DATE : 24-02-2025 **NEET - 12** **Max. Marks - 720**

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

HINT – SHEET

SUBJECT : PHYSICS

SECTION - A

1. Ans (1)

Given circuit $\overline{\overline{A} + \overline{B}} = AB$ represents AND gate so output is high only when both A & B are high, ans will be option 1.

2. Ans (4)

$Y = \overline{(A.B).\overline{C}}$

$= \overline{A.B} + C$

$= \overline{A} + \overline{B} + C$

= 0 for A = 1

B = 1

& C = 0

3. Ans (1)

LED work always on the forward biasing condition & it emits light when energised
So increase the frequency of light emitted from LED, the potential barrier of Diode is increased.
So for the same value of current, a higher value of voltage is required for higher frequency.

4. Ans (1)

Energy released = B.E. of (A + B) – BE of (X)
= 110 × 8.2 + 90 × 8.2 – 200 × 7.4
= 160 MeV

5. Ans (4)

In first case

$K = \frac{hc}{\lambda} - \phi \quad \ldots(i)$

In second case

$3K = \frac{2hc}{\lambda} - \phi \quad \ldots(ii)$

On solving (i) & (ii) equation

$\phi = \frac{hc}{2\lambda}$

6. Ans (2)

$I = I_0\cos^2\theta$

7. Ans (3)

$$N = \frac{(\mu - 1) \times t}{\lambda}$$

$$7 = \frac{(1.5 - 1) \times t}{6 \times 10^{-7}}$$

$t = 8400$ nm

8. Ans (2)

$$P = \left(\frac{1}{f_1} + \frac{1}{f_2}\right) \times 100 \text{ D} \quad \text{if } f_1 \text{ \& } f_2 \text{ are cm}$$

$$\frac{1}{f_1} = \left(\frac{3}{2} - 1\right)\left(0 - \frac{1}{-10}\right) = \frac{1}{20}$$

$$\frac{1}{f_2} = (2 - 1)\left(-\frac{1}{10} - 0\right) = -\frac{1}{10}$$

$$D = \left(\frac{1}{20} - \frac{1}{10}\right) \times 100 = -5D$$

9. Ans (3)

$$\omega_1 = \frac{\delta_B - \delta_R}{\frac{\delta_B + \delta_R}{2}} = \frac{12 - 8}{\frac{12 + 8}{2}} = \frac{4}{10}$$

$$\omega_2 = \frac{4}{12} \text{ so } \frac{\omega_1}{\omega_2} = \frac{4/10}{4/12} = \frac{6}{5}$$

10. Ans (3)

$$m = \frac{f}{f - u} \qquad m = \frac{f}{f - u}$$

$$-2 = \frac{f}{f - (-30)} \qquad 2 = +\frac{-20}{-20 - u}$$

$2f + 60 = -f$ $\qquad +40 + 2u = +20$

$f = -20$ cm $\qquad u = \frac{-20}{2} = -10$ cm

11. Ans (4)

$E = 1.2 \sin(2 \times 10^6 t - Kx)$ N/C

$$C = \frac{E_0}{B_0} \Rightarrow B_0 = \frac{E_0}{C}$$

$$H \text{ (magnetic field intensity)} = \frac{B_0}{\mu_0} \quad \because \quad B_0 = \mu_0 H$$

$$H = \frac{E_0}{\mu_0 C} = \frac{1.2}{4\pi \times 10^{-7} \times 3 \times 10^8} = \frac{10^{-2}}{\pi} \text{A/m}$$

12. Ans (4)

$$f = \frac{2\pi \times 10^6}{2\pi} = 10^6 \text{Hz}$$

$$\lambda = \frac{2\pi}{\pi \times 10^{-2}} = 200\text{m}$$

13. Ans (1)

$$IR = 100 \Rightarrow I = \frac{100}{R} = \frac{100}{1000} = 0.1\text{A}$$

$$X_C = \frac{1}{\omega C} = \frac{10^6}{200 \times 2} = 2500\,\Omega$$

At resonance $V_L = V_C = IX_C = 0.1 \times 2500$

$V_C = 250$ V

14. Ans (2)

$$i_0 = \frac{V_0}{Z} = \frac{311}{311} = 1\text{A}$$

$$i = \frac{1}{\sqrt{2}}, \qquad i \sin\phi = 0.5$$

$$\frac{1}{\sqrt{2}} \sin\phi = \frac{1}{2}$$

$\phi = 45°$

$$\cos 45° = \frac{1}{\sqrt{2}}$$

15. Ans (2)

$$i_{rms} = \sqrt{3^2 + 4^2 \times \frac{1}{2}} = \sqrt{17}$$

17. Ans (2)

$x = 8\sin^2 16t = 4(1 - \cos 32t)$

$$\Rightarrow \omega = 32 \Rightarrow f = \frac{32}{2\pi} = \frac{16}{\pi}$$

18. Ans (2)

$$\frac{3 = 2\pi\sqrt{\frac{900}{K}}}{T = 2\pi\sqrt{\frac{400}{K}}}$$

$T = 2$ second

19. Ans (3)

$x = 3 \sin 100t + 4 \cos 100\, t + 4$

$A = 5$

20. Ans (4)

$$E_T = -\frac{GMm}{r} \Rightarrow \frac{E_A}{E_B} = \frac{m_A r_B}{r_A m_B} = 12 : 1$$

21. Ans (2)

$$v_e = \sqrt{2gR}, \qquad v = \sqrt{\frac{8gR}{3}}$$

$v > v_e$

$$v_\infty = \sqrt{V^2 - V e^2}$$

$$v_\infty = \sqrt{\frac{8gR}{3} - 2gR}$$

$$v_\infty = \sqrt{\frac{2gR}{3}}$$

22. Ans (2)

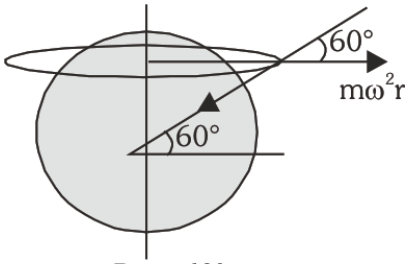
$L = m\sqrt{Gmr}$

$L \propto \sqrt{r}$

23. Ans (3)

$g' = g - \omega^2 R\cos^2 60$

$g' = 0,\ g = \omega^2 R\cos^2 60$



$\sqrt{\frac{4g}{R}} = \omega,\ T = \frac{2\pi}{\omega} = 2\pi\sqrt{\frac{R}{4g}} = \pi\sqrt{\frac{R}{g}}$

24. Ans (2)

From Bernoulli's theorem

$P_{atm} + 0 = P_{out} + \frac{1}{2}\rho V^2$

$P_{atm} - P_{out} = \frac{1}{2}\rho V^2$

$= \frac{1}{2} \times 1.2 \times (40)^2$

$\Delta P = 960\ N/m^2$

Force acting on the roof $F = (\Delta P)A$

$= 960 \times 250$

$= 2.4 \times 10^5\ N$

Pressure inside the roof is greater than outside the roof, so force will act upward direction.

25. Ans (4)

$1.3\ g\ (10) = 0.8g\ (x) + 13.6\ (10 - x)g$

$\Rightarrow x = 9.6\ cm$

26. Ans (3)

$F = \rho a V_1^2 - \rho a V_2^2$

$= \rho a[2g(h + y) - 2gy]$

$= 2\ \rho agh$

27. Ans (1)

$-\frac{\Delta V}{V} = \frac{P}{K} = P \times C$

(C = compressibility)

$(-\Delta V) = V \times P \times C$

$= 100 \times 100 \times 4 \times 10^{-5}$

$(-\Delta V) = 0.4\ CC$

28. Ans (1)

$\eta_1 = \frac{T_1 - T_2}{T_1} = \frac{200}{473}$

$\eta_2 = \frac{T_1 - T_2}{T_1} = \frac{200}{273}$

$\frac{\eta_1}{\eta_2} = \frac{200}{473} \times \frac{273}{200} = \frac{273}{473}$

$\frac{\eta_1}{\eta_2} = 0.577$

29. Ans (3)

$Q = W + \Delta U \quad [W = \frac{Q}{4}]$

$Q = \frac{Q}{4} + \Delta U \quad C$ = Molar specific heat

$\Delta U = \frac{3Q}{4} \Rightarrow \mu C_v \Delta T = \frac{3}{4}\mu CDT \Rightarrow C_v = \frac{3}{4}C$

$C = \frac{4}{3}C_v = \frac{4}{3}\left(\frac{f}{2}R\right)$ [For diatomic gas f = 5]

$C = \frac{4}{3} \times \frac{5}{2}R = \frac{10}{3}R$

31. Ans (4)

$\lambda_1 T_1 = \lambda_2 T_2$ (Stefan's Law)

$T_2 = 2T_1$

As $E = \sigma T_4$

So, $\frac{E_1}{E_2} = \left(\frac{T_1}{2T_1}\right)^4 = \frac{1}{16}$

32. Ans (3)

Heat lost by A = Heat gain by B

$m_A s_A [T_A - T_f] = m_B s_B [T_f - T_B]$

$\frac{m_A}{m_B} \times \frac{s_A}{s_B}[75 - T_f] = [T_f - 15]$

$\frac{2}{3} \times \frac{3}{4} \times [75 - T_f] = [T_f - 15]$

$\Rightarrow 75 - T_f = 2T_f - 30$

$\Rightarrow T_f = 35°C$

33. Ans (3)

$a = \frac{g\sin\theta}{\beta} = \frac{g\sin\theta}{1 + \frac{I}{MR^2}}$

For a solid sphere : $I = \frac{2}{5}MR^2$

$\therefore a = \frac{g\sin 30}{1 + \frac{2}{5}} = \frac{10 \times \frac{1}{2}}{\frac{7}{5}}$

$= \frac{5}{7} \times 5 = \frac{25}{7} m\ s^{-2}.$

34. Ans (4)

Net external torque is zero. Therefore angular momentum of system will remain conserve, i.e.,

$L_i = L_f$

Initial angular momentum $L_i = 0$.

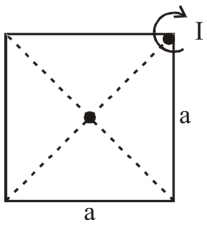
$\therefore$ Final angular momentum should also be zero, or angular moementum of man = angular momentum of platform in opposite direction,

or $mv_0r = I\omega$

$\therefore \quad \omega = \dfrac{mv_0r}{I} = \dfrac{70 \times 1.0 \times 2}{200}$

$\therefore \quad \omega = 0.7$ rad/sec

35. Ans (4)



$$I = \frac{ma^2}{6} + m\left(\frac{a}{\sqrt{2}}\right)^2 = \frac{2}{3}ma^2$$

SECTION - B

36. Ans (4)

$I = neA\upsilon_d \qquad \left(\mu = \dfrac{\upsilon_d}{E}\right)$

So $I = neA\mu E \qquad \left(E = \dfrac{v}{d}\right)$

$I = neA\mu\dfrac{v}{d}$

$= 2 \times 10^{19} \times 1.6 \times 10^{-19} \times 10^{-4} \times \dfrac{(0.36 + 0.14) \times 2}{0.5 \times 10^{-3}}$

$I = 0.64$ A

37. Ans (2)

Transition from (4E to E)

Energy of photon $4E - E = \dfrac{hc}{\lambda_1}$,

thus $\lambda_1 = \dfrac{hc}{3E}$ ....(1)

Transition from ($\dfrac{7}{3}$ E to E)

$\dfrac{7}{3}E - E = \dfrac{hc}{\lambda_2}$

$\lambda_2 = \dfrac{3hc}{4E}$ ....(2)

eq. (1) & (2)

$\dfrac{\lambda_1}{\lambda_2} = \dfrac{4}{9}$

39. Ans (2)

In one fusion reaction energy released is 26 MeV.

In one fission reaction energy released is 200 MeV.

Energy per nucleon in fission (0.85 MeV) << Energy per nucleon in fussion (6.5 MeV) the abundance of hydrogen make it unlimited source of energy.

40. Ans (4)

For minimum in diffraction $a \sin\theta = n\lambda$

41. Ans (1)

For best contrast we require perfect black or zero as minima which is only possible for equal intensity of light.

42. Ans (4)

Here, $f_o = 50$ cm, $f_e = 5$ cm, D = 25 cm

The length of the telescope when the image is formed at the least distance of distinct vision is

$$L = f_o + \frac{f_eD}{f_e + D} = 50 + \frac{5 \times 25}{5 + 25} = 50 + \frac{25}{6} = \frac{325}{6}\text{cm}$$

43. Ans (1)

For eye piece

$u_e = ?$

$v_e = -25$

$f_e = 6.25$

using $\dfrac{1}{v} - \dfrac{1}{u} = \dfrac{1}{f}$

then,

$u_e = -5$ cm

$v_0 = L - |u_e|$

$= 10$ cm

For objective

$f_0 = 2$ cm

$u_0 = ?$

Using

$\dfrac{1}{v} - \dfrac{1}{u} = \dfrac{1}{f}$

$u_0 = -2.5$ cm

44. Ans (1)

$$I = \frac{P}{4\pi r^2} = \frac{B_0^2}{2\mu_0} \times C$$

$$B_0 = \sqrt{\frac{2P\mu_0}{4\pi r^2 C}} = \sqrt{\frac{2 \times 15 \times 10^{-7}}{(2)^2 \times (3 \times 10^8)}}$$

$$= 5 \times 10^{-8}\ T$$

46. Ans (3)

$$f_t - 5 = \frac{V}{2 \times 21} \quad \ldots(1)$$

$$f_t + 5 = \frac{V}{2 \times 20} \quad \ldots(2)$$

$\Rightarrow 2(f_t + 5)20 = 2(f_t - 5)21$

$\Rightarrow 20f_t + 100 = 21f_t - 105$

$\Rightarrow f_t = 205$ Hz

47. Ans (1)

Speed of sound, $V = \sqrt{\frac{\gamma RT}{M_w}}$

$T \longrightarrow$ absolute temperature

$M_w \longrightarrow$ Molecular mass

48. Ans (4)

$$P_{avg} = \frac{1}{2}\mu\omega^2 A^2 V$$

$$P_{avg} = \frac{1}{2}\frac{T}{V^2}\omega^2 A^2 V$$

$$\because\ v = \sqrt{\frac{T}{\mu}} \Rightarrow \mu = \frac{T}{v^2}$$

$$P_{avg} = \frac{1}{2} \times \frac{100}{100} \times \frac{4\pi^2(100)^2(0.50)^2}{(10^3)^2}$$

$P_{avg} = 49$ m watt

49. Ans (2)

Let length of submerged part = h

then $Ah\rho = Al\rho_0$

$$\Rightarrow h = \frac{\rho_0 \ell}{\rho}$$

$$\therefore\ T = 2\pi\sqrt{\frac{h}{g}} \Rightarrow T = 2\pi\sqrt{\frac{\rho_0 \ell}{\rho g}}$$

50. Ans (1)

$F - f = Ma$ ..... (1)

$$(F + f)r = \frac{2}{3}Mr^2.\left(\frac{a}{r}\right) \quad \ldots\ldots (2)$$

$$2F = \frac{5}{3}Ma$$

$$\boxed{a = \frac{6F}{5M}}$$

SUBJECT : CHEMISTRY

SECTION-A

52. Ans (1)

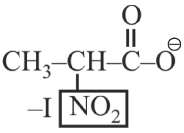
The balanced redox reaction is

$2MnO_4^- + 5C_2O_4^{2-} + 16H^+ \longrightarrow 2Mn^{2+} + 10CO_2 + 8H_2O$

53. Ans (1)

$-I$ effect $\propto$ Acidic strength

$+I$ effect $\propto$ Basic strength



* Most stable anion due to maximum $-I$ effect.

* Most acidic

54. Ans (3)

It has chiral centre and differently di substituted double bonded carbon atoms.

58. Ans (1)

Benzoylation of phenol is known as schotten Baumann reaction.

64. Ans (2)

65. Ans (4)

Isocyanide give secondary amine on reduction.

67. Ans (1)

In victor meyer test, red colouration is given by primary alcohol.

72. Ans (1)

Valine, Leucine isoleucine arginine, Lysine Threonine, Metheonine Phenylalanine, Tryptophan, Histidine are essential amino acids.

75. Ans (2)

For Co^{+3} $(OX)^{-2}$ considered as S.F.L.

76. Ans (3)

$Cu^{+2} + KCN \longrightarrow K_3[Cu(CN)_4]$

excess

82. Ans (4)

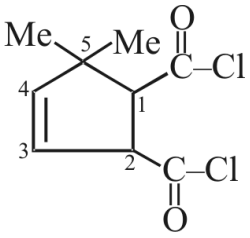
P_4O_{10} acts as a dehydrating agent.

SECTION-B

87. Ans (4)

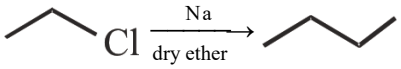
Rate of Nitration $\propto$ +M , +H, +I group

89. Ans (4)

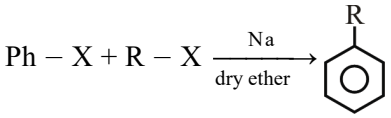


5,5-Dimethylcyclopent-3-ene-1,2-di carbonyl chloride

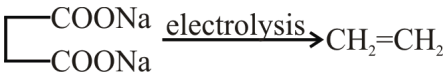
90. Ans (4)



wurtz reaction

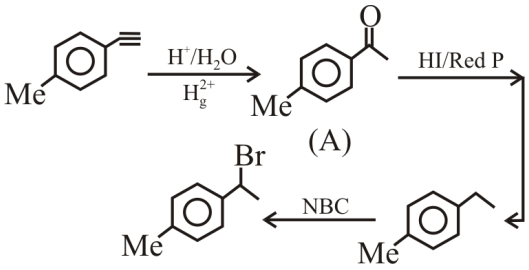


wurtz fittig reaction

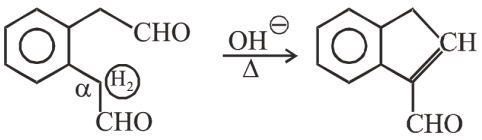


Kolbe electrolysis

91. Ans (4)



93. Ans (2)



96. Ans (4)

π-acceptor ligand such as CO can stabilise zero and –ve oxidation state

NCERT-XII, Pg. # 216, Last Paragraph

97. Ans (1)

On moving down higher oxidation is more stable in d block elements.

99. Ans (1)

NCERT-XII, Page No. # 209, Part-I, Edition-2019

SUBJECT : BOTANY

SECTION-A

102. Ans (4)

NCERT-XI, Pg. # 228

103. Ans (2)

NCERT-XI, Pg. # 162 (New)

104. Ans (1)

NCERT-XI, Pg. # 159

106. Ans (3)

NCERT-XI, Pg. # 230

110. Ans (3)

NCERT Page # 88-89

111. Ans (4)

NCERT Page # 95

112. Ans (1)

NCERT Page # 97

113. Ans (3)

NCERT Page No. 245

114. Ans (3)

NCERT-XI, Pg # 208

115. Ans (2)

NCERT-XI, Pg # 214

116. Ans (1)

NCERT-XI, Pg # 213

118. Ans (3)

NCERT-XI, Pg # 167

119. Ans (3)

NCERT-XI, Pg # 165

120. Ans (3)

NCERT, Pg # 220(E), 241(H)

121. Ans (3)

NCERT, Pg # 237(E), 260(H)

122. Ans (1)

NCERT-XI, Pg # 261

123. Ans (1)

NCERT-XI, Pg # 266,267

128. Ans (4)

NCERT XI Eng. Page no. # 250 (I^{st} para)

129. Ans (4)

NCERT (XIth) Pg. # 250

132. Ans (4)

NCERT-XI, Eng. Pg. # 247, 249, 250

NCERT-XI, हिन्दी पेज # 247, 249, 250

133. Ans (4)

NCERT-XI, Pg. # 246

134. Ans (1)

NCERT Pg # 248

135. Ans (3)

NCERT Pg # 250

SECTION-B

136. Ans (1)

NCERT-XI, Pg. # 155, 156, 157, 159

138. Ans (3)

NCERT-XI, Pg # 207

139. Ans (1)

NCERT-XI, Pg # 210/211

140. Ans (2)

NCERT-XI, Pg # 208

141. Ans (3)

NCERT-XI, Pg # 214

142. Ans (2)

NCERT-XI, Pg # 169,170

143. Ans (1)

NCERT-XI, Pg # 261

144. Ans (4)

NCERT XI Pg # 250

SUBJECT : ZOOLOGY

SECTION-A

151. Ans (3)

NCERT XI Pg. # 275

152. Ans (3)

NCERT XI Pg. # 275

153. Ans (2)

NCERT XI Pg. # 268,272,274

154. Ans (1)

NCERT XI Pg. # 274, 275

155. Ans (1)

NCERT XI Pg. # 272

156. Ans (1)

NCERT-XI, Pg # 144

157. Ans (3)

NCERT-XI, Pg # 147

158. Ans (3)

NCERT-XI, Page # 271

160. Ans (1)

NCERT Page No. 336

165. Ans (2)

NCERT Page No. 283

166. Ans (4)

NCERT Page No. 279

167. Ans (3)

NCERT Page No. 280

168. Ans (4)

NCERT Page No. 286

169. Ans (2)

NCERT Page No. 287

170. Ans (1)

NCERT Page No. 282

178. Ans (4)

NCERT, Pg # 76

179. Ans (3)

NCERT, Pg # 146

180. Ans (3)

NCERT, Pg # 150,151

185. Ans (3)

NCERT, Pg # 335

SECTION-B

186. Ans (1)

NCERT XI Pg. # 275

187. Ans (4)

NCERT XI Pg. # 270

188. Ans (4)

NCERT XI Pg. # 274

189. Ans (2)

NCERT XI Pg.# 272 para 4

191. Ans (3)

NCERT, Page No. 335

195. Ans (4)

NCERT Page No.-279

196. Ans (3)

NCERT-XI, Page 283

200. Ans (4)

NCERT, Pg # 334,335, 336, 337