

SAMPLE PAPER # 04

TARGET : PRE-MEDICAL 2022

Test Type : SAMPLE PAPER

Test Pattern : NEET (UG)

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

HINT - SHEET

SUBJECT : PHYSICS

SECTION-A

1. **Ans (3)**

$$\frac{\Delta V}{V} = \frac{3\Delta R}{R}$$

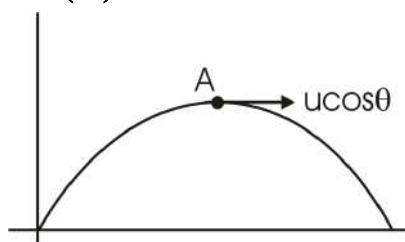
2. **Ans (1)**

$$x = 4 - 2t + t^2$$

$$v = \frac{dx}{dt} = 2t - 2$$

$$\text{speed} = |2t - 2|$$

3. **Ans (3)**



$$\frac{U_A}{K_A} = 3 \Rightarrow \frac{mgH_{\max}}{\frac{1}{2}m(u \cos \theta)^2} = 3$$

$$\frac{20 \left(\frac{u^2 \sin^2 \theta}{20} \right)}{u^2 \cos^2 \theta} = 3$$

$$\tan \theta = \sqrt{3} \Rightarrow \theta = 60^\circ$$

5. **Ans (3)**

Loss in potential energy = Gain in kinetic energy

$$\Rightarrow U = \frac{1}{2}mv^2 \Rightarrow m = \frac{2U}{v^2}$$

7. **Ans (1)**

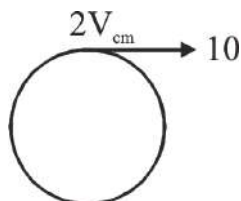
$$h_n = he^{2n} = 32 \left(\frac{1}{2} \right)^4 = \frac{32}{16} = 2m$$

(here $n = 2$, $e = 1/2$)

8. **Ans (2)**

MOI is always minimum about an axis passing through C.O.M.

9. Ans (2)



$$2V_{cm} = 10$$

$$V_{cm} = 5$$

10. Ans (2)

$$100 \times \frac{\Delta g}{g} = \frac{\Delta m}{m} \times 100 - 2 \frac{\Delta Re}{Re} \times 100$$

$$-1 + -2 \times -1$$

$$-1 + 2$$

$$= 1\%$$

increase by 1%

11. Ans (3)

$$V \propto \frac{1}{\sqrt{r}} \quad (r_1 > r_2) [v \rightarrow \text{orbital speed}]$$

$$v_1 < v_2$$

12. Ans (1)

Level flight means net vertical force is zero

$$\therefore mg = \Delta P \times A$$

$$\Delta P = \frac{mg}{A} = \frac{3 \times 10^4 \times 10}{120}$$

$$= 2.5 \times 10^3 \text{ Pa} = 2.5 \text{ kPa}$$

13. Ans (2)

Velocity of fluid near the wall will be lesser.

14. Ans (3)

$$Q = ms\Delta T + mL$$

$$290 = 10 \times \frac{1}{2} \times 10 + m \times 80$$

$$290 = 50 + m \times 80$$

$$80m = 240$$

m mass of ice meltie water obtained = 3gm

15. Ans (2)

$$\lambda_m T = \text{constant}$$

$$(\lambda_m)_1 T_1 = (\lambda_m)_2 T_2$$

$$(\lambda_m)_2 = \frac{(\lambda_m)_1 T_1}{T_2}$$

$$= \frac{4000 \times 10^{-10} \times 3}{2}$$

$$(\lambda_m)_2 = 6000 \text{ \AA}$$

16. Ans (3)

$$\gamma = \frac{C_P}{C_V} = \frac{C_V + R}{C_V} = \frac{\frac{1}{2}fR + R}{\frac{1}{2}fR} = \frac{f+2}{f}$$

$$\Rightarrow \gamma f - f = 2 \Rightarrow f = \frac{2}{\gamma - 1}$$

17. Ans (4)

$$V_{rms} = \sqrt{\frac{3RT}{M_w}}$$

$$T' = \frac{T}{2}$$

$$M'_w = 2M_w$$

$$V'_{rms} = \sqrt{\frac{3R}{2M_w} \times \frac{T}{2}}$$

$$= \frac{1}{2} \sqrt{\frac{3RT}{M_w}} = \frac{V_{rms}}{2} = \frac{300}{2} = 150 \text{ m/s}$$

18. Ans (1)

$$\text{COP} = \frac{T_2}{T_1 - T_2}$$

$$T_1 = 300 \text{ K}$$

$$T_2 = 263 \text{ K}$$

$$\text{COP} = \frac{263}{300 - 263} = 7.1$$

19. Ans (2)

$$T = 2\pi \sqrt{\frac{\ell}{g}}$$

$$T \propto \sqrt{\ell}$$

$$T^2 \propto \ell$$

it is parabola

21. Ans (2)

$$n' = n \left(\frac{2v}{c} \right)$$

$$2.6 \times 10^3 = \frac{780 \times 10^6 \times 2v}{3.0 \times 10^8}$$

$$v = 0.5 \text{ km/sec.}$$

22. Ans (1)

$$\int_0^A dV = - \int_0^2 Edx$$

$$V_A - V_0 = - \int_0^2 30x^2 dx$$

24. Ans (4)

Let original charge be Q_0

$$\text{then } \frac{(Q_0 + 2)^2}{2C} - \frac{Q_0^2}{2C} = \frac{21}{100} \left(\frac{Q_0^2}{2C} \right)$$

$$\Rightarrow \left(\frac{Q_0 + 2}{Q_0} \right)^2 = \frac{121}{100}$$

$$\Rightarrow 1 + \frac{2}{Q_0} = 1.1$$

$$\Rightarrow Q_0 = 20C$$

25. Ans (4)

$$j = \frac{i}{A} \text{ and } i = \frac{V}{R} \Rightarrow j = \frac{V}{RA}$$

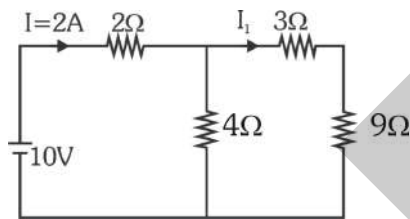
$$\text{using } R = \frac{1}{\sigma} \cdot \frac{\ell}{A} \quad j = \frac{V\sigma}{\ell} \quad (\text{or as } J = \sigma E)$$

$$\text{using values } j = 20 \times 10^6 \text{ A/m}^2$$

26. Ans (3)

$$I = \frac{10}{3+2} = 2\text{A}$$

$$I_1 = \frac{I \times 4}{16} = \frac{1}{2}\text{A}$$



27. Ans (2)

$$P = \frac{V^2}{R}$$

28. Ans (1)

Magnetic field inside the hollow metallic cylinder $B_{in} = 0$, and magnetic field outside it

$$B_{out} \propto \frac{1}{r}$$

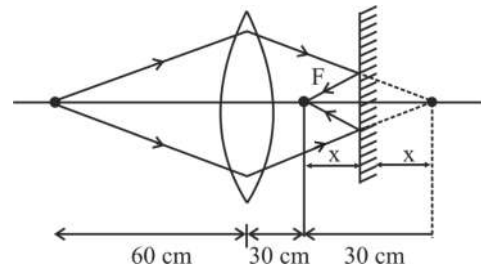
33. Ans (3)

$C = \frac{E}{B}$ = speed of electromagnetic wave in vacuum.

34. Ans (1)

Beam is converged before retina to correct it diverging lens is required this defect is myopia.

35. Ans (4)



$$2x = 30 \text{ cm}$$

$$x = 15 \text{ cm}$$

Distance of mirror from lens

$$= 30 + x = 45 \text{ cm}$$

SECTION-B

36. Ans (4)

$$\sin \theta_C = \frac{V_D}{V_r} = \frac{1.8}{2.4} = \frac{3}{4}$$

$$\theta_C = \sin^{-1} \frac{3}{4}$$

37. Ans (3)

$$n_1 \lambda_1 = n_2 \lambda_2$$

$$60 \times 4000 = n_2 \times 6000$$

$$n_2 = 40$$

38. Ans (1)

$$a \sin \theta = 2\lambda$$

$$\lambda = \frac{a \sin \theta}{2} = \frac{24 \times 10^{-7} \times \sin 30^\circ}{2} = 6000 \text{ \AA}$$

39. Ans (2)

Velocity at highest point = $u \sin \theta$

$$\therefore \lambda_D = \frac{h}{mu \sin \theta}$$

(Since θ is angle w.r.t. vertical)

40. Ans (1)

$$p = \frac{h}{\lambda} \Rightarrow mv = \frac{h}{\lambda}, v = \frac{h}{m\lambda}$$

41. Ans (4)

As, Binding energy; $B = (\Delta m)C^2$

$$\text{or } (\Delta m) = B/C^2$$

$$NMn + ZM_p - M(N, Z) = B/C^2$$

$$\therefore M(N, Z) = NMn + ZM_p - B/C^2$$

SUBJECT : CHEMISTRY

SECTION - A

42. Ans (4)

$$\text{Activity } R_1 = N_1 \lambda \quad \& \quad R_2 = N_2 \lambda$$

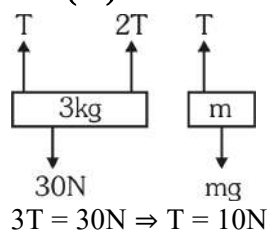
$$R_1 = N_1 \frac{\ln 2}{T} \quad ; \quad R_2 = N_2 \frac{\ln 2}{T}$$

Thus disintegrated amount is $N_1 - N_2$

$$N_1 - N_2 = \frac{(R_1 - R_2) T}{\ln 2}$$

$$(N_1 - N_2) \propto (R_1 - R_2) T$$

46. Ans (1)



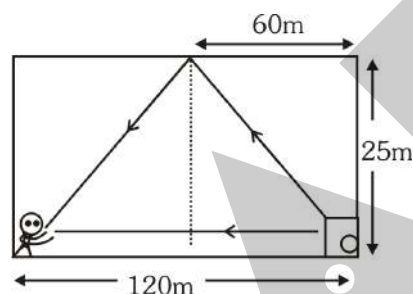
47. Ans (4)

$$\tau = I \alpha$$

$$\alpha = \frac{20}{12} = \frac{5}{3} \text{ rad/s}^2$$

$$t = \frac{W_f - W_i}{\alpha}$$

48. Ans (2)



for constructing interference

$$\Delta x = n \lambda$$

$$\left[2\sqrt{60^2 + 25^2} - 120 \right] = n \lambda$$

$$10 = n \lambda$$

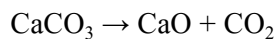
$$\lambda = 10, 5, \frac{10}{3}$$

49. Ans (1)

$$k \frac{\lambda_1}{R} = 2 \frac{k \lambda_2}{R}$$

$$\lambda_1 = 2 \lambda_2$$

51. Ans (4)



$$\frac{56 \times 10^3}{56} \text{ mol}$$

Moles of CaCO_3 = moles of CaO

$$= \frac{56 \times 10^3}{56} = 1 \times 10^3 \text{ mole}$$

wt of $\text{CaCO}_3 = 1 \times 10^3 \times 100 \text{ g}$

$$= 100 \text{ kg}$$

52. Ans (1)

$$\frac{T_{\text{He}^+}}{T_{\text{Li}^{2+}}} = \frac{\left(\frac{n^3}{Z^2}\right)_{\text{He}^+}}{\left(\frac{n^3}{Z^2}\right)_{\text{Li}^{2+}}} = \frac{\left(\frac{2^3}{2^2}\right)}{\left(\frac{4^3}{3^2}\right)} = \frac{9}{32}$$

53. Ans (2)

$$\begin{aligned} \text{Rate} &= k[2A]^2 \times [2B]^3 \\ &= 32k[A]^2 \times [B]^3 \end{aligned}$$

54. Ans (3)

$$\Delta H < 0, \Delta S > 0, \Delta G = \Delta H - T \Delta S$$

Reaction is spontaneous at any temperature.

55. Ans (2)

$$\Delta H = \Delta H_2 - \Delta H_1$$

56. Ans (3)

Fact

57. Ans (2)

$$\text{For tetrahedral } 0.225 \leq \frac{r^+}{r^-} < 0.414$$

59. Ans (3)

$$\Delta H = E_f - E_b$$

$$-92 = 200 - E_b$$

$$E_b = 292 \text{ kcal}$$

60. Ans (3)

In solution AgI/Γ^- and K^+ . So that K^+ move towards cathode and AgI/Γ^- move towards anode.

61. Ans (2)

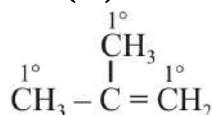
$$P_T = P_A X_A + P_B X_B$$

$$= P_A X_A + P_B (1 - X_A)$$

$$= P_A X_A + P_B - P_B X_A$$

$$P_T = P_B + X_A (P_A - P_B)$$

62. Ans (2)



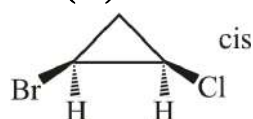
Isobutylene has 8 1°H and no other H.

63. Ans (3)

Functional group = different

\therefore Functional isomers

64. Ans (1)

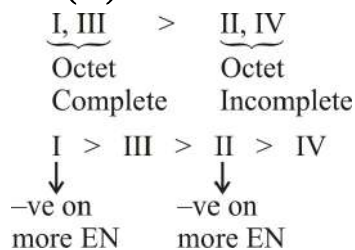


65. Ans (2)

If -ve charge atom in same period then

$$\text{Basic strength} \propto \frac{1}{\text{EN}}$$

66. Ans (2)



67. Ans (1)

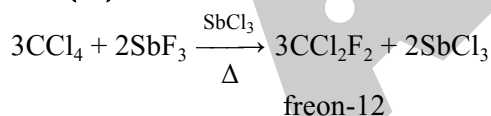
Reaction is called Wurtz fittig reaction.

68. Ans (4)

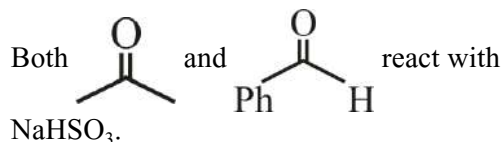
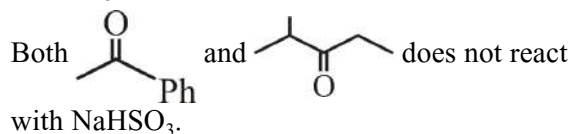
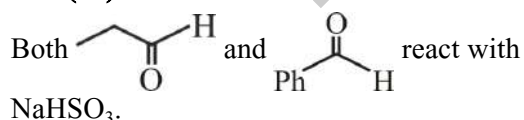
$$\text{Acidic strength} \propto \frac{-M, -H, -I}{+M, +H, +I}$$

(I) is most acidic due to -M of 3 $-\text{NO}_2$ groups.

69. Ans (3)

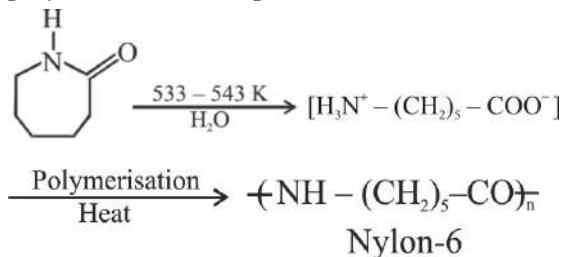


71. Ans (4)



74. Ans (4)

Nylon-6 is the polymer formed by polymerisation of caprolactam.



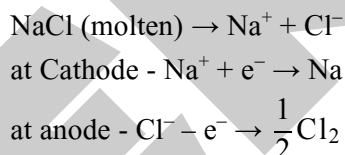
75. Ans (4)

Acidic nature of oxide \propto EN of central atom.

76. Ans (1)



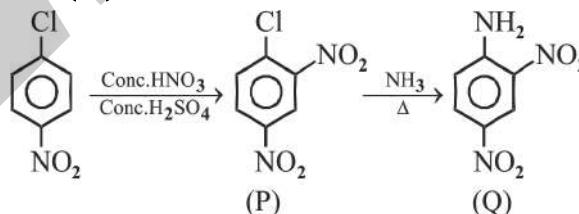
77. Ans (4)



80. Ans (2)



85. Ans (3)

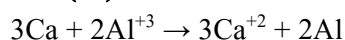


SECTION - B

86. Ans (1)

WB and salt of WB with SA form Buffer solution.

87. Ans (3)



88. Ans (2)

$$\text{Rate of Reaction} = K[\text{Conc.}]^n$$

89. Ans (2)

$$\lambda_0 = \frac{1000 \times K}{S}$$

$$138 = \frac{1000 \times 1.38 \times 10^{-6}}{S}$$

$$S = 1 \times 10^{-5} \quad ; \quad K_{sp} = S^2 = (10^{-10})$$

SUBJECT : BOTANY

SECTION-A

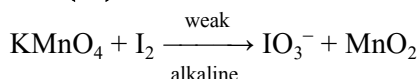
90. **Ans (3)**



92. **Ans (4)**

In mono atomic anion compound thermal stability decreases down the group.

93. **Ans (4)**



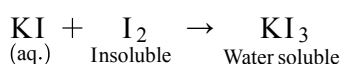
94. **Ans (1)**

$[\text{Fe}(\eta^5(\text{C}_5\text{H}_5)_2)] \rightarrow$ Bis(η^5 -cyclopentadienyl) iron(II)

95. **Ans (2)**

Trans isomer

97. **Ans (4)**



98. **Ans (4)**

Atoms along any one of the diagonal plane of symmetry are removed.

4 corner atoms removed

2 face centre atoms removed

1 body centre atoms removed

2 edge centre atoms removed

$$\text{no. of A atoms} = 4 \times \frac{1}{8} = \frac{1}{2}$$

$$\text{no. of B atoms} = 4 \times \frac{1}{2} = 2$$

$$\text{no. of D atoms} = 10 \times \frac{1}{4} = \frac{5}{2}$$

$$\text{Formula of the compound} = \frac{A_1}{2} B_2 \frac{D_5}{2}$$

$$= \text{AB}_4\text{D}_5$$

99. **Ans (2)**

$$R = k[A]^1$$

$$1 \times 10^{-3} = k[0.1 \text{ M}]$$

$$k = 10^{-2} \text{ s}^{-1}$$

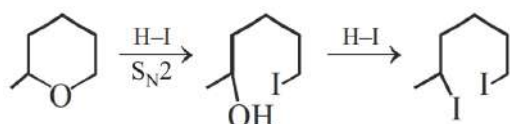
$$\text{or } 2 \times 10^{-3} = K [0.2 \text{ M}]$$

$$K = 10^{-2} \text{ s}^{-1}$$

$$\text{or } 3 \times 10^{-3} = K [0.3 \text{ M}]$$

$$K = 10^{-2} \text{ s}^{-1}$$

100. **Ans (3)**



101. **Ans (3)**

NCERT XII Pg # 70

102. **Ans (2)**

NCERT XII Pg # 89

103. **Ans (4)**

Logical/Numonical

104. **Ans (1)**

NCERT XII Pg # 77

105. **Ans (1)**

Mixed

106. **Ans (3)**

NCERT XII Pg # 97

107. **Ans (2)**

NCERT XII Pg # 99

108. **Ans (2)**

Logical

109. **Ans (1)**

NCERT XII Pg # 175

110. **Ans (3)**

NCERT XII Pg # 183

111. **Ans (1)**

NCERT Pg. # 106

112. **Ans (2)**

NCERT XI Pg # 78, 80-81

113. **Ans (3)**

NCERT XI Pg # 73

114. **Ans (3)**

Bougainvillea, Euphorbia, Turmeric, Colocasia, Opuntia, Chrysanthemum are example of modification of stem (NCERT XI Pg # 68-69).

115. **Ans (4)**

In dicotyledonous roots, vascular cambium is completely secondary in origin (NCERT XI Pg # 94, 96-97).

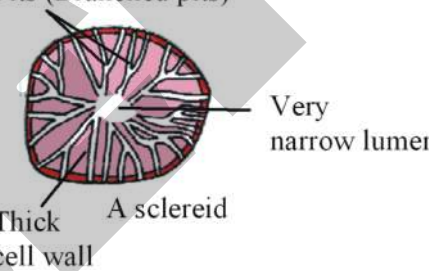
116. **Ans (3)**

NCERT XII Pg # 10, 13, 14, 15

117. **Ans (3)**
NCERT XI Pg # 31
118. **Ans (4)**
NCERT XII Pg # 21, 26
Nucellus is $2n$, while rest there are n .
119. **Ans (4)**
NCERT XII Pg # 23, 25, 36, 38
120. **Ans (3)**
NCERT XI Pg # 179-180
121. **Ans (3)**
NCERT Pg # 199
122. **Ans (4)**
NCERT XI Pg # 220
123. **Ans (2)**
NCERT XI Pg # 140
124. **Ans (1)**
NCERT Pg # 167, 170
125. **Ans (2)**
NCERT XI Pg # 20
126. **Ans (1)**
NCERT XI Pg # 38
127. **Ans (3)**
NCERT XI Pg # 42
128. **Ans (3)**
NCERT XI Pg # 33, 35, 36, 38
129. **Ans (3)**
NCERT XII Pg # 243
130. **Ans (3)**
NCERT XII Pg # 241, 243
131. **Ans (2)**
NCERT XII Pg # 258
132. **Ans (4)**
NCERT XII Pg # 262
133. **Ans (2)**
NCERT XII Pg # 279
134. **Ans (3)**
NCERT XII Pg # 273

135. **Ans (1)**
NCERT XII # 236, 237

SECTION-B

136. **Ans (2)**
NCERT XII Pg # 122
137. **Ans (1)**
NCERT XII Pg # 187
138. **Ans (1)**
NCERT XII Pg # 76, 77
139. **Ans (3)**
NCERT XI Pg # 80
140. **Ans (4)**
NCERT XI Pg # 86
Pits (Branched pits)
- 
- Very narrow lumen
- Thick cell wall
- A sclereid
141. **Ans (3)**
NCERT XII Pg # 34, 35, 36, 38
Hint : Statement A, B, D and E are correct.
142. **Ans (1)**
NCERT XI Pg # 222 Fig. 13.10
143. **Ans (4)**
NCERT Pg # 232, fig-14.3
144. **Ans (1)**
NCERT Pg # 248
145. **Ans (3)**
NCERT XI Pg # 137, 138
146. **Ans (2)**
NCERT XI Pg # 164, 165, 171
147. **Ans (3)**
NCERT XI Pg # 23, 24
148. **Ans (1)**
NCERT XI Pg # 34, 35, 36, 44

149. **Ans (4)**

NCERT XII Pg # 221

150. **Ans (3)**

NCERT XII Pg # 266, 267

SUBJECT : ZOOLOGY

SECTION-A

151. **Ans (2)**

NCERT XII, Page # 147

152. **Ans (2)**

NCERT XII, Page # 154

153. **Ans (2)**

NCERT, Page # 146

154. **Ans (3)**

NCERT XI, Page # 144

155. **Ans (2)**

NCERT Page # 149

156. **Ans (2)**

NCERT Page # 46

157. **Ans (2)**

NCERT Page # 51

158. **Ans (1)**

NCERT Page # 51

159. **Ans (4)**

NCERT Page # 61

160. **Ans (3)**

NCERT Page # 276

161. **Ans (3)**

NCERT Page # 272

162. **Ans (4)**

NCERT Page # 279

163. **Ans (4)**

NCERT Page # 286

164. **Ans (1)**

NCERT XI, Page # 104

165. **Ans (3)**

NCERT XI, Page # 259

166. **Ans (1)**

NCERT XI, Page # 259

167. **Ans (3)**

NCERT XI, Page # 295

168. **Ans (1)**

NCERT XI, Page # 312

169. **Ans (4)**

NCERT XI, Page # 312

170. **Ans (3)**

NCERT XII, Page # 127

171. **Ans (1)**

NCERT XII, Page # 130

172. **Ans (2)**

NCERT XII, Page # 200

173. **Ans (3)**

NCERT XII, Page # 208

174. **Ans (3)**

NCERT XII, Page # 198

175. **Ans (1)**

NCERT XII, Page # 208/209

176. **Ans (4)**

NCERT, Page # 53

177. **Ans (4)**

NCERT, Page # 52

178. **Ans (3)**

NCERT, Page # 112(E), 113(H)

179. **Ans (2)**

NCERT, Page # 113(E), 114(H)

180. **Ans (4)**

NCERT, Page # 110

181. **Ans (1)**

NCERT Pg # (E) 332, (H) 333

182. **Ans (1)**

NCERT Pg # (E) 332, (H) 333

183. Ans (4)
NCERT Pg # 333

184. Ans (3)
NCERT Pg # 326(E), 325(H)

185. Ans (2)
NCERT Pg # 324

SECTION-B

186. Ans (1)
NCERT XII, Page # 158, 159

187. Ans (4)
NCERT XI, Page # 145

189. Ans (2)
NCERT Page # 274

190. Ans (4)
NCERT Page # 285

191. Ans (4)
NCERT XI, Page # 101

193. Ans (3)
NCERT XI, Page # 295

194. Ans (2)
NCERT XII, Page # 129

195. Ans (3)
NCERT XII, Page # 210/211

196. Ans (4)
NCERT XII Page # 205

197. Ans (2)
NCERT, Page # 108

198. Ans (1)
NCERT, Page # 53 (E), 53 and 54 (H)