

CLASSROOM CONTACT PROGRAMME

(Academic Session: 2023 - 2024)

ENTHUSIAST, LEADER & ACHIEVER COURSE

PHASE : ALL PHASE TARGET : PRE-MEDICAL 2024

Test Type: MAJOR Test Pattern: NEET (UG)

TEST DATE: 28-04-2024

ANSWER KEY

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

HINT - SHEET

SUBJECT: CHEMISTRY

SECTION-A

- 1. Ans (3) NCERT-XII, Pg. # 357
- 2. Ans (1) NCERT-XII, Pg. # 305
- 3. Ans (3)
 NCERT-XII, Pg. # 323
 3° alcohol reaction instant with Lucas reagent
- 4. Ans (4) NCERT-XII, Pg. # 324
- 5. Ans (2) NCERT-XII, Pg. # 385
- 6. Ans (2) NCERT-XII, Pg. # 395
- 7. Ans (3) NCERT-XII, Pg. # 419

- **13. Ans (2)** NCERT-2021, Part-1, Pg. # 113
- **14.** Ans (3) NCERT-2021, Part-1, Pg. # 112
- 15. Ans (1) NCERT-2021, Part-1, Pg. # 41 $K_H = \text{Slope of the curve} = \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{1000 - 0}{0.02 - 0} = 5 \times 10^4 \text{ torr}$
- **16.** Ans (4) NCERT-2021, Part-1, Pg. # 58
- 17. Ans (4) NCERT-2021, Part-1, Pg. # 84
- 18. Ans (2) NCERT-XII, Lab Manual, Pg. #4
- 19. Ans (1) For Lyman series $n_1 = 1$ (Ultra violet region)
- 20. Ans (1)

 NCERT-XI, Part-1, Pg. # 198

 Application of equilibrium constant

21. Ans (2)

NCERT-XI, Part-1, Pg. # 183, Ex - 6.14

$$C(graphite) + 2H_2(g) + \frac{1}{2} O_2(g) \longrightarrow CH_3OH(\ell)$$

$$\Delta_{\rm f}$$
H° = (-393) + 2 (-286) - (-726) = -239 kJ mol⁻¹

22. Ans (3)

23. Ans (3)

(1) number of atom =
$$\left(\frac{5.6}{22.4}\right) \times N_A \times 3 = \frac{3}{4}NA$$

(2) number of atom =
$$\left(\frac{0.5}{2}\right) \times N_A \times 2 = 0.5N_A$$

(3) 18 ml of water = 18 g of water

number of atom =
$$\left(\frac{18}{18}\right) \times N_A \times 3 = 3N_A$$

(4) number of atom =
$$\left(\frac{16}{48}\right) \times N_A \times 3 = N_A$$

31. Ans (4)

The order of E.N. for boron family is. B > Tl > In > Ga > Al

35. Ans (3)

NCERT Pg. #192

SECTION-B

36. Ans (3)

NCERT-XII, Pg. # 354,355,356

37. Ans (4)

NCERT-XII, Pg. # 289

41. Ans (2)

NCERT-2021, Part-1, Pg. # 71

Reducing power $\propto \frac{1}{SRP}$

42. Ans (1)

NCERT-XII, Lab Manual, Pg. #1

43. Ans (2)

LR

$$N_2(g) + 3H_2(g) \longrightarrow 2 \text{ NH}_3(g)$$

$$28 \text{ g} \qquad 6 \text{ g}$$
moles 1 3

1 mole
$$N_2 \equiv 2$$
 mole NH_3

44. Ans (1)

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

$$\Delta H = (-28.6) + \frac{1 \times 2 \times 300}{1000}$$

$$\Delta H = -28.6 + 0.6$$

 $\Delta H = -28 \text{ kcal mol}^{-1}$

47. Ans (2)

Boron form oxide of B₂O₃ type

50. Ans (3)

$$\begin{split} N_1 V_1 + N_2 V_2 &= N_{final} \ V_{final} \\ 10^{-3} V + 10^{-5} V &= [H^+] \ 2V \\ [H^+] &= \frac{10^{-3} + 10^{-5}}{2} \\ &= \frac{1.01 \times 10^{-3}}{2} \\ [H^+] &\simeq 5 \times 10^{-4} \end{split}$$

$$pH = 4 - \log 5 = 3.3$$

SUBJECT: PHYSICS

SECTION-A

51. Ans (3)

$$(W)_{ABC} = \frac{1}{2} \times (4-2) \times (2-1) \Rightarrow +1J$$
(Clockwise)

$$(W)_{ADE} = \frac{1}{2} \times (2 - 1) \times (3 - 2) = -\frac{1}{2}J$$
(Anticlockwise)

$$\left(\text{Net Work} = +\frac{1}{2} J \right)$$

52. Ans (1)

Let temperature of junction is T

53. Ans (1)

Heat lost by Bullet = $k_i - k_f$

$$Q = mc\Delta T = \Delta K$$
.

$$\Delta T = \frac{\Delta K}{mc} = \frac{\frac{1}{2}mv^2}{mc}$$

$$\Delta T = \frac{\frac{1}{2}(200 \times 200)}{0.03 \times 4.2 \times 10^3}$$
= 158.7°C



54. Ans (3)

Given
$$\frac{15\text{V}}{4\ell} = 600$$

- (c) Fundamental frequency $\frac{V}{4\ell} = 40 \text{ Hz}$
- (b) 3^{rd} Harmonic frequency $=\frac{3V}{4\ell} = 3 \times 40 = 120 \text{ Hz}$
- (a) Frequency of 3^{rd} Overtone = $\frac{7V}{4\ell}$ = $7 \times 40 = 280$ Hz
- (d) 5^{th} Harmonic = $\frac{5V}{4\ell}$ = $5 \times 40 = 200$ Hz

55. Ans (3)

$$V = \frac{\lambda}{T} \Rightarrow f = \frac{V}{\lambda} = \frac{20}{10} = 2 \text{ m/s}$$

56. Ans (1)

If particle starts from Mean positions $\phi = 0$. Therefore.

$$y = A \sin \omega t$$

$$\frac{\sqrt{3}}{2}A = A\sin\left(\frac{2\pi}{T}.3\right)$$
$$\sin\left(\frac{\pi}{3}\right) = \sin\left(\frac{2\pi}{T}.3\right)$$
$$T = 18 \text{ sec.}$$

57. Ans (1)

$$MP = 5 = \left| -\frac{f_0}{f_e} \right| \Rightarrow f_0 = 5f_e$$

$$L = 36 = f_0 + f_e$$

$$36 = f_e + 5 f_e$$

$$6f_e = 36$$

$$f_e = 6 \text{ cm}$$

$$f_0 = 5f_e$$

$$= 5 \times 6 = 30 \text{ cm}$$

58. Ans (2)

$$d_{app.} = \frac{d_{ac}}{\mu}$$

$$d_{app.} = 2 + \frac{3}{\mu} = 4.0 \text{ cm}$$

$$\Rightarrow \mu = \frac{3}{2}$$

$$5 \text{ cm}$$

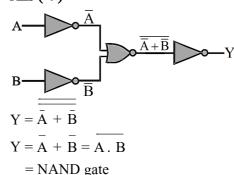
$$3 \text{ cm}$$

$$\tan i_p = \mu$$

$$\tan 60^\circ = \mu$$

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

60. Ans (4)



61. Ans (4)

Capacitor is used to reduce ripples in output.

63. Ans (3)

$$\lambda = \frac{h}{\sqrt{2m(K.\,E.\,)}} \quad(i)$$

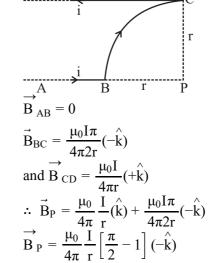
As K.E'.
$$= 3$$
 K.E.

$$\therefore \lambda' = \frac{h}{\sqrt{2m(3K.E.)}}(ii)$$

From (i) and (ii)

$$\lambda' = \frac{1}{\sqrt{3}}\lambda$$

65. Ans (4)



66. Ans (2)

Lorentz force

$$\overrightarrow{F} = \overrightarrow{F}_{e} + \overrightarrow{F}_{B}$$

$$\vec{F} = \vec{qE} + \vec{q(v \times B)}$$

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67. Ans (2)

For a diamagnetic substance χ is small, negative and independent of temperature.

68. Ans (3)

As inward B decreases, so CW current in bigger loop & ACW current in smaller loop.

$$i_0 = \frac{V_0}{R} = \frac{10}{2} = 5A$$

$$U = \frac{1}{2}Li_0^2 = \frac{1}{2} \times 2 \times 25 = 25J$$

70. Ans (2)

when charge is placed at centre of cube flux passing through cube is $\frac{q}{\epsilon_0} = 4\pi kq$ and flux passing through each face is $\frac{4\pi kq}{6}$

71. Ans (1)

Use successive reduction Technique.

72. Ans (1)

$$P = I^2R (I = same)$$

$$P \propto R$$

$$R_{50} > R_{75} > R_{100}$$

$$P_{50} > P_{75} > P_{100}$$

73. Ans (1)

$$V_{\text{rms}} = \sqrt{\left(2\sqrt{2}\right)^2 + \frac{\left(16\right)^2}{2}}$$
$$= 11.66$$

74. Ans (3)

$$[k] = \left[\frac{d^4x}{dt^4}\right] = \frac{[x]}{[T^4]} = \frac{[L]}{[T^4]} = [LT^{-4}]$$

75. Ans (2)

$$\overline{v} = 20\hat{i} + 40\hat{j}$$

$$\overline{v} = 4\cos\theta \,\hat{i} + 4\sin\theta \,\hat{j}$$

$$T = \frac{2u \sin \theta}{g} \Rightarrow T = \frac{2 \times 40}{10} \Rightarrow T = 8s$$

76. Ans (3)

$$v_{Rm} = \sqrt{v_m^2 + v_R^2}$$

 $v_{Rm} = \sqrt{100 + 9} = \sqrt{109} \text{ km/h}$

77. Ans (1)

$$v^{2} = u^{2} + 2as$$

$$0 = (10)^{2} + 2(-\mu g)(50) \ [\because a = -\mu g]$$

$$\mu = \frac{100}{2 \times 500} \Rightarrow 0.1$$

78. Ans (2)

$$m = 2kg$$

$$u = 5 \text{ ms}^{-1}$$

$$I = F\Delta t = \Delta p = Area under curve$$

$$p_f - p_i = \frac{1}{2} \times 20 \times 10$$

 $p_f = 100 + 2 \times 5 = 110 \text{ N. sec}$

79. Ans (2)

$$\frac{mv^2}{r} = \mu mg$$

$$v^2 = \mu rg$$

$$v^2 = 900$$

$$v = 30 \text{ m/s}$$

80. Ans (3)

COM of:

Semicircular Disc =
$$\frac{4R}{3\pi}$$

Semicircular Ring = $\frac{2R}{\pi}$
Solid hemisphere = $\frac{3R}{8}$
Hemispherical shell = $\frac{R}{2}$

81. Ans (3)

I = 2 kg - m²

$$\tau = (15)(0.3) = 4.5 \text{ N-m}$$

 $\alpha = \frac{\tau}{I} = \frac{4.5}{2} = 2.25 \text{ rad/s}^2$

82. Ans (2)

$$W = E_2 - E_1 = \frac{GMm}{2} \left(\frac{1}{2R} - \frac{1}{3R} \right) = \frac{GMm}{12R}$$

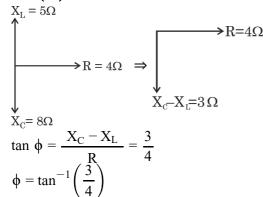
83. Ans (4)

$$Y = \frac{FL}{A\Delta L} \text{ or } Y = \frac{1.2 \times 10^{2} \times 2}{2 \times 10^{-6} \times 0.5 \times 10^{-3}}$$
$$Y = 2.4 \times 10^{11} \text{ N/m}^{2}$$

$$T = \frac{\text{rh}\rho g}{2} \Rightarrow 75 \times 10^{-3} = \frac{3 \times 10^{-2} \times r \times 10^{3} \times 9.8}{2}$$
$$\Rightarrow r = \frac{1}{2} \text{mm} \quad \therefore \quad D = 2r = 1 \text{mm}$$

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 $X_C > X_L$ so current lead voltage.

SECTION-B

86. Ans (2)

$$L_{100^{\circ}\text{C}} = 100 \text{ cm}, L_{0^{\circ}\text{C}} = 75 \text{ cm}$$

$$\frac{80 - 75}{100 - 75} = \frac{C - 0}{100 - 0} \Rightarrow C = 20^{\circ}\text{C}$$

87. Ans (3)

Theory

88. Ans (2)

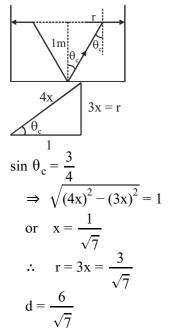
For polytropic process

$$W = \frac{\mu R \Delta T}{1 - x} \qquad PV^{x} = K \text{ as } PV^{-2} = a$$

Here $x = -2$

$$W = \frac{\mu R(T_2 - T_1)}{1 - (-2)}$$
$$= \frac{1}{3}R(T_2 - T_1)$$

89. Ans (3)



$$\begin{aligned} &\frac{I_1}{I_2} = \frac{1}{4}, I_{max} = 9, \quad I_{min} = 1 \\ &\frac{I_{max} - I_{min}}{I_{max} + I_{min}} = \frac{9 - 1}{9 + 1} = \frac{8}{10} = \frac{4}{5} = 0.8 \end{aligned}$$

$$ev_0 = \frac{1}{2}mv^2$$

$$v_0 = \frac{v^2}{2(\frac{e}{m})} = \frac{(1.2 \times 10^6)^2}{2 \times 1.8 \times 10^{11}}$$

$$v_0 = 4V$$

92. Ans (4)

As number of photons incident per second doubles number of electrons emitted also doubles so saturation current doubles.

But
$$eV_{S1} = hv - \phi$$

 $eV_{S2} = 2hv - 2\phi + \phi$
 $eV_{S2} = 2 eV_{S1} + \phi$
 $V_{S2} > 2V_{S1}$

Stopping potential > 20 V

93. Ans (4)

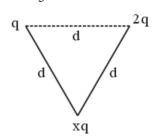
$$\frac{E}{B} = v = \frac{\omega}{k} = \frac{3 \times 10^{11}}{5000} = 6 \times 10^{7}$$
$$E = B \times 6 \times 10^{7} = 480$$

$$F = \frac{Kq_1q_2}{r^2} = 100 \text{ N(i)}$$
Now,
$$F' = \frac{K(1.1q_1)(0.9q_2)}{r^2}$$

$$= 1.1 \times 0.9 \times \frac{Kq_1q_2}{r^2}$$

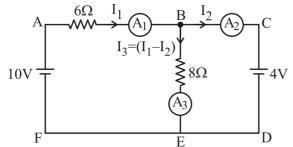
$$= 1.1 \times 0.9 \times 100 = 99 \text{ N}$$

$$\frac{K}{d} [2q^2 + xq^2 + 2xq^2] = 0$$
$$x = -\frac{2}{3}$$



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96. Ans (3)



Loop ABEFA

$$6I_1 + 8(I_1 - I_2) = 10$$

$$14I_1 - 8I_2 = 10$$

or
$$7I_1 = 4I_2 = 5$$
 ...(i)

Loop BCDEB

$$-8(I_1 - I_2) = -4$$

$$8I_1 - 8I_2 = 4$$

$$4I_1 - 4I_2 = 2$$
(ii)

Subtracting (ii) from (i)

$$3I_1 = 3 \Rightarrow I_1 = 1A$$

from eq.(ii)

$$4(1) - 4I_2 = 2$$

$$I_2 = 0.5 \text{ A}$$

and
$$I_3 = I_1 - I_2 = 1 - 0.5 = 0.5 A$$

97. Ans (3)

At point C, $F_{Net} = 0$

and
$$\frac{d_f}{d_x} < 0$$

$$\frac{\partial F}{\partial x} = \frac{-\partial^2 U}{\partial x^2} \left[\because F = -\frac{\partial u}{\partial x} \right]$$
Hence, $\frac{\partial^2 u}{\partial x^2} > 0 \therefore$ Minima

& stable equilibrium

Also, as point c is Mean position force Just before and after position C are directed towards Mean position.

98. Ans (3)

$$(2 \times 3)\hat{i} + (1 \times 4)(-\hat{i}) = (2+1)\vec{v}$$

$$2\hat{i} = 3\vec{v}$$

$$\vec{v} = \frac{2}{3}\hat{i} \text{ m/s}$$

99. Ans (1)

$$I_i = \frac{2(0.2)^2}{2}$$
 for Disc only

 $w_i = 30 \text{ rad/sec}$

$$I_{final} = \left[\frac{2(0.2)^2}{2} + 0.25(0.2)^2 \right]$$

$$w_f = ?$$

$$I_i w_i = I_f w_f [\because \tau_{net} = 0]$$

100. Ans (1)

$$T^2 \propto r^3$$

$$\frac{T_1}{T_2} = \left(\frac{r_1}{r_2}\right)^{3/2}$$

$$\frac{24}{T_2} = (4)^{3/2} \implies T_2 = 3 \,\text{hrs.}$$

SUBJECT: BOTANY

SECTION-A

101. Ans (1) NCERT-XI, Pg. No. # 23

102. Ans (4) NCERT-XI, Pg. # 32, 33

103. Ans (3) NCERT-XI, Pg. No. # 24

104. Ans (2) NCERT-XI, Pg. No. # 19

105. Ans (4) NCERT-XI, Pg. No. # 13

106. Ans (3) NCERT-XI, Pg. No. # 33,35, 38, 40

107. Ans (1) NCERT XI, Pg # 71

108. Ans (1) NCERT-XI, Pg. # 79

109. Ans (3) NCERT-XI, Pg. # 75

110. Ans (3) NCERT-XI, Pg. # 91, 92, 93

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- 111. Ans (4) NCERT-XI, (E) Pg. # 93
- 112. Ans (3) NCERT-XI, Pg. # 93
- 113. Ans (4) NCERT-XI, Pg. # 212
- **114. Ans (3)** NCERT-XI, Pg. # 217
- 115. Ans (4) NCERT-XI, Pg. # 228, 229, 231, 232 हिन्दी # 229, 231, 232, 233
- **116. Ans (3)** NCERT-XI Pg. # 201
- 117. Ans (4) NCERT-XI, Pg.# 246
- **118. Ans (1)** NCERT-XI, Pg. # 248, 249, 250
- 119. Ans (3) NCERT-XII, Pg. # 113
- **120. Ans (4)** NCERT-XII, Pg. # 113
- **121. Ans (4)** NCERT-XII Pg.39
- **122. Ans (2)** NCERT-XII, Pg. # 19
- 123. Ans (2) NCERT-XII, Pg. # 71, 72
- **124. Ans (3)**XII NCERT Page No. # 83, 84, 87 (E), 95, 93 (H)
- 125. Ans (2) NCERT-XII, Pg. # 94, 98
- **126. Ans (1)** NCERT-XII, Pg. # 115
- **127. Ans (3)** NCERT-XII, Pg. # 109
- 128. Ans (1) XII NCERT Pg # 187

- **129. Ans (4)** NCERT-XII, Pg. # 108
- 130. Ans (2) NCERT XII Pg#88
- 131. Ans (4)
 XII NCERT: 255
- 132. Ans (3) NCERT-XII, Pg. # 264
- 133. Ans (2) NCERT XII, Pg. # 236-237
- **134. Ans (1)** NCERT-XII, Pg. # 227
- 135. Ans (2) NCERT-XII, Pg. # 230

SECTION-B

- 136. Ans (2) NCERT-XI Pg.#9
- 137. Ans (1) NCERT XI, Pg.No.#38-39
- **138. Ans (4)** XI-NCERT page No. # 67, 71
- **139. Ans (2)** NCERT-XI, Eng Pg. # 97
- **140. Ans (4)**NCERT XI Pg # 222 223
- **141. Ans (3)** NCERT-XI, Pg. # 232
- **142. Ans (3)** NCERT-XI Pg. # 20
- **143. Ans (2)**NCERT XI Pg. # 154, 159
- 144. Ans (2) NCERT-XII, Pg. # 38
- **145. Ans (2)** NCERT-XII, Pg. # 89
- 146. Ans (3) NCERT XII Pg#109,111

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- **147. Ans (1)** NCERT-XII, Pg. # 158
- 148. Ans (2) NCERT-XII, Pg. # 243
- **149. Ans (3)** NCERT-XII, Pg. # 265
- **150. Ans (2)** NCERT-XII, Pg. # 231-232

SUBJECT: ZOOLOGY

SECTION-A

- **153. Ans (3)** Module-4 Pg#53
- **159. Ans (1)** NCERT Page No. 119
- **161. Ans (3)** NCERT-XI Pg. # 278, 279, 280
- **162. Ans (1)** NCERT-XII, Pg. # 272
- **166. Ans (4)** NCERT Pg. # 43
- **168. Ans (4)** NCERT, Pg. # 332, 333, 334, 338
- 171. Ans (3) NCERT-XII, Pg. # 48
- 172. Ans (2)
 NCERT-XII, Pg. # 213
 Genetic Engineering Approval Committee
- 173. Ans (1) Module-8, Pg#60
- **174. Ans (3)** NCERT-XII Pg# 54, 3.7
- 175. Ans (3) NCERT-XII Pg#60
- **180. Ans (3)** NCERT-XI, Pg. # 139
- **181. Ans (3)** NCERT-XI, Pg. # 133
- **182. Ans (2)** NCERT-XII, Pg. # 113

- **183. Ans (3)** NCERT-XI, Pg # 142
- **184.** Ans (3) NCERT-XII, Pg. # 195
- **185. Ans (3)** NCERT- XII, Pg.# 169

SECTION-B

- **186. Ans (3)** NCERT Pg.# 169
- **187. Ans (4)** NCERT Pg.# 213
- **188. Ans (2)** NCERT XI, Pg.No.#164-166
- 189. Ans (3) NCERT, Pg. No. # 147
- **190. Ans (3)**NCERT Page No.- 50
- **191. Ans (3)** NCERT Pg. # 48
- **192. Ans (3)** NCERT Pg. # 112
- 193. Ans (3) NCERT Pg. # 102
- **194. Ans (4)** NCERT Pg. # 283
- **195. Ans (1)** NCERT-XI, Pg. No. # 268
- **196. Ans (3)**NCERT XIth, Pg. # 236
- 197. Ans (3) NCERT Pg. # 335
- **198. Ans (4)** NCERT Pg. # 307 (Figure 20.4)
- **199. Ans (4)** NCERT Pg # 147
- **200.** Ans (3) NCERT Pg # 141 (E), 154 (H)