. # 35

106. Ans (3)

NCERT Pg. No.71

107. Ans (4)

NCERT XI Pg # 66,67,68,69

108. Ans (3)

NCERT Pg. No.74

109. Ans (4)

NCERT Pg. 90

110. Ans (1)

NCERT (XI) Pg. # 92

111. Ans (3)

NCERT (XIth) Pg. # 91

112. Ans (1)

NCERT Pg. No. # 130

113. Ans (3)

NCERT XI, Pg.No.230

114. Ans (3)

NCERT, Pg. # 233, Para # 14.4.2

115. Ans (4)

NCERT-XI, Pg. # 249

116. Ans (2)

NCERT, Pg. # 249

117. Ans (2)

NCERT XI, pg # 118, 9.8.6

121. Ans (2)

NCERT-XII Pg. # 83

122. Ans (1)

NCERT-XII, Pg. # 90

123. Ans (4)

NCERT-XII Pg. # 77

124. Ans (4)

NCERT XII, Pg. # 76

125. Ans (2)

NCERT XII, Pg. # 75

126. Ans (1)

NCERT XII, Pg. # 70

127. Ans (3)

NCERT-XII Pg. # 89

128. Ans (2)

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

129. Ans (4)

NCERT-XII, Pg. # 238

130. Ans (2)

NCERT-XII, Pg. # 236

131. Ans (2)

NCERT-XII, Pg. # 220

132. Ans (2)

NCERT-XII, Pg. # 243

133. Ans (3)

NCERT-XII, Pg. # 265

134. Ans (3)

NCERT-XII, Pg. # 267

- 135. Ans (4)**
NCERT-XII, Pg. # 243

SECTION-B

- 136. Ans (1)**
NCERT-XI Pg.#11
- 137. Ans (2)**
XI NCERT Pg. No. # 26
- 138. Ans (4)**
NCERT (XI) Pg. # 33
- 139. Ans (2)**
NCERT Pg. No.70
- 140. Ans (2)**
NCERT XI Pg. 90
- 141. Ans (3)**
NCERT XI, Pg.No.#207, 208

- 142. Ans (4)**
NCERT XI, Pg.No.#208
- 143. Ans (1)**
XI NCERT, Pg No - 231
- 144. Ans (3)**
NCERT, Pg. # 243

- 146. Ans (2)**
Based on Concept Given in the NCERT : The ratio of 9:3:3:1 of Dihybrid cross can be derived as a combination series of 3 yellow: 1 green, with 3 round : 1 wrinkled. This derivation can be written as follows: (3 Round : 1 Wrinkled) (3 Yellow : 1 Green) = 9 Round, Yellow : 3 Wrinkled, Yellow: 3 Round, Green : 1 Wrinkled, Green

- 147. Ans (4)**
NCERT-XII, Pg. # 83-Linkage and Recombination

- 148. Ans (1)**
NCERT-XII, Pg. # 261

- 149. Ans (1)**
NCERT XII, Pg.No.#235-236

- 150. Ans (3)**
NCERT-XII, Pg. # 227

SUBJECT : ZOOLOGY**SECTION-A**

- 151. Ans (1)**
NCERT XI, Pg. # 57
- 152. Ans (2)**
NCERT Pg. # 52
- 160. Ans (2)**
NCERT, Pg. # 286
- 161. Ans (2)**
NCERT Pg. # 275
- 164. Ans (4)**
NCERT XIth Pg. no. 331 Human endocrine system

- 165. Ans (1)**
NCERT-XI, Pg. # 336
- 167. Ans (1)**
NCERT Pg. No. # 302(E), 303(H)

- 169. Ans (4)**
NCERT-P.No. 44
- 171. Ans (3)**
NCERT Pg. # 53,54
- 173. Ans (2)**
NCERT-XII Pg. # 151, Para-8.2.2
- 174. Ans (1)**
NCERT (XIIth) Pg. # 155, fig. 8.6

- 176. Ans (3)**
NCERT pg.# 126, para 2
- 177. Ans (3)**
NCERT-XI, Pg. # 126
- 178. Ans (3)**
NCERT-XI, Pg. # 126
- 179. Ans (1)**
NCERT XI- Pg. No. # 127,128,129

180. Ans (1)
NCERT XI Pg # 145

181. Ans (2)
NCERT Pg. # 144, 2rd para

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

SECTION-B

186. Ans (1)
NCERT Pg # 48

187. Ans (3)
NCERT XI Pg # 102

189. Ans (2)
NCERT, Pg # 279

190. Ans (1)
NCERT Pg. No. # 293

191. Ans (2)
NCERT (XI) E Pg. # 316

192. Ans (2)
NCERT (XI) Pg. # 332,333

196. Ans (1)
NCERT XII, Pg # 62

197. Ans (4)
NCERT-XII, Pg. # 136 & 137

198. Ans (1)
NCERT XII Pg # 183, 184, 169

199. Ans (2)
NCERT Pg # 118