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 : 24-02-2025

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

HINT – SHEET

1. Ans (2)

Significant digits in 28.028 is 5, in 0.0008 is 1 and in 2.4×10^{-3} is 2.

2. Ans (4)

Work done has dimensional formula

$[ML^2T^{-2}]$

$\Rightarrow a = 1, b = 2, c = -2$

$a + b + c = 1 + 2 - 2 = 1$

3. Ans (4)

In $x = \dfrac{a\sin\theta + b\cos\theta}{\sqrt{a^2 + b^2}}$

$\sin\theta, \cos\theta$ are dimensionless.

from $\sqrt{a^2 + b^2} \Rightarrow$ a, b have same dimension.

Dimension of $\sqrt{a^2 + b^2}$ is same as a or b.

$\Rightarrow \dfrac{a}{\sqrt{a^2 + b^2}}, \dfrac{b}{\sqrt{a^2 + b^2}}$ are dimensionless.

Hence x will be dimensionless.

4. Ans (2)

In any system of units -

nu = constant

$\Rightarrow 20u_1 = 60u_2$

$2u_1 = 6u_2$

$u_1 = 3u_2$

$\dfrac{u_1}{u_2} = 3$

5. Ans (3)

$n_1u_1 = n_2u_2$

$\Rightarrow n_2 = n_1\left[\dfrac{u_1}{u_2}\right]$

$= 100\left[\dfrac{M_1}{M_2}\right]^1\left[\dfrac{L_1}{L_2}\right]^1\left[\dfrac{T_1}{T_2}\right]^{-2}$

$n_2 = 100\left[\dfrac{1}{x}\right]\left[\dfrac{1}{y}\right]\left[\dfrac{1}{z}\right]^{-2} = 100\dfrac{z^2}{xy}$

6. Ans (3)

Surface tension = $\frac{F}{\ell} = S$

$\Rightarrow S \propto E^x V^y T^z$

$\Rightarrow [ML^0T^{-2}] = [ML^2T^{-2}]^x [LT^{-1}]^y [T]^z$

$[ML^0T^{-2}] = [M^x L^{2x+y} T^{-2x+z-y}]$

$\Rightarrow x = 1,\ 2x + y = 0,\ -2x + z - y = -2$

$y = -2,\ z = -2$

Hence, dimensional formula of surface tension will be $[EV^{-2}T^{-2}]$

7. Ans (1)

Electric potential, $V = \frac{\text{work}}{\text{charge}} = \frac{[ML^2T^{-2}]}{[AT]}$

$\Rightarrow [V] = [ML^2T^{-3}A^{-1}]$

8. Ans (3)

$K = \frac{1}{2}mv^2$

$\Rightarrow$ % Error in KE = % Error of m + 2 (% Error of v)

= 1% + 4% = 5%

9. Ans (2)

If no. of observations increases n times, then random error becomes $\frac{1}{n}$ times of initial.

$\Rightarrow$ For 600 observations, Error = $\frac{x}{6}$

10. Ans (4)

$p = \sqrt{2m(KE)}$

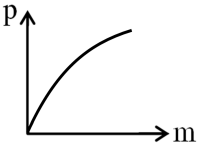
$p^2 = 2m(KE)$

(KE = constant)

comparing with $y^2 = kx$

y as p and x as m

the momentum - mass graph is parabolic



11. Ans (2)

Total workdone by gravity during its journey :-

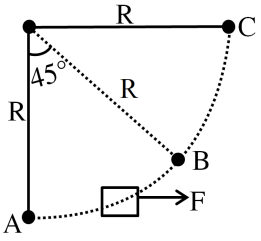
$w = +mgh_1 - mgh_2$

$= mg(h_1 - h_2)$

$= 4 \times 10 \times (20-15)$

$= 200$ J

12. Ans (2)



Workdone by force F :-

W = (Force) (displacement of point of application of force in the direction of force)

$W = (F)(R \sin 45°)$

$W = FR/\sqrt{2}$

13. Ans (3)

Workdone by force = Area under F−x graph

$W = \frac{1}{2}\left(\frac{3}{2}a\right)\left(\frac{3}{2}b\right) - \frac{1}{2}(a)(b)$

$W = \frac{9ab}{8} - \frac{ab}{2}$

$W = \frac{5}{8}ab$

14. Ans (3)

$a = \frac{3mg - \mu mg}{(3m + m)} = \frac{3mg - \frac{mg}{2}}{4m}$

$a = \frac{5g}{8}$

for m, $v^2 = u^2 + 2as \Rightarrow v^2 = 0^2 + 2\left(\frac{5g}{8}\right)x$

$\Rightarrow v^2 = \frac{5g}{4}x$

$\Rightarrow KE = \frac{1}{2}mv^2 = \frac{5}{8}(mgx)$

15. Ans (1)

At equilibrium position :-

$F = x(4x-3) = 0$

$x = 0$ or $x = 3/4$

$\frac{dF}{dx} = 8x - 3$

at stable equilibrium, $\frac{dF}{dx} < 0$

$\left(\frac{dF}{dx}\right)_{\text{at } x=0} = 8(0) - 3 = -3$

$\left(\frac{dF}{dx}\right)_{\text{at } x=3/4} = 8(3/4) - 3 = 3$

$\therefore$ at $x = 0 \longrightarrow$ stable equilibrium.

16. Ans (1)

$\vec{f} = f\hat{f}$

$\vec{f} = 17.32\left(\frac{\hat{i}+\hat{j}+\hat{k}}{\sqrt{3}}\right)$ $[\because \sqrt{3} = 1.732]$

$\vec{f} = (10\hat{i} + 10\hat{j} + 10\hat{k})N$

$\vec{d} = (n-1)\hat{i} + \hat{j} + 2\hat{k}$

$w = \vec{f} \cdot \vec{d}$

$36 = 10(n-1) + 10 + 20$

$10(n-1) = 6$

$n = 1.6$

17. Ans (4)

Workdone in the motion of a body over a closed loop is zero only when the body is moving under the action of conservative forces. It is not zero when the forces are non conservative.

Hence work done depends upon nature of forces.

19. Ans (1)

at equilibrium position :

$F = -\frac{dU}{dx} = 0$

$-(x-1) = 0$

$\Rightarrow x = 1$

$\therefore U_{min} = \frac{(1)^2}{2} - 1 = -\frac{1}{2}J$

$\therefore K_{max} = TE - U_{min}$

$= 4.2 - \left(-\frac{1}{2}\right)$

$= 4.7\ J$

20. Ans (1)

$P = Fv = mav$

$a = \frac{P}{mv} \Rightarrow \frac{vdv}{ds} = \frac{P}{mv}$

or $v^2dv = \frac{P}{m}ds$

or $\frac{P}{m}\int_0^s ds = \int_v^{3v} v^2dv$

$\frac{P}{m}s = \left(\frac{v^3}{3}\right)_v^{3v}$

$s = \frac{m}{3P}(27v^3 - v^3)$

$s = \frac{26mv^3}{3P}$

21. Ans (1)

Potential energy is a relative term defined only for conservative forces. Its absolute value cannot be determined.

23. Ans (2)

$a = v\frac{dv}{dx}$, At $x = 2 \Rightarrow v = 4$ m/s

$\frac{dv}{dx} = \frac{4-2}{2-0} = 1$

$a = 4(1)$

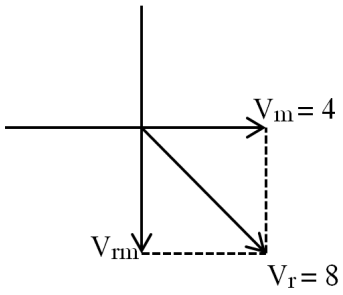
$= 4\ m/s^2$

24. Ans (3)

$\vec{v}_A = 10\hat{j}$ $\vec{v}_{BA} = 10\hat{i} \Rightarrow \vec{v}_B - \vec{v}_A = 10\hat{i}$

$\vec{v}_B = \vec{v}_{BA} + \vec{v}_A \Rightarrow \vec{v}_B = 10\hat{i} + 10\hat{j}$

25. Ans (3)



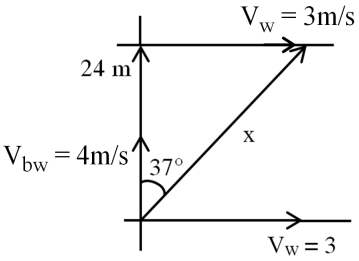
$V_{rm} = \sqrt{V_r^2 - V_m^2}$

$= \sqrt{64-16}$

$= \sqrt{48}$

$= 4\sqrt{3}$ m/s

26. Ans (3)



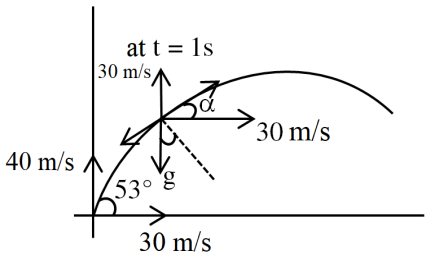
$\frac{24}{x} = \cos 37°$

$x = 30$ m

27. Ans (3)

Rate of change of speed means tangential acceleration,

i.e., $g\sin\alpha$



$\tan\alpha = \frac{30}{30} = 1 \Rightarrow \alpha = 45°$

$a_t = g\sin\alpha$

$= 10\left(\frac{1}{\sqrt{2}}\right) = 5\sqrt{2}\ m/s^2$

28. Ans (1)

$t = 0, u = 0, a = g$ (const)

$s_1 : s_2 : s_3 : ..... = 1 : 3 : 5 : .....$

$= \frac{h}{9}, \frac{3h}{9}, \frac{5h}{9}, ...$

For $\frac{5h}{9}$, $t = 3$ s

$h = \frac{1}{2}gt^2 = 5(3)^2 = 45$ m

29. Ans (3)

$t_i = 0 \Rightarrow x_i = 4$

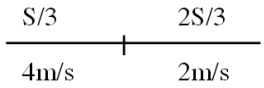
$t_f = 3s \Rightarrow x_f = 3(3)^2 - 5(3) + 4$

$= 27 - 15 + 4$

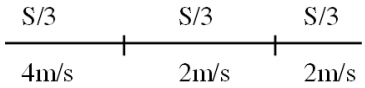
$= 12 + 4$

$\langle v \rangle = \frac{x_f - x_i}{t_f - t_i} = \frac{12}{3} = 4$ m/s

30. Ans (4)



$\Rightarrow$



$\langle v \rangle = \frac{s \times \left(\frac{3}{s}\right)}{\frac{1}{4} + \frac{1}{2} + \frac{1}{2}} = \frac{3 \times 4}{1 + 2 + 2} = \frac{12}{5}$ m/s

31. Ans (2)

$S_{n^{th}}$ is defined for 1 sec duration,

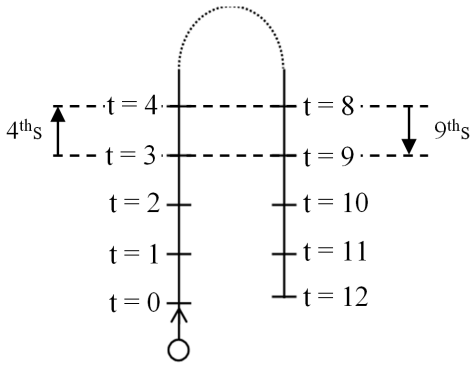
hence $S_{n^{th}} = u + \frac{a}{2}(2n - 1)$

is specifically written as

$S_{n^{th}} = u(1) + \frac{a}{2}(2n-1)(1)$

Where (1) = 1 sec duration

32. Ans (3)



$T = 12s$

$T = \frac{2u_y}{g}$

$u_y = 60$ m/s

$H_{max} = \frac{u_y^2}{2g}$

$= \frac{60 \times 60}{20} = 180$ m

33. Ans (2)

for collision

$(u_y)_A = (u_y)_B$

$u = 50\sin 37°$

$u = 30$ m/s

along the joining line

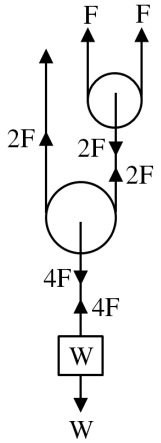
$u_{AB} = 50\cos 37°$

$= 40$ m/s

$t = \frac{120}{u_{AB}} = \frac{120}{40}$

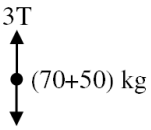
$t = 3s$

35. Ans (3)



$4F = W \Rightarrow \boxed{\frac{W}{F} = 4}$

36. Ans (2)



$3T = 1200$

$\boxed{T = 400}$

37. Ans (2)

$N_1 = (3 + 5)\, a$

$N_2 = (5)\, a$

$\frac{N_1}{N_2} = \frac{8}{5}$

38. Ans (3)

$T = \frac{2(30) + 3(20)}{5} = \frac{120}{5} = 24$ N

Reading $(2T) = 48$ N

39. Ans (2)

$F = \frac{dP}{dt}$

$F = nmv$

$F = 10 \times 10 \times 10^{-3} \times 500$

$F = 50$ N

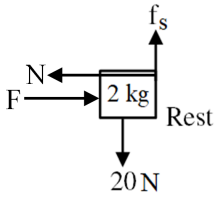
40. Ans (4)

$\vec{I} = \Delta\vec{p} = m\Delta\vec{v}$

$\Delta\vec{v} = 0$ ($\because$ v = constant)

$\vec{I} = 0$

41. Ans (2)



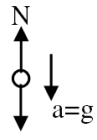
$N = 50$ N

$f_\ell = \mu_s N = 0.5 \times 50 = 25$ N

$f_k = 15$ N

$\boxed{f_s = 20}$ N ($\because$ block is at rest)

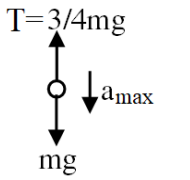
42. Ans (3)



$N - mg = ma$

$\boxed{N = 0}$

43. Ans (1)



$a = \frac{mg - \frac{3}{4}mg}{m}$

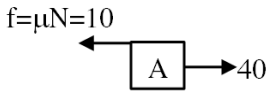
$a = \frac{g}{4}$

45. Ans (3)

Block B moves due to friction only so maximum acceleration of block B is equal to

$\mu g = 0.5(10) = 5$ m/s^2

Now let assume that both blocks moves together, so their acceleration must be $\frac{40}{2+3} = 8$ m/s^2, which is greater than maximum acceleration of block B so blocks will move separately.



Acceleration of A will be,

$a = \frac{40 - 10}{3} = 10$ m/s^2

47. Ans (1)

$\frac{x_B}{x_A} = \frac{mM_A}{1000}$

49. Ans (2)

$H_{2(g)} + \frac{1}{2}O_{2(g)} \rightarrow H_2O_{(g)}$

4mL 2mL

(reacted)

O_2 remained = 10 mL

So, initial Vol. of $O_2 = 10 + 2 = 12$ mL

51. Ans (1)

In CO : C O

12 : 16

In CO_2 12 : 32

54. Ans (2)

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

If $\Delta ng = 0$ $K_p = K_c$

59. Ans (1)

$Q_{sp} = \frac{4 \times 3}{1 \times 2} = 6$

$Q_{sp} < K_{eq}$

So Forward direction.

60. Ans (4)

Reaction having high value of K_{eq}, have more stable product.

63. Ans (1)

$$K_a = \frac{C\alpha^2}{1-\alpha} = \frac{0.1\left(\frac{1}{100}\right)^2}{1-0.01} \simeq 10^{-5}$$

66. Ans (3)

pH of Acid is less than 7.

68. Ans (4)

$pH_i = 2$

$[H^+]_i = 10^{-2}$ M

$pH_f = 4$

$[H^+]_f = 10^{-4}$ M

$$\frac{[H^+]_f}{[H^+]_i} = \frac{10^{-4}}{10^{-2}} = \frac{1}{100}$$

$$[H^+]_f = \frac{[H^+]_i}{100}$$

70. Ans (2)

$$h = \sqrt{\frac{k_w}{k_a k_b}} = \sqrt{\frac{10^{-14}}{10^{-12}}} = 10^{-1}$$

$\therefore$ % hydrolysis $= 10^{-1} \times 100 = 10$

71. Ans (2)

$NV = (NV)_{Base} - (NV)_{acid}$

$N(100+100) = 0.2 \times 100 - 0.1 \times 100$

$$N = \frac{10}{200} \qquad \{\text{Here } N = OH^-\}$$

$pOH = -\log [OH^-]$

$$pOH = -\log \frac{1}{20} = 1.3$$

$pH = 14 - 1.3 = 12.7$

72. Ans (4)

$\Delta H = \Sigma(\Delta_{B.E.}H)_{Reactants} - \Sigma(\Delta_{B.E.}H)Prod.$

73. Ans (2)

$$N_2 + \frac{3}{2}H_2 \rightarrow NH_3; \Delta H = -46 \text{ KJ/mol}$$

$$\therefore NH_3 \rightarrow N_2 + \frac{3}{2}H_2; \Delta H = +46 \text{ KJ/mol}$$

and $2NH_3 \longrightarrow N_2 + 3H_2$; $\Delta H = +92$ KJ/mol

74. Ans (2)

eq (2) $\times$ 3 $-$ eq(1) = eq (3)

$(-110) \times 3 - (-1130) = \Delta H$

$\Delta H = +800$ kJ

79. Ans (3)

$\Delta H_{ionisation} = -51.34 + 55.84 = 4.5$ kJ

(NH_4OH)

80. Ans (1)

$\Delta H_f^\circ\ SO_3 = -98.7 - 298.2$

$= -396.9$ kJ

$\Delta rH = \Delta H_f\ H_2SO_4 - \Delta H_f SO_3 = -130.2$

$\Delta H_f\ H_2SO_4 = -130.2 - 396.9 - 227.3$

$= -754.4$ kJ

81. Ans (4)

$2C_{(s)} + H_{2(g)} \longrightarrow C_2H_{2(g)} \qquad \Delta H_f = ?$

$\because\ \Delta H = \Delta H_f = \Sigma\ \Delta H_{C(R)} - \Sigma\ \Delta H_{C(P)}$

$\therefore\ \Delta H_f = 2(-394) + (-286) - (-1300)$

$= -788 - 286 + 1300$

$= +226$ kJ/mol

88. Ans (1)

$KMnO_4 + I^- \longrightarrow I_2 + Mn^{+2}$

91. Ans (1)

NCERT-XI, Pg # 7

92. Ans (1)

NCERT-XI, Pg # 07

93. Ans (1)

NCERT (XI) Pg # 7

94. Ans (4)

NCERT-XI, Pg. # 07

95. Ans (3)

NCERT-XI, Pg. # 7, 8

96. Ans (3)

XI NCERT Pg. No. # 6,7

97. Ans (2)

NCERT XI Pg. # 4

98. Ans (4)

NCERT XI Pg.- 4, 5

99. Ans (1)

NCERT XI Pg.- 4

100. Ans (4)

NCERT-XI Pg. # 24

101. Ans (2)
XI NCERT Pg. No. # 10, 11, 12

102. Ans (2)
NCERT-XI, Pg. No. # 13

103. Ans (2)
XI NCERT Pg. No. # 91

104. Ans (2)
NCERT-XI Pg.#13

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

106. Ans (4)
XI NCERT Pg. No. # 13, 14

107. Ans (4)
XI NCERT Pg. No. # 13, 14

108. Ans (1)
NCERT-XI Pg. # 15

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

110. Ans (2)
NCERT XI Pg.# 14

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

112. Ans (4)
NCERT XI Pg.# 15

113. Ans (4)
XI NCERT Pg. No. # 17, 18

114. Ans (1)
XI NCERT Pg. No. # 16, 18

115. Ans (3)
NCERT-XI, Pg # 17

116. Ans (1)
NCERT-XI Pg. # 17

117. Ans (4)
NCERT-XI Pg # 18

118. Ans (2)
XI NCERT Pg. No. # 19, 20

119. Ans (4)
NCERT, Pg. # 21

120. Ans (3)
NCERT-XI Pg.# 24

121. Ans (1)
NCERT-XI Pg.# 24

122. Ans (1)
NCERT XI - P. No. - 25

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

124. Ans (2)
NCERT-XI Pg.# 27

125. Ans (1)
NCERT-XI Pg.# 29

126. Ans (3)
XI NCERT Pg. No. # 29, 30

127. Ans (3)
NCERT-XI, Pg. # 32

128. Ans (1)
NCERT-XI, Pg.32, 33

129. Ans (3)
NCERT (XI) Pg # 32

130. Ans (4)
NCERT XI - P. No. - 26-33

131. Ans (3)
NCERT XI Pg : 29, 30

132. Ans (4)
NCERT-XI Page No. 32

133. Ans (3)
NCERT-XI Page No. 31

134. Ans (2)
NCERT-XI Page No. 33

135. Ans (3)
NCERT -XI, Pg. # 26-30
Algae : *Sargassum, Volvox, Polysiphonia, Fucus, Spirogyra, Chara*
Bryophyta : *Funaria, Polytrichum, Sphagnum, Marchantia*

136. Ans (2)
NCERT-XI, Pg # 44

137. Ans (3)
NCERT-XI, Pg # 40

138. Ans (1)
NCERT Pg # 50, 51

139. Ans (2)
NCERT Pg. # 114, Para 7.4.2

140. Ans (3)
Old NCERT, Pg. # 101

141. Ans (3)
NCERT Pg # 39

142. Ans (2)
NCERT-XI, Pg. # 82

143. Ans (1)
NCERT Pg. # 45

144. Ans (4)
Module (N) Pg. # 100, Old NCERT Pg. # 102

145. Ans (4)
NCERT, Pg. # 41

146. Ans (3)
Old NCERT, Pg. # 102

147. Ans (3)
NCERT, Pg. # 49

148. Ans (3)
NCERT Pg. # 47

149. Ans (4)
NCERT Pg. # 46

150. Ans (3)
Old NCERT, Pg. # 114

151. Ans (3)
NCERT Pg. # Module

152. Ans (1)
NCERT Pg. # 114 (Old)

153. Ans (3)
NCERT Pg. # 47, 48

154. Ans (3)
NCERT-XI, Pg. # 80

155. Ans (1)
NCERT Pg.# 83

156. Ans (1)
NCERT Pg # 50

157. Ans (4)
NCERT-XI Pg. # 45, Para 4.2.9

158. Ans (2)
NCERT Pg. # 101 (Old)

159. Ans (2)
NCERT Pg # 49

160. Ans (1)
NCERT Pg. # 45

161. Ans (4)
Module

162. Ans (1)
Module

163. Ans (1)
NCERT Pg. # 102

164. Ans (4)
NCERT Pg. # 46

165. Ans (2)
NCERT Pg.# 83

166. Ans (4)
Module

168. Ans (4)
NCERT, Pg. # 43-45

169. Ans (2)
NCERT Pg. # 79

170. Ans (1)
Module

171. Ans (1)
NCERT Pg. # 114

172. Ans (4)
NCERT Pg.# 38

173. Ans (3)
NCERT Pg. # 113

174. Ans (2)
NCERT Pg.# 44

175. Ans (1)
NCERT, Pg # 42

176. Ans (4)
NCERT Pg. No. # 44

177. Ans (3)
NCERT XI Page No. 55

178. Ans (3)
Module

179. Ans (2)
NCERT Pg # 48

180. Ans (4)
NCERT-XI Pg.# 83