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 : 27-12-2024

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

HINT – SHEET

1. Ans (1)

$t_{1/2} = \frac{a}{2k}$ = zero order

$t_{1/2} = \frac{\log_e(2)}{k}$ = first order

$\frac{a}{2k} = \frac{\log_e(2)}{k}$

$a = \log_e(4)$

2. Ans (2)

$t_{90\%} = \frac{10}{3}(t_{50\%})$

3. Ans (4)

NCERT-XII, Part-I, Pg # 83, Last paragraph

4. Ans (2)

NCERT-XII, Pg. # 72, 86, 87, 88, Part-1, Edition-2017

5. Ans (4)

C is best R.A. ...(i)

A reduces D but can't reduce B and C ...(ii)

C reduces B ...(iii)

Order D < A < B < C

6. Ans (2)

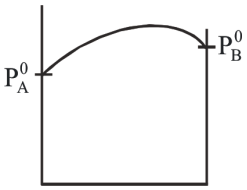
Cell constant $G^* = K \times R = 85 \times 1.29 \times 10^{-2} = 1.096\ cm^{-1}$

$\Lambda_m = \frac{K \times 1000}{M} = \frac{G^*}{R} \times \frac{1000}{M}$

$= \frac{1.096 \times 1000}{96 \times 0.052} = 219.65\ ohm^{-1}\ cm^2\ mol^{-1}$

7. Ans (4)

In positive deviation v.p. ↑ B.P↓ therefore



8. Ans (2)

NCERT Pg. # 47

9. Ans (4)

$A \xrightarrow{k_I} P$ (I^{st} order)

$B \xrightarrow{k_{II}} Q$ (zero order)

$\frac{k_I}{k_{II}} = \frac{\frac{2.303}{30\ min}\log\left(\frac{1}{0.5}\right)}{\frac{(2-1)M}{30\ min}} = 0.693$

10. Ans (1)

$K = 10 - \frac{1000}{T}$ ...(1)

$\log K = \log A - \frac{E_a}{2.303RT}$ ...(2)

from equation (1) & (2)

$\frac{E_a}{2.303\,R} = 1000$

$E_a = 1000 \times 2.303 \times \frac{2}{1000}$

$E_a = 4.606$ Kcal /mol.

11. Ans (3)

$P_T = P_A^o + (P_B^o - P_A^o)\,x_B$

$99 = 100 + (80 - 100)x_B$

$x_B = \frac{1}{20}$

$y_B = \frac{P_B^o \times B}{P_T} = \frac{80 \times 1/20}{99}$

$\%\ y_B \approx 4\%$

12. Ans (3)

$Y_A = \frac{P_A^\circ X_A}{P_T}$

$\because\ P_A^\circ > P_T$

$Y_A > X_A$

19. Ans (1)

$y_A = \frac{P_A^o x_A}{P_T}$ & $y_B = \frac{P_B^o x_B}{P_T}$

$\frac{y_A}{y_B} = \frac{P_A^o}{P_B^o} \times \frac{x_A}{x_B}$ $\quad \frac{4}{3} = \frac{1}{3} \times \frac{x_A}{(1 - x_A)}$

$x_A = \frac{4}{5}$ or $x_B = \frac{1}{5}$

20. Ans (1)

$\frac{W}{7} = \frac{1930 \times .75}{96500}$

$W = .105$ gm

21. Ans (1)

$A \longrightarrow 2B + C$

$t = 0 \quad P_i \quad 0 \quad 0$

$t = t \quad P_i - y \quad 2y \quad y$

$P_t = P_i - y + 2y + y$

$y = \frac{P_t - P_i}{2}$

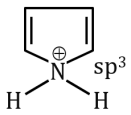
$\therefore\ k = \frac{2.303}{t}\log\left(\frac{2P_i}{3P_i - P_t}\right)$

23. Ans (1)

$t_{1/2} = \frac{a}{2R} = k'a$

$\log t_{1/2} = \log k' + \log a$

24. Ans (2)

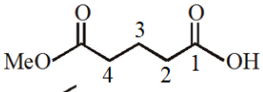


Non-aromatic

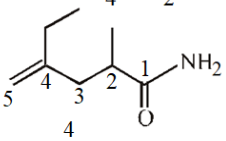
25. Ans (2)

$CH_3 - COOH \xrightarrow[CaO]{NaOH} CH_4 + Na_2CO_3$

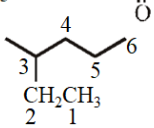
27. Ans (3)

(a) 

(p) 4C in principal carbon chain

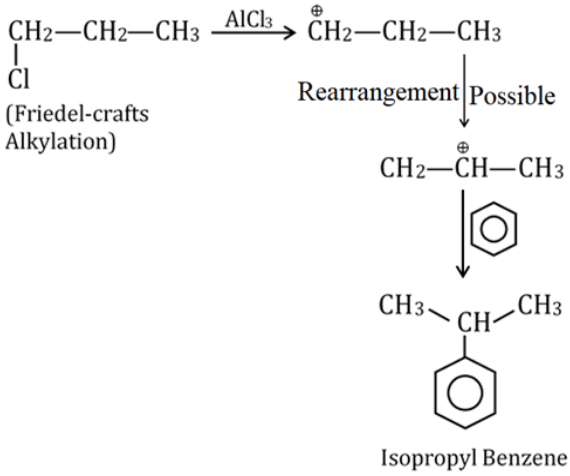
(b) 

(r) 5C in principal carbon chain

(c) 

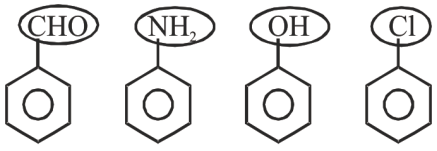
(q) 6C in principal carbon chain

29. Ans (2)



Isopropyl Benzene

30. Ans (3)



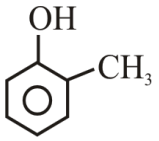
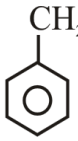
–m +m +m –I

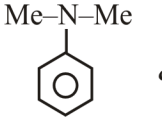
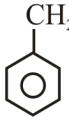
–I less –I more

Reactivity $\longrightarrow$ +M > +H > +I > –X– > –I > –H > –M

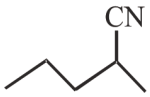
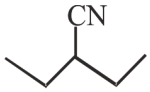
II > III > IV > I

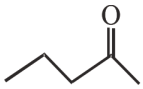
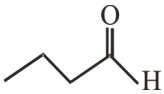
36. Ans (1)

(i)  &  are F.G.I.

(ii)  &  are F.G.I

(iii) $CH_3-C\equiv C-CH_3$ &  are not Isomers.

(iv) C_4H_6  & C_4H_8  are chain Isomers

(v)  &  are not isomers.

37. Ans (2)

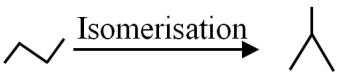
$$2CH_4 + O_2 \xrightarrow[100\ atm]{Cu/523K} 2CH_3OH$$

$$CH_4 + O_2 \xrightarrow[\Delta]{Mo_2O_3} HCHO + H_2O$$

$$CH_4 + O_2 \xrightarrow{(CH_3COO)_2Mn} HCOOH + H_2O$$

$$(CH_3)_3CH + 2O_2 \xrightarrow{KMnO_4} (CH_3)_3COH + H_2O$$

39. Ans (1)

(A) 

(B) $CH_4 \xrightarrow{Cl_2/h\nu} CH_3-Cl+HCl$

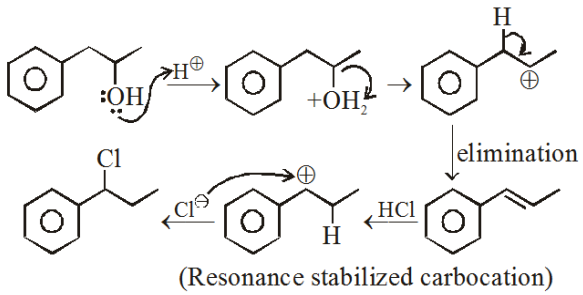
(C) $R\text{–}COONa \xrightarrow[CuO]{NaOH} R\text{–}H$

(D) $R\text{–}X \xrightarrow[Ether]{Na/dry} R\text{–}R$

40. Ans (2)

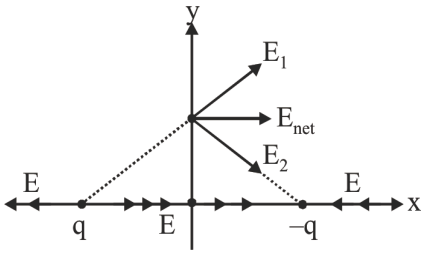
Chloroform and aniline has sufficient difference in boiling point and therefore can be separated by distillation.

42. Ans (3)



(Resonance stabilized carbocation)

46. Ans (2)



47. Ans (2)

By using $\int \vec{E}\cdot\vec{dA} = \frac{1}{\varepsilon_0}(Q_{enc})$

48. Ans (4)

$$E_x = -\frac{\partial V}{\partial x} = -(-5)$$

$$= 5; E_y = -\frac{\partial V}{\partial y} = -3$$

$$\text{and } E_z = -\frac{\partial V}{\partial z} = -\sqrt{15}$$

$$E_{net} = \sqrt{E_x^2 + E_y^2 + E_z^2} = \sqrt{(5)^2 + (-3)^2 + \left(-\sqrt{15}\right)^2} = 7$$

49. Ans (4)

$$W = qV = qE \cdot d$$

$$\Rightarrow 4 = 0.2 \times E \times (2\cos 60^\circ)$$

$$= 0.2E \times (2 \times 0.5)$$

$$\therefore E = \frac{4}{0.2} = 20 NC^{-1}$$

52. Ans (2)

$$\text{From symmetry } \phi = \frac{1}{6}\left(\frac{q}{\varepsilon_0}\right)$$

$$= \frac{12 \times 10^{-6}}{6 \times 8.85 \times 10^{-12}}$$

$$= 225.98 \times 10^3 \frac{Nm^2}{s}$$

$$\simeq 226 \times 10^3 \frac{Nm^2}{C}$$

53. Ans (3)

Equal electrostatic forces act on both the bobs. The weights are also the same. Hence, they have identical free-body diagrams.

54. Ans (3)

$V_1 = V_2$ as charge remains same.

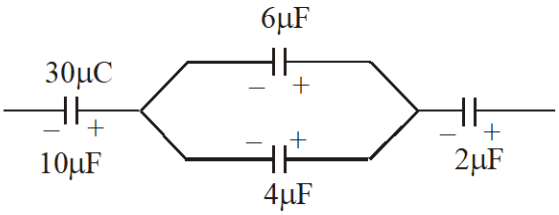
55. Ans (1)

$$V_i = \frac{1}{2}CE^2$$

$$V_f = \frac{(CE)^2}{2 \times 4c} = \frac{1}{2}\frac{CE^2}{4}$$

$$\Delta E = \frac{1}{2}CE^2 \times \frac{3}{4} = \frac{3}{8}CE^2$$

56. Ans (4)



6μF & 4μF are in parallel & total charge on this combination is 30 μC

$\therefore$ Charge on 6μF capacitor $= \frac{6}{6+4} \times 30$

$= 18\ \mu C$

Since charge is asked on right plate therefore is +18μC

Correct answer is (4).

57. Ans (2)

When switch S_{W_1} is closed and S_{W_2} is opened, charge on capacitor A, $Q_A = C_A.V = (2\times10^{-6}) \times 10 = 20\ \mu C$

Now, Switch S_{W_1} is opened and S_{W_2} is closed, then charge on capacitor A, $Q'_A = \frac{Q_A}{2} = 10\mu C$

58. Ans (2)

$V_R = \varepsilon.e^{-t/RC}$

$V_C = \varepsilon[1 - e^{-t/RC}]$

At t = 100 ms

$V_R = V_C$

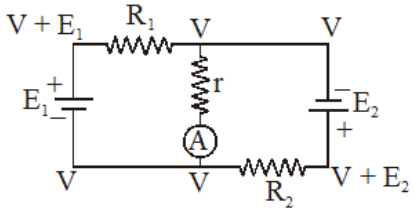
$\Rightarrow e^{-t/RC} = 1/2$

$RC = \frac{100}{\ell n(2)} \approx 145.45\ ms$

59. Ans (1)

$\frac{10-4}{2-0} = k\ \frac{4-3}{3-2} \Rightarrow k = 3$

60. Ans (2)



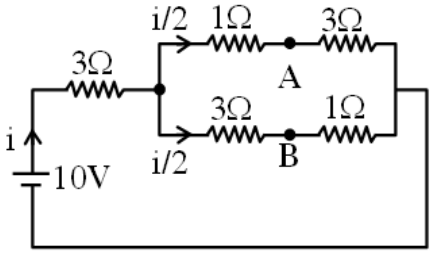
No, current through r

$I = \frac{E_1}{R_1} = \frac{E_2}{R_2}$

$\frac{E_1}{E_2} = \frac{R_1}{R_2}$

61. Ans (2)

$R_{eq} = 5\Omega$, Current $I = \frac{10}{5} = 2A$ and current in each branch = $1A$



Potential difference between C and A,

$V_C - V_A = 1 \times 1 = 1V$ .....(i)

Potential difference between C and B,

$V_C - V_B = 1 \times 3 = 3V$ .....(ii)

On solving (i) and (ii)

$V_A - V_B = 2volt$

Short Trick : $(V_A - V_B) = \frac{i}{2}(R_2 - R_1) = \frac{2}{2}(3-1) = 2V$

62. Ans (3)

Resistance $R = \frac{\rho\ell}{A}$

$\because\ \ell' = 2\ell$

$\therefore A' = \frac{A}{2}$

$\therefore R = \rho\frac{2\ell}{\frac{A}{2}} = 4R = 4 \times 4\,\Omega = 16\,\Omega$

Therefore the resistance of new wire becomes 16 Ω

63. Ans (3)

$i = \frac{dq}{dt}$ = const. = slope of q – t graph

$H = i^2Rt$

$H \propto t$

64. Ans (2)

$\frac{1}{2}\left(\frac{2}{1000+100}\right) = \left(\frac{S}{100+S}\right)\frac{2}{\left(1000+\frac{100S}{100+S}\right)}$

$S \approx 91\ \Omega$

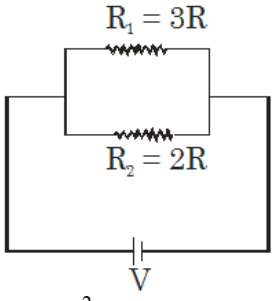
65. Ans (3)

Statement 1 - R = 80Ω

$R_1 = R_2 = R_3 = R_4 = 20\ \Omega$

In parallel $R_{eq} = \frac{20}{4} = 5\Omega$

Statement 2 –

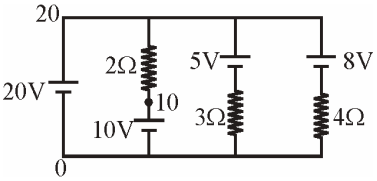


$P_{th} = \frac{v^2}{R}$

$\frac{P_1}{P_2} = \left(\frac{R_2}{R_1}\right) = \frac{2}{3}$

(where P is power)

66. Ans (2)



R	2Ω	3Ω	4Ω
P	$\frac{10^2}{2}$	$\frac{15^2}{3}$	$\frac{12^2}{4}$

67. Ans (2)

$\frac{R_1}{R_2} = \frac{2}{3}$ .....(i)

$\frac{R_1 + 10}{R_2} = 1 \Rightarrow R_1 + 10 = R_2$ ....(ii)

$\frac{2R_2}{3} + 10 = R_2$

$10 = \frac{R_2}{3} \Rightarrow R_2 = 30\Omega$

& $R_1 = 20\Omega$

$\frac{\frac{30\times R}{30+R}}{30} = \frac{2}{3}$

$R = 60\ \Omega$

68. Ans (2)

Elasticity is the property of material which help it to regain its initial shape after deforming force is removed.

69. Ans (1)

$\lambda = \frac{v}{n} = \frac{1.7 \times 1000}{4.2 \times 10^6} \approx 4 \times 10^{-4}\ m$

70. Ans (2)

Frequency of stretched string

$n = \frac{1}{2\ell}\sqrt{\frac{T}{m}}$

Here T and m are constant so $n \propto \frac{1}{\ell}$

Therefore $\frac{n'}{n} = \frac{\ell}{\ell'}$

$\Rightarrow \frac{180}{120} = \frac{90}{\ell}$

$\Rightarrow \ell' = 60$ cm

71. Ans (1)

$v_{P_{max}} = A\omega = 3 \times 10 = 30 m/s$

72. Ans (4)

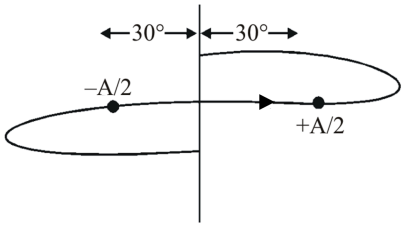
sin kx ⟶ rigid end

cos kx ⟶ free end

73. Ans (1)

As it is clear from the equation that speed of each wave is same and is equal to 2 m/s. From the graphs it is clear that wavelength is maximum for graph in P and the least for R. As wavelength is the property of both source and the medium and here medium is same so we can conclude that the relation between three wavelengths is determined by source property, i.e., frequency. From equation it is clear that frequency is maximum for y_3 and least for y_1. From $\lambda = \frac{v}{f}$, we can conclude that wavelength is maximum for the wave having least frequency.

74. Ans (1)



Time period of SHM = $\frac{2\pi}{\omega}$

∴ Time for traveling 60° is $= \frac{2\pi}{\omega}\frac{60}{360}$

$= \frac{\pi}{3\omega}$

75. Ans (4)

$F \propto -x$ represents SHM

76. Ans (4)

Mean position at $\frac{T}{4}, \frac{3T}{4}$

Extreme position at T, $\frac{T}{2}$

77. Ans (4)

Radius = A = 4 m

initial phase $\phi = \pi/2$

General equation of SHM

$x = A \sin(\omega t + \phi)$

At $t = 0, x = A$

$A = A \sin \phi$

$\phi = \pi/2$ rad

$\omega = \frac{2\pi}{T} = \frac{2\pi}{4} = \frac{\pi}{2}$ rad/s

$x = 4 \sin\left(\frac{\pi}{2}t + \frac{\pi}{2}\right)$

$x = 4 \cos\left(\frac{\pi}{2} t\right)$

78. Ans (2)

Equation of SHM :

$x = 1 \sin\left(\frac{2\pi}{8} \cdot t + 0\right)$

$\Rightarrow x = \sin \frac{\pi t}{4} \Rightarrow v = \frac{\pi}{4}\cos \frac{\pi t}{4}$

$\Rightarrow a = \frac{-\pi^2}{16}\sin \frac{\pi t}{4}$

$\Rightarrow a_{t=\frac{4}{3}s} = \frac{-\pi^2}{16}\sin\left(\frac{\pi}{4} \times \frac{4}{3}\right) = \frac{-\sqrt{3}\pi^2}{32} ms^{-2}$

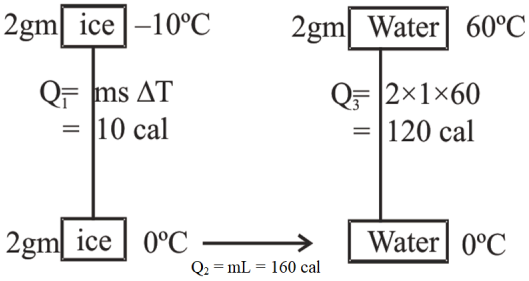
79. Ans (4)

(I) $V_{mp} \propto \sqrt{T}$

(II) $V \propto \frac{1}{\sqrt{M_w}}$

(III) K. E. $= \frac{1}{2}MV^2$

80. Ans (2)



Q = 10 + 160 + 120 = 290 cal.

81. Ans (3)

$ms_1(56 - 20) = ms_2(80 - 56)$

$\frac{s_1}{s_2} = \frac{24}{36} = \frac{2}{3}$

82. Ans (3)

$E = \frac{f}{2}nRT$

$= \frac{3}{2}PV$

$= \frac{3}{2} \times 3 \times 10^6 \times 2$

$= 9 \times 10^6 J$

83. Ans (4)

Heat current in both the rods must be same

$\frac{3KA(\theta_2 - \theta_0)}{d} = \frac{KA(\theta_0 - \theta_1)}{3d}$

$\Rightarrow \theta_0 = \frac{\theta_1}{10} + \frac{9\theta_2}{10}$

84. Ans (4)

slope of P-V graph in adiabatic process is γ times to that in isothermal process.

85. Ans (1)

$\frac{90 - 80}{10} = K\left(\frac{90 + 80}{2} - 25\right)$

or $\frac{10}{10} = K(85 - 25)$ ..... (1)

and $\frac{70 - 60}{t} = K\left(\frac{70 + 60}{2} - 25\right)$

or $\frac{10}{t} = K(65 - 25)$ ..... (2)

by (1)/(2), $\frac{t}{10} = \frac{60}{40}$ or t = 15 minute

86. Ans (3)

$W_{AB} = -P_0V_0$

$W_{CD} = 2P_0V_0 \times 2 = 4P_0V_0$

$W_{BC} = 0$

$W_{ABCD} = 4P_0V_0 - P_0V_0$

$= 3P_0V_0$

87. Ans (2)

$\eta = \frac{W}{Q_1} = 1 - \frac{T_2}{T_1} = 1 - \frac{300}{950}$

$\frac{W}{Q} = \frac{13}{19}$cal

$W = 10^2 \times 10^3 \times \frac{13}{19} \times 4.2$ J

$= 0.28 \times 10^6$ J

88. Ans (4)

$$\frac{P_{1i}V_{1i}}{RT_{1i}} + \frac{P_{2i}V_{2i}}{RT_{2i}} = \frac{P_{1f}V_{1f}}{RT_{1f}} + \frac{P_{2f}V_{2f}}{RT_{2f}}$$

$$\frac{1 \times V}{R \times 273} + \frac{1 \times V}{R \times 273} = \frac{1.5 \times V}{R \times 273} + \frac{1.5V}{RT}$$

$$\frac{2V}{273R} = \frac{1.5V}{273R} + \frac{1.5V}{RT}$$

$$\frac{2}{273} - \frac{1.5}{273} = \frac{1.5}{T}$$

$$\frac{0.5}{273} = \frac{1.5}{T} \Rightarrow T = 819\ K = 546°C$$

90. Ans (4)

$\Delta V_{glass} = 200\ (0.8 \times 10^{-4}) \times 80$

$\Delta V_{Hg} = 200\ (1.8 \times 10^{-4}) \times 80$

fluid overflow $= 200 \times 1 \times 10^{-4} \times 80$

$= 1.6\ cm^3$

91. Ans (3)

NCERT-XI Pg#149

92. Ans (1)

NCERT-XI Pg#143,144

93. Ans (3)

NCERT-XI Pg#137

94. Ans (1)

NCERT-XI Pg#137

95. Ans (3)

NCERT-XI Pg#146

96. Ans (4)

NCERT-XI Pg#139,140

97. Ans (4)

NCERT-XI Pg#149

98. Ans (2)

NCERT-XI Pg#145,146

99. Ans (1)

NCERT-XI Pg#134-135

100. Ans (3)

NCERT-XI Pg#136

101. Ans (2)

NCERT-XI Pg#139

102. Ans (1)

NCERT-XI Pg#160

103. Ans (4)

NCERT-XI Pg#159

104. Ans (4)

NCERT-XI Pg#159

105. Ans (1)

NCERT-XI Pg#157

106. Ans (1)

NCERT-XI Pg#163,164

107. Ans (4)

NCERT-XI Pg#159

108. Ans (4)

NCERT-XI Pg#158

109. Ans (2)

NCERT-XI Pg#177

110. Ans (2)

NCERT-XI Pg#176

111. Ans (4)

NCERT-XI Pg#175

112. Ans (2)

NCERT-XI Pg#170

113. Ans (3)

NCERT-XI Pg#74

114. Ans (1)

NCERT-XI Pg#76-77

115. Ans (4)

NCERT-XI Pg#72

116. Ans (3)

NCERT-XI Pg#73

117. Ans (2)

NCERT-XI Pg#74-75

118. Ans (4)

NCERT-XI Pg#75

119. Ans (2)

NCERT-XI Pg#65

120. Ans (3)

NCERT-XI Pg#67

121. Ans (4)
NCERT-XI Pg#65

122. Ans (2)
NCERT-XI Pg#62

123. Ans (3)
NCERT-XI Pg#64

124. Ans (4)
NCERT-XI Pg#65

125. Ans (4)
NCERT-XI Pg#69

126. Ans (2)
NCERT-XI Pg#66

127. Ans (1)
NCERT-XII Pg#18

128. Ans (4)
NCERT-XII Pg#7

129. Ans (1)
NCERT-XII Pg#10

130. Ans (2)
NCERT-XII Pg#6,9

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

132. Ans (4)
NCERT-XII Pg#13

133. Ans (2)
NCERT-XII Pg#14

134. Ans (2)
NCERT-XII Pg#7

135. Ans (1)
NCERT-XI Pg#62

136. Ans (3)
NCERT Pg. 53

137. Ans (4)
NCERT Pg. # 44

140. Ans (1)
NCERT, Pg. # 32 [New]

142. Ans (3)
NCERT (XII) Pg. # 64

143. Ans (4)
NCERT XII Pg # 61, Fig 4.4 (b)

144. Ans (3)
NCERT XII, Page # 64

145. Ans (3)
NCERT XII Pg # 64, Para 4.5

146. Ans (4)
Vasectomy and tubectomy are permanent method of birth control.

150. Ans (1)
NCERT-XII Pg. # 54/51(H) Para: 3.7

151. Ans (4)
NCERT (XII) Pg. # 51, 52, 54

152. Ans (1)
NCERT (XIIth) (E)Pg. # 64, Para-3

158. Ans (4)
NCERT XI Pg # 232, 233

159. Ans (2)
NCERT XI Pg # 231

160. Ans (2)
NCERT-XI, Pg. # 240, 242, 243

161. Ans (1)
NCERT XI Pg # 244

162. Ans (1)
NCERT XI Pg # 248

172. Ans (2)
NCERT Pg # 204 (E) & (H)

173. Ans (3)
NCERT Pg # 227

174. Ans (2)
NCERT XI Pg.# 222

177. Ans (1)
NCERT Pg # 235

178. Ans (2)
NCERT Pg # 241