ENTHUSIAST ADVANCE COURSE

PHASE : MEA,PS,D,L,M,B,C,N,O,P & MEQ

TARGET : PRE MEDICAL 2025

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

TEST DATE : 23-11-2024

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

HINT – SHEET

SUBJECT : PHYSICS

SECTION-A

1. Ans (3)

$$\text{force} = \frac{\alpha}{\beta + \text{density}}$$

$\beta = \text{density} = ML^{-3}$

Now, $MLT^{-2} = \frac{\alpha}{(ML^{-3})} \Rightarrow \alpha = M^2L^{-2}T^{-2}$

Now, $[\alpha\beta] = M^3L^{-5}T^{-2}$

2. Ans (3)

$0.001213 \longrightarrow 4$

$2.1 \times 10^{16} \longrightarrow 2$

$3.70 \longrightarrow 3$

$3000 \longrightarrow 1$

3. Ans (3)

LC = MSD − VSD

$= \text{MSD} - \frac{16}{20}\text{ MSD} = \frac{1}{5}\text{MSD}$

$= \frac{1}{5}\text{ mm} = 0.20\text{ mm}$

4. Ans (4)

pitch = 0.5 mm ; $\text{LC} = \frac{0.5\text{mm}}{50} = 0.01\text{mm}$

ZE is negative, as zero of circular scale in above the pitch line

$\text{ZE} = -5 \times 0.01\text{mm} = -0.05\text{mm}$

5. Ans (3)

1 unit force = 1000 N

1 unit length = 1000 m

1 unit time = 100 sec

1 unit mass = ?

$1\text{N} = \frac{1\text{kg} \times 1\text{m}}{(1\text{ sec})^2} \Rightarrow 1\text{kg} = \frac{1\text{N} \times (1\text{ sec})^2}{1\text{m}}$

$1\text{ unit mass} = \frac{(1000\text{N}) \times (100\text{ sec})^2}{(1000\text{m})}$

$= 10000\text{ kg}$

6. Ans (2)

$I = \frac{2}{5}mR^2$

$\frac{\Delta I}{I} = \frac{\Delta m}{m} + \frac{2\Delta R}{R}$

$= 3 + 2(2) = 7\%$

7. Ans (2)

$M \propto E^x V^y F^z$

$[M^1L^0T^0] = K\,[M^1L^2T^{-2}]^x\,[L^1T^{-1}]^y\,[M^1L^1T^{-2}]^z$

$\left[M^1L^0T^0\right] = K\left[M^{(x+z)}L^{(2x+y+z)}T^{(-2x-y-2z)}\right]$

by comparing $\Rightarrow$

$x + z = 1$ and $2x + y + z = 0$ and $-2x - y - 2z = 0$

by solving $\Rightarrow x = 1$ and $y = -2$ and $z = 0$

8. Ans (4)

$y = r\sin(\omega t - kx)$

$(\omega t - kt)$ is angle so it is dimensionless.

$[\omega t] = [M^0L^0T^0]$

$[kx] = [M^0L^0T^0]$

$[\omega] = \frac{1}{[t]}$

$[\omega] = [T^{-1}]$, $k = \frac{1}{x}$

$\left[\frac{\omega}{k}\right] = \frac{[T^{-1}]}{[L^{-1}]} = [M^0LT^{-1}]$

9. Ans (2)

Assertion & Reason both are correct but reason is not correct explanation of assertion.

Theory

10. Ans (2)

$L.C. = \left(\frac{b-a}{b}\right)M = \left(\frac{10-8}{10}\right) \times \frac{1}{10}cm$

$= 0.02$ cm

11. Ans (1)

Reading = MSR + CSR × LC − Zero error

$= 0.6 + 26 \times 0.001 - 0.003$

$= 0.626 - 0.003 = 0.623$ cm

12. Ans (4)

$Pitch = \frac{1}{2}mm = 0.5mm$

$L.C. = \frac{0.5}{500}mm = 0.01mm$

$Reading = 1.5 + 35 \times 0.01 - (-0.02)$

$= 1.87$ mm

13. Ans (4)

Theory based

14. Ans (3)

0.43cm is most accurate since its least count is 0.01 cm while others have least count 0.1 cm.

15. Ans (4)

(A) Vertical height for all is same. So time of flight is same for all.

(B) Vertical component of velocity is same for all, because height is same for all

(C) Range is maximum for C, so horizontal component of C is maximum.

(D) Vertical component of velocity is same for all and horizontal distance is least for A, so horizontal component is least for A, there by launch speed is least for A.

16. Ans (3)

$Slope = \frac{dx}{dt} = v$

At $t = 0$

Slope $\neq 0$

17. Ans (3)

Only in case of forward acceleration and backward deceleration is the given observation possible.

18. Ans (1)

If car acceleration for time t_1 the maximum velocity is $v_{max} = \alpha t_1$.

When car comes to rest, $0 = \alpha t_1 - \beta t_2$

(t_2 = time for which car decelerates)

$\therefore t_2 = (\alpha/\beta)t_2$.

Total time $= t = t_1 + t_2 = t_1\left(\frac{\alpha+\beta}{\beta}\right)$

Hence $t_1 = t\left(\frac{\beta}{\alpha+\beta}\right)$

$\therefore v_{max} = \left(\frac{\alpha\beta}{\alpha+\beta}\right)t$

19. Ans (1)

$$t = \frac{u}{g\sin\theta} = \frac{40}{10 \times \frac{4}{5}} = 5\,s$$

20. Ans (3)

$$h = u_y t - \frac{1}{2} gt^2$$

$$-20 = 25 \times \sin 37° \times t - \frac{10}{2} \times t^2$$

$$-20 = 15\,t - 5\,t^2$$

$$t^2 - 3t - 4 = 0$$

$$t\,(t-4) + 1\,(t-4) = 0$$

$$t = 4 \text{ sec}$$

21. Ans (2)

$$\sin\theta = \frac{U}{V} = \frac{4}{10}$$

$$\theta = \sin^{-1}\left(\frac{2}{5}\right) \text{ with PQ up the stream}$$

22. Ans (2)

$$a = \frac{Mg\sin\theta}{M+M} = \frac{g\sin\theta}{2}$$

23. Ans (2)

$$a = \frac{50 - (2+3) \times 10 \times \frac{3}{5}}{2+3}$$

$$a = 4\ m/s^2$$

$$T - 3 \times 10 \times \frac{3}{5} = 3 \times 4$$

$$T = 12 + 18 = 30\ N$$

24. Ans (2)

$$F = \frac{v.\,dm}{dt} = 400 \times 0.05 = 20\ N$$

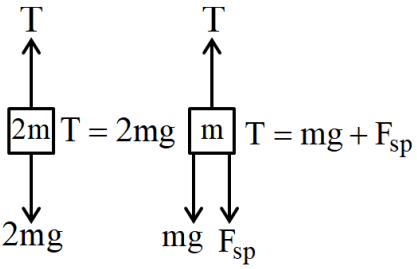
25. Ans (4)

$$F = \frac{dp}{dt} = \text{Slope of momentum-time graph}$$

i.e. Rate of change of momentum = Slope of momentum- time graph = force.

26. Ans (4)

Just after the string is cut, string force (tension) vanishes immediately, but the spring cannot regain its natural length instantaneously. In consequence the spring force remains the same just before and after the string ruptures. Hence, the bodies connected to the spring experience same spring force just after cutting the string. FBD's before cutting the string :



$2mg = mg + F_{sp} \Rightarrow F_{sp} = mg$

After the string is cut, T vanishes. So immediately after string is cut,

$\therefore a_m = 2g \downarrow$ and $a_{2m} = g\downarrow$.

27. Ans (3)

$f = 4a$

$F - f = 8a = 2f$

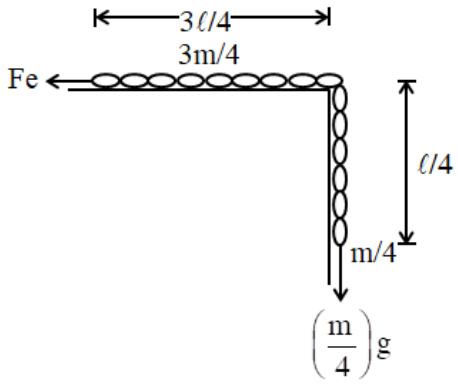
$F = 3f$

$F_{max} = 3\ f_{max}$

$= 3\ (0.4)(4)(10)$

$= 48\ N$

28. Ans (1)



For sliding

$$\frac{mg}{4} = \mu\left(\frac{3mg}{4}\right)$$

$$\mu = \frac{1}{3} = 0.33$$

29. Ans (1)

$W = \vec{F} \cdot \vec{S} = (30\hat{i} + 30\hat{j} + 30\hat{k}) \cdot (\hat{i} + \hat{j} + \hat{k})$

$= (30 + 30 + 30)\ J$

$= 90\ J$

30. Ans (2)

$$W = \frac{1}{2}k\left[x_f^2 - x_i^2\right]$$

$$W = \frac{1}{2} \times 800 \left[\left(\frac{15}{100}\right)^2 - \left(\frac{5}{100}\right)^2\right]$$

$$W = \frac{1}{2} \times 800 \times \frac{2}{100} = 8J$$

31. Ans (4)

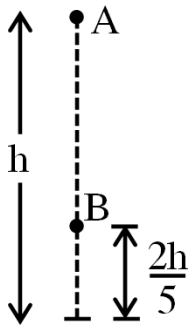
Let final t_{height} be h_f

$$E_f = \frac{1}{2} E_i$$

$$mg\, h_f = \frac{1}{2} mgH$$

$$\Rightarrow h_f = \frac{10}{2} = 5m$$

32. Ans (4)



$$KE_A + U_A = KE_B + U_B$$

$$KE_A = 0 \quad U_A = mgh$$

$$KE_B = ? \quad U_B = mg\,\frac{2h}{5}$$

$$\Rightarrow KE_B = mg\,\frac{3h}{5}$$

$$\frac{KE_B}{U_B} = \frac{3}{2}$$

33. Ans (2)

$$F = -\frac{dU}{dx}$$

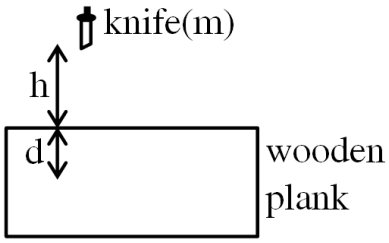
$$\Rightarrow F_A \longrightarrow + \quad \because \left(\frac{dU}{dx}\right)_A = -ve$$

$$F_B \longrightarrow - \quad \because \left(\frac{dU}{dx}\right)_B = +ve$$

$$F_C \longrightarrow \text{zero} \quad \because \left(\frac{dU}{dx}\right)_C = \text{zero}$$

34. Ans (3)

Let F be the resistance force of wooden block



$$W_{mg} + W_F = KE_f - KF_i$$

$$mg\,(h + d) + F\,(d)\,(-1) = 0 - 0$$

$$mg\,(h + d) = Fd$$

$$F = mg\left(1 + \frac{h}{d}\right)$$

35. Ans (2)

$$P = FV$$

$$P = ma\nu \quad (\nu = u + at = at)$$

$$= (ma)at$$

$$P = ma^2t$$

$$P \propto t$$

SECTION-B

36. Ans (2)

$$R = \frac{V}{I} = \frac{200}{20} = 10\ \Omega$$

$$\frac{\Delta R}{R} = \frac{\Delta V}{V} + \frac{\Delta I}{I}$$

$$\frac{\Delta R}{10} = \frac{4}{200} + \frac{0.2}{20}$$

$$\Delta R = \frac{6}{200}(10) = 0.3$$

$$\therefore (10 \pm 0.3)\Omega$$

37. Ans (2)

Zero error :

Least count of circular scale $\frac{1}{50} = 0.02$ mm

Reading of main scale = 0.0 cm

Number of division coincided = 5

Zero error = 5 × 0.02 = 0.10 mm

= +0.010 cm

For diameter of sphere :

Reading of main scale = 1.2 cm

No. of division coincided = 14

Reading of circular scale = 14 × 0.02

= 0.28 mm

= 0.028 cm

Reading = 1.228 cm

Diameter = 1.228 − 0.010 = 1.218 cm

38. Ans (3)

$L_2 = \frac{L_1}{2}$ ...(1)

$V_2 = 2V_1 \Rightarrow L_2T_2^{-1} = 2[L_1T_1^{-1}]$

$T_2 = \frac{T_1}{4}$ ....(2)

$F_2 = 3F_1$

$[M_2L_2T_2^{-2}] = 3\,[M_1L_1T_1^{-2}]$

$M_2 = \frac{L_1}{2}\frac{T_1^{-2}}{4^{-2}} = 3[M_1L_1T_1^{-2}]$

$M_2 = \frac{3}{8}M_1$ ....(3)

$P = F \times t$

$F_2 \times t_2 = nF_1 \times t_1$

$3F_1 \times \frac{t_1}{4} = nF_1 \times t_1$

$n = \frac{3}{4}$

39. Ans (3)

Least count = pitch/number of divisions on circular scale

L.C. = (0.5 / 50) mm = 0.01 mm

Measured diameter = (main scale reading) + (circular scale reading) (least count)

= 2.5 mm + (45) (0.01 mm) = 2.95 mm

Actual diameter = measured diameter − zero error

2.95 mm − (−0.03 mm)

= 2.98 mm

40. Ans (2)

Reading = M.S.R + L.C. × V.S.R

$[\text{L.C.} = \left(\frac{20-19}{20}\right)0.20 = 0.01\text{ cm}]$

= (5.1cm) + (6 × 0.01cm) = 0.01 cm

= 5.16 cm

41. Ans (4)

$n+1(\text{VSD}) = n\,\text{MSD} \Rightarrow 1\,\text{VSD} = \frac{n}{n+1}\,\text{MSD}$

$\text{Least count} = 1\,\text{MSD} - 1\,\text{VSD} = \left[1 - \frac{n}{n+1}\right]\text{MSD}$

$= \frac{1}{n+1}\,\text{MSD} = \frac{1}{n(n+1)}\,\text{cm}$

$\because\ 1\text{MSD} = \frac{1}{n}\text{cm}$

42. Ans (1)

$x = a\sin 2t \Rightarrow v_x = 2a\cos 2t$ and $a_x = -4a\sin 2t$

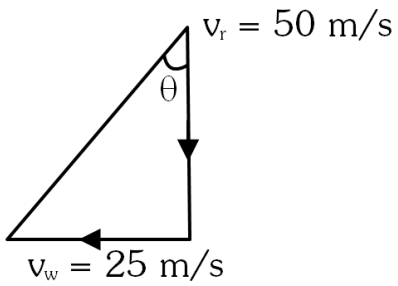
$y = a - a\cos 2t \Rightarrow v_y = 2a\sin 2t$ and $a_y = 4a\cos 2t$

$\Rightarrow$ speed $= \sqrt{v_x^2 + v_y^2} = 2a$ and acceleration $= 4a$

43. Ans (1)

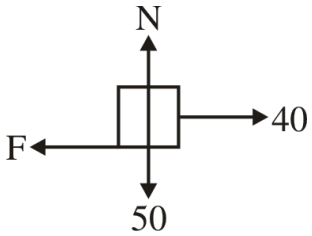
Since the time of fall $\sqrt{2h/g}$ is same for every drop, the time interval t_2 remains the same as time interval t_1.

44. Ans (2)



$\tan\theta = \frac{25}{50} \Rightarrow \theta = \tan^{-1}\left(\frac{1}{2}\right)$ w. r. t rain

45. Ans (2)



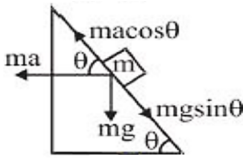
N = 50 N

$F_L = 0.6 \times 50 = 30$ N

$F_K = 0.5 \times 50 = 25$ N

$a = \frac{40-25}{5} = 3\ \text{m/s}^2$

46. Ans (3)



$a = \frac{F}{M+m}$

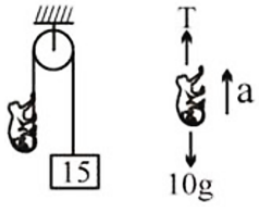
$macos\theta = mgsin\theta$

$a = g\tan\theta$

$\frac{F}{(M+m)} = g\tan\theta$

$F = (M+m)g\tan\theta$

47. Ans (1)



For the monkey

$T = 10 (g + a)$

For lift of the block

$T > 15g$

$10(g+a) > 15 \times 10$

$10 + a > 15$

$a > 5\ m/s^2$

48. Ans (1)

$$P = \frac{W}{t} = \frac{mgh}{t}$$

49. Ans (1)

The force against gravity is vertically upward and displacement of load is horizontal so angle between $\vec{F}$ & $\vec{S}$ is 90°

$\Rightarrow W = FS \cos 90° = 0$

50. Ans (2)

$W_{mg} + W_{friction} = KE_f - KE_i$

$mgh + (\mu\ mg)\ (x)\ (-1) = 0 - 0$

$(20)\ (1) - (0.4)\ (20)\ x = 0$

$20 = 0.4 \times 20\ x$

$$\Rightarrow x = \frac{1}{0.4} = \frac{10}{4} = 2.5\ m$$

SUBJECT : CHEMISTRY

SECTION-A

56. Ans (2)

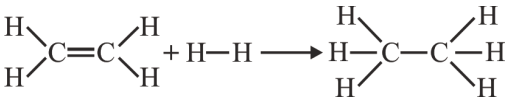
$q_p = q_v + \Delta n_g RT,\ q_v = q_p - \Delta n_g RT$

$(\Delta H = \Delta E + \Delta n_g RT)$

$q_v = -780.9 - (-1.5 \times 2 \times 298 \times 10^{-3})$

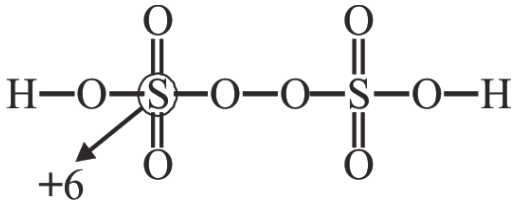
$= -780$ kcal

62. Ans (4)



$\Delta H = [4 \times$ B.E. of C—H + B.E. of C=C + B.E. of H—H] − [6 B.E. of C—H + B.E. of C—C]

63. Ans (3)



71. Ans (2)

$K_p = K_c(RT)^{\Delta ng}$

75. Ans (2)

$$pH = \frac{1}{2}\left(p^{k_w} + p^{k_a} + \log C\right)$$

82. Ans (2)

$K_{sp} = 4s^3$

$S = 10^{-4}$ M

$[X^-] = 25$

$= 2 \times 10^{-4}$ M

84. Ans (4)

$$T = \frac{\Delta H}{\Delta S} = \frac{-30000}{-100} = 300\ K = 27°C$$

85. Ans (4)

For isothermal expansion of an ideal gas $\Delta U = 0$

SECTION-B

88. Ans (4)

$$\Delta S = nC_{v,m} \ln \frac{T_2}{T_1} + nR \ln \frac{V_2}{V_1}$$

$$= C_{v,m} \ln 2 + R \ln \left(\frac{1}{2}\right)$$

$\Delta S = (C_{v,m} - R) \ln 2$

SUBJECT : BOTANY

SECTION-A

101. Ans (3)

NCERT Pg. # 24

102. Ans (3)

NCERT-XI, Pg. # 26, 27

103. Ans (2)

NCERT-XI, Pg. # 27

104. Ans (2)

NCERT, Pg. # 27

105. **Ans (4)**
NCERT XI, Pg # 29

106. **Ans (3)**
NCERT Pg. # 29

107. **Ans (2)**
NCERT-XI, Pg. # 30

108. **Ans (2)**
NCERT-XI, Pg. # 32

109. **Ans (3)**
NCERT-XI Page No. 32

110. **Ans (4)**
NCERT Pg. No. # 33

111. **Ans (3)**
NCERT Pg. No. # 32

112. **Ans (4)**
NCERT Pg. # 10

113. **Ans (1)**
NCERT-XI, Pg. # 13

114. **Ans (3)**
NCERT-XI, Pg. # 14

115. **Ans (1)**
NCERT Pg. # 91

116. **Ans (1)**
NCERT Pg. # 13, 15, 24

117. **Ans (3)**
NCERT, Pg. # 13, Figure

118. **Ans (2)**
NCERT-XI, Pg. No. # 14

119. **Ans (2)**
NCERT-XI, Pg. # 13

120. **Ans (3)**
NCERT-XI, Pg. # 15

121. **Ans (2)**
NCERT-XI, Pg. # 14, 15

122. **Ans (2)**
NCERT-XI, Pg. # 15

123. **Ans (3)**
NCERT, Pg. # 16

124. **Ans (4)**
NCERT, Pg. # 17

125. **Ans (2)**
NCERT-XI, Pg. # 18

126. **Ans (4)**
NCERT-XI, Pg. # 18

127. **Ans (3)**
NCERT, Pg. # 17,18

128. **Ans (1)**
NCERT-XI, Pg. # 18

129. **Ans (2)**
NCERT-XI, Pg. # 20

130. **Ans (2)**
NCERT Pg. # 21

131. **Ans (4)**
NCERT, Pg. # 21

132. **Ans (2)**
NCERT-XI, Pg. # 14, 90, 91

133. **Ans (3)**
NCERT Page No. 5

134. **Ans (4)**
NCERT Page No. 4

135. **Ans (4)**
NCERT-XI, Pg. # 06

SECTION-B

136. **Ans (1)**
NCERT-XI, Pg. # 24

137. **Ans (4)**
NCERT-XI, Pg. # 26

138. **Ans (1)**
NCERT-XI, Pg. # 29
Bryophytes are amphibians of plant Kingdom because they generally live on soil (land) but they required water for fertilization (sexual reproduction) therefore reason in correct explanation of given assertion.

139. Ans (4)
NCERT-XI, Pg. # 32, 33
Nucellus, Archegonia, Endosperm, Coralloid roots, Pollen grain, Seed, Ovule, Embryo.

140. Ans (3)
NCERT-XI, Pg. # 11

141. Ans (3)
NCERT-XI, Pg. # 90

142. Ans (3)
NCERT, Pg. # 13

143. Ans (3)
NCERT-XI, Pg. # 13, 14

144. Ans (2)
NCERT-XI, Pg. # 15

145. Ans (2)
NCERT Pg. # 14, 15

146. Ans (4)
NCERT-XI, Pg. # 17, 18

147. Ans (4)
NCERT XII, Pg. # 17, 18

148. Ans (4)
NCERT-XI, Pg. # 20

149. Ans (3)
NCERT, Pg. # 16

150. Ans (4)
NCERT-XI, Pg. # 07

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SECTION-A

155. Ans (3)
NCERT-XI, Pg. # 113, 114, 115 (Old NCERT)

157. Ans (2)
NCERT, Pg. # 47,48, 4.2.11.2, 4.2.11.3

169. Ans (3)
NCERT, Pg. # 49, 4.2.11.6

170. Ans (2)
NCERT, Pg.# 44

171. Ans (2)
NCERT-XII, Pg. # 56

177. Ans (4)
New XI, NCERT, Pg. # 82

178. Ans (2)
NCERT Pg # 83

185. Ans (2)
NCERT-XI, Pg. # 101, 102 (Old NCERT)

SECTION-B

187. Ans (4)
Module

192. Ans (3)
NCERT, Pg # 49,50

194. Ans (1)
NCERT Pg. # 112,113,114 Para # 3,4,5 and 9

196. Ans (1)
NCERT Pg. # 121