PLATFORM
MEDICAL / IIT JEE / KVPY / BOARDS
the STOP to train minds

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# NEET (UG)–2020
# MOCK TEST - 02
# Solution

PLATFORM

## ANSWER

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1. (4) | 2. (2) | 3. (1) | 4. (1) | 5. (4) | 6. (4) | 7. (4) | 8. (2) | 9. (3) | 10. (2) |
| 11. (3) | 12. (1) | 13. (3) | 14. (2) | 15. (1) | 16. (4) | 17. (1) | 18. (4) | 19. (1) | 20. (1) |
| 21. (4) | 22. (2) | 23. (3) | 24. (3) | 25. (4) | 26. (1) | 27. (4) | 28. (3) | 29. (3) | 30. (1) |
| 31. (4) | 32. (2) | 33. (3) | 34. (3) | 35. (2) | 36. (4) | 37. (1) | 38. (3) | 39. (2) | 40. (4) |
| 41. (2) | 42. (2) | 43. (3) | 44. (1) | 45. (3) | 46. (3) | 47. (1) | 48. (3) | 49. (1) | 50. (1) |
| 51. (1) | 52. (2) | 53. (3) | 54. (4) | 55. (2) | 56. (1) | 57. (2) | 58. (1) | 59. (4) | 60. (4) |
| 61. (2) | 62. (3) | 63. (2) | 64. (1) | 65. (1) | 66. (2) | 67. (4) | 68. (2) | 69. (3) | 70. (4) |
| 71. (1) | 72. (2) | 73. (1) | 74. (3) | 75. (1) | 76. (1) | 77. (1) | 78. (4) | 79. (2) | 80. (1) |
| 81. (4) | 82. (4) | 83. (4) | 84. (3) | 85. (4) | 86. (1) | 87. (4) | 88. (3) | 89. (2) | 90. (2) |
| 91. (1) | 92. (1) | 93. (3) | 94. (2) | 95. (3) | 96. (3) | 97. (3) | 98. (1) | 99. (4) | 100. (3) |
| 101. (1) | 102. (1) | 103. (4) | 104. (3) | 105. (1) | 106. (1) | 107. (3) | 108. (4) | 109. (1) | 110. (3) |
| 111. (2) | 112. (3) | 113. (2) | 114. (2) | 115. (3) | 116. (4) | 117. (3) | 118. (2) | 119. (4) | 120. (3) |
| 121. (2) | 122. (4) | 123. (1) | 124. (3) | 125. (3) | 126. (3) | 127. (2) | 128. (1) | 129. (1) | 130. (1) |
| 131. (4) | 132. (3) | 133. (1) | 134. (4) | 135. (3) | 136. (3) | 137. (2) | 138. (1) | 139. (4) | 140. (3) |
| 141. (3) | 142. (1) | 143. (3) | 144. (2) | 145. (2) | 146. (1) | 147. (2) | 148. (4) | 149. (1) | 150. (2) |
| 151. (1) | 152. (3) | 153. (1) | 154. (2) | 155. (1) | 156. (4) | 157. (2) | 158. (4) | 159. (4) | 160. (4) |
| 161. (3) | 162. (2) | 163. (1) | 164. (4) | 165. (3) | 166. (2) | 167. (2) | 168. (4) | 169. (2) | 170. (3) |
| 171. (4) | 172. (1) | 173. (2) | 174. (4) | 175. (3) | 176. (3) | 177. (1) | 178. (3) | 179. (1) | 180. (4) |

# ANSWER with EXPLANATIONS

## PHYSICS

**1.** (4) $m \propto F^aV^bT^c$

$\Rightarrow m = KF^aV^bT^c$

$\Rightarrow [ML^0T^0] = [MLT^{-2}]^a\,[LT^{-1}]^b\,[T]^c$

$\therefore a = 1, b = -1, C = 1$

$\therefore [m] = [FV^{-1}T]$

**2.** (2) $t = \alpha x^2 + \beta x$

$$\therefore \frac{dt}{dx} = 2\alpha x + \beta \quad \therefore v = \frac{1}{2\alpha x + \beta}$$

$$\therefore a = \frac{dv}{dt} = \frac{d}{dt}[2\alpha x + \beta]$$

$$= \frac{d}{dx}\left[\frac{1}{2\alpha x + \beta}\right]\frac{dx}{dt} = -2\alpha v^3$$

**5.** (4) $T_1 = T_2\dfrac{M_1}{M_1 + M_2}$

**7.** (4) $T = 2\pi\sqrt{\dfrac{m}{K}} \quad \therefore T \propto \sqrt{m}$

**9.** (3) Loss in P.E of the ball = Gain in elastic P.E of the spring

$$mg(h + x) = \frac{1}{2}kx^2 \quad \text{or } k = \frac{2mg(h + x)}{x^2}$$

**10.** (2) $\left[ML^2T^{-3}\right] = [P_0]$

$L^2 \propto T^3$

$x^2 \propto t^3$

or, $x \propto t^{\frac{3}{2}}$ or, $v = \dfrac{dx}{dt} \propto t^{\frac{1}{2}}$

**11.** (3) Torque = $mg\dfrac{L}{2}$

$$\therefore I\alpha = mg\frac{L}{2}$$

$$\Rightarrow \frac{mL^2}{3}\alpha = mg\frac{L}{2} \quad \therefore \alpha = \frac{3g}{2L}$$

**12.** (1) impulse = change in momentum. [$\because$ area under the graph = impulse]

$$\Rightarrow \frac{1}{2}F_{max}\Delta t = mv \quad \Rightarrow F_{max}\frac{\Delta t}{mv} = 2$$

**14.** (2) u = vel. of projection & v = vel. of the body at infinity

$$\therefore \frac{1}{2}mv^2 = \frac{1}{2}mv_e^2 + \frac{1}{2}mv^2$$

or $v^2 = u^2 - v_e^2$

**16.** (4) $F = Bev \sin 0 = 0 \rightarrow a = 0 \ \therefore$ v = fixed.

**17.** (1) From Stefan's law, net rate of heat energy lost per second

$R = e\sigma A\left(T^4 - T_0^4\right)$ T = temperature of the body

$T_0$ = Temperature of the surrounding

$$\therefore \frac{R'}{R} = \frac{400^4 - 200^4}{600^4 - 200^4} \Rightarrow R' = \left(\frac{4^4 - 2^4}{6^4 - 2^4}\right)R$$

$$\therefore R' = \frac{3}{16}R$$

**18.** (4) $Y = \dfrac{T_1L}{A\Delta L_1} = \dfrac{T_2L}{A\Delta L_2}$

**19.** (1) $PV^\gamma$ = cont.

Take log and differentiate

log P + $\gamma$ log V = log(const.)

$$\text{or } \frac{dp}{P} + \gamma\frac{dv}{V} = 0$$

$$\text{or } \frac{dP}{P} = -1.4 \times \frac{2}{100} = -\frac{2.8}{100} = -2.8\%$$

**20.** (1) $\eta = 1 - \dfrac{T_2}{T_1}$

& work performed = $\eta Q$

$$\therefore W = \left(1 - \frac{300}{900}\right) \times \left(1.5 \times 10^3 \times 10^3\right)\text{cal}$$

$$= \frac{2}{3} \times 1.5 \times 10^6 \times 4.2\ \text{J} = 4.2 \times 10^6\ \text{J}$$

**23.** (3) $n' = n\dfrac{v + v_0}{v - v_s} = 1000 \times \dfrac{330 + 220}{330 - 220} = 5000\ H_3$

**24.** (3) $\bar{A}.A = 0$ AND $A = 0$

**27.** (4) $\dfrac{N_2}{N_1} = \dfrac{15}{60} = \dfrac{1}{4} = \left(\dfrac{1}{2}\right)^2$

$\therefore$ No. of half lives = 2

$\therefore$ time = 60 minutes

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**29.** (3) $\lambda_e = \frac{h}{\sqrt{2ME}}$ and $\lambda_e = \frac{hc}{E}$

**31.** (4) v = +15 cm u = +10 cm

$\therefore \frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$\therefore$ f = – 30 cm

**32.** (2) $\mu = \frac{\sin\frac{(A+\delta m)}{2}}{\sin\frac{A}{2}}$

for $\delta_m = A$

$\mu = \frac{\sin A}{\sin\frac{A}{2}} = \frac{2\sin\frac{A}{2}\cos\frac{A}{2}}{\sin\frac{A}{2}} = 2\cos\frac{A}{2}$

$\therefore \mu_{max}$ when A = 0° $\therefore \mu_{max} = 2$

$\mu_{max}$ when A = 90° $\therefore \mu_{max} = \sqrt{2}$

**35.** (2) u = – 25 cm v = – 75 cm

$\therefore \frac{1}{f} = \frac{1}{v} - \frac{1}{u} = \frac{75}{2}$

Power = $\frac{100}{\frac{75}{2}} = \frac{8}{3} = 2.67$ D

**37.** (1) $R = \frac{V}{I_g} - G = \frac{30}{30\times10^{-3}} - 100 = 900\,\Omega$

**38.** (3) V = E – ir

$\Rightarrow V = E - \frac{V}{R}r \Rightarrow 1 = 1.5 - \frac{1}{2}r \Rightarrow r = 1\,\Omega$

**39.** (2) $C_1V_1 + C_2V_2 = (C_1 + C_2)V_{common}$

here $V_1 = V$ & $V_2 = 0$

$\therefore C_1V = (C_1 + C_2)\,V_{common}$

$\Rightarrow V_{common} = \frac{C_1V}{C_1 + C_2}$

**40.** (4) $V_D = \frac{1}{4\pi\in_0}\left(\frac{q}{3L} - \frac{q}{L}\right)$

$= \frac{1}{4\pi\in_0}\left(-\frac{2q}{3L}\right) = -\frac{1}{6\pi\in_0}\frac{q}{L}$

**41.** (2) $M' = \frac{2M}{\theta}\sin\left(\frac{\theta}{2}\right)$

$\theta = \frac{\pi}{3} \rightarrow M' = \frac{3M}{\pi}$

**43.** (1) Circuit is capacatire

$\tan Q = \frac{X_C - X_L}{R}$

$X_C - X_L = R$

$\frac{1}{wC} - wL = R$

$\frac{1}{wC} = R + wL$

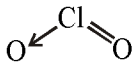
$C = \frac{1}{w(R + wL)}$

**44.** (1) $C = \frac{w}{k}$

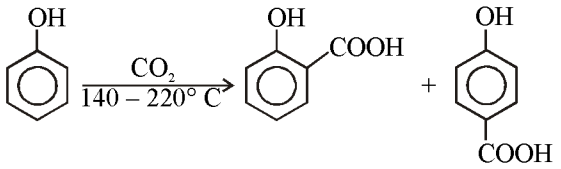
## CHEMISTRY

**46.** (3) $Fe^{2+} \rightarrow 3d^5$ n = 5

**48.** (3) $ClO_2$ is odd electron species



**50.** (1) P and Q

**51.** (1) 

**52.** (2) $H_3C - \underset{H}{\overset{|}{C}} = CH_2 \xrightarrow[H_2O/Zn]{O_3}$

$H_3C - \underset{H}{\overset{|}{C}} = O + HCHO$

$H_3C - \underset{H}{\overset{|}{C}} = \underset{H}{\overset{|}{C}} - CH_3 \xrightarrow[H_2O/Zn]{O_3}$

$H_3C - \underset{H}{\overset{|}{C}} = O$

**55.** (2) NCERT

**57.** (2) $Br_2$ / $H_2O$

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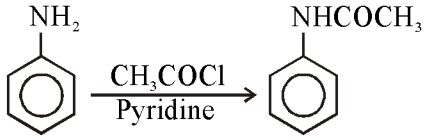
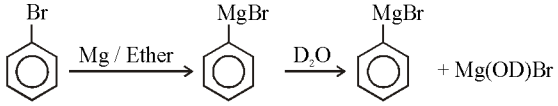
**58.** (1) hexane + cyclohexane + $H_2SO_4$

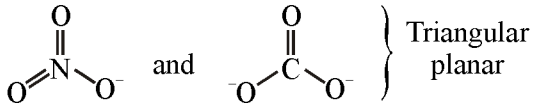
**59.** (4) 

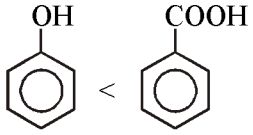
**60.** (4) 

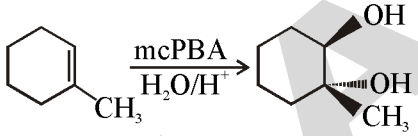
**61.** (2) 

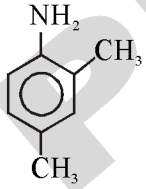
**62.** (3) $s + px + pr + pz + dz^2 = sp^3d$

**63.** (2) $^-CH_3$ and $NH_3$ both are having 10 $e^-$s.

**65.** (1) 

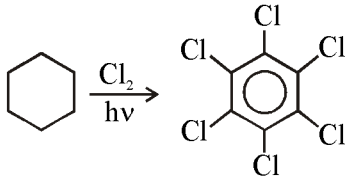
**66.** (2)  (Acidic strength)

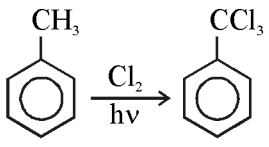
**68.** (2) 

**70.** (4)  It is 1° aromatic amine

**71.** (1) Fe(II) $\rightarrow 3d^6$ $\quad n = 0 \quad \therefore \mu = 0$

$\because$ strong ligand pairing takes place

**73.** (1) 

**74.** (3) 

**78.** (4) $W = \dfrac{E\,It}{F} \quad I = \dfrac{W \times F}{E \cdot t} = \dfrac{20 \times 96500}{35.5 \times 6 \times 60 \times 60}$

$= 2.5$ Å

**80.** (1) No. of P atoms = 4

No of Q atoms $= 4 + \dfrac{1}{2} \times 8 = 8$

Formula $\rightarrow P_4Q_8 = PQ_2$

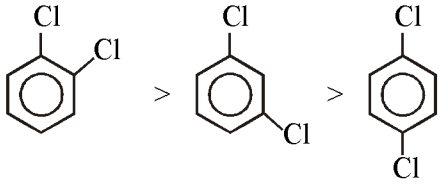
**82.** (4) $pk_a = -\log 1.8 \times 10^{-5} = 4.74$

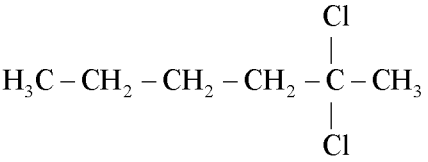
$CH_3COOH + NaOH \rightarrow CH_3COONa + H_2$

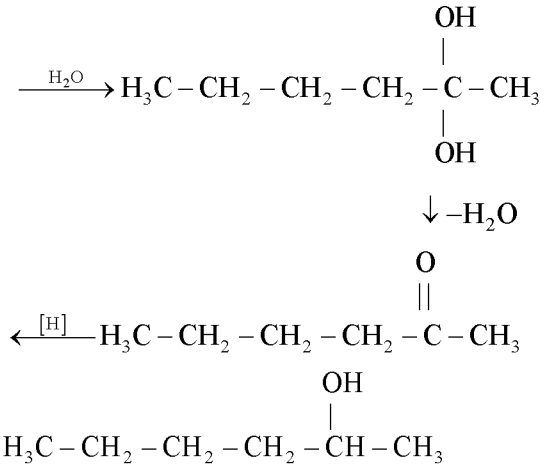
| | | | | |
|---|---|---|---|---|
| M. moles | $50 \times 1 = 50$ | $50 \times 0.5 = 50$ | 0 | 0 |
| | | 0 | 25 | 25 |

$$pH = pka + \log \frac{[CH_3COONa]}{[CH_3COOH]}$$

$$\therefore pH = 4.74 + \log \frac{25}{25} = 4.74$$

**83.** (4) 

**84.** (3) 



**87.** (4) $CH_3CH_2 - CH_2 - C \equiv N$

$\xrightarrow[Sn/HCl]{LiAlH_4} CH_3 - CH_2 - CH_2 - C \equiv N$

## BIOLOGY

**93.** (3) NCERT–XI. Page - 7
**95.** (3) NCERT–XI. Page - 220
**96.** (3) NCERT–XII. Page - 117
**97.** (3) NCERT–XI. Page - 21
**98.** (1) NCERT–XII. Page - 23, 29-34
**99.** (4) NCERT–XII. Page - 263
**100.** (3) NCERT–XI. Page - 129, 134, 138, 139
**101.** (1) NCERT–XII. Page - 79
**103.** (4) NCERT–XI. Page - 50-57
**105.** (1) NCERT–XI. Page - 23-24
**106.** (1) NCERT–XI. Page - 104
**107.** (3) NCERT–XI. Page - 35-36
**109.** (1) NCERT–XI. Page - 101-104
**111.** (2) NCERT–XI. Page - 232
**112.** (3) NCERT–XI. Page - 271
**113.** (2) NCERT–XI. Page - 148
**116.** (4) NCERT–XII. Page - 181
**118.** (2) NCERT–XII. Page - 112
**119.** (4) NCERT–XI. Page - 285
**120.** (3) NCERT–XI. Page - 36, 38
**122.** (4) NCERT–XI. Page - 73
**123.** (1) NCERT–XI. Page - 168-169
**124.** (3) NCERT–XI. Page - 287
**127.** (2) NCERT–XI. Page - 79-80
**130.** (1) NCERT–XI. Page - 252
**133.** (1) NCERT–XI. Page - 332
**134.** (4) NCERT–XI. Page - 99
**135.** (3) NCERT–XII. Page - 60
**137.** (2) NCERT–XII. Page - 279
**138.** (1) NCERT–XII. Page - 50
**142.** (1) NCERT–XI. Page - 259-260
**145.** (2) NCERT–XI. Page - 251
**146.** (1) NCERT–XII. Page - 174
**149.** (1) NCERT–XII. Page - 158-159
**150.** (2) NCERT–XII. Page - 22-26
**151.** (1) NCERT–XI. Page - 203
**152.** (3) NCERT–XII. Page - 11
**153.** (1) NCERT–XI. Page - 262-263
**156.** (4) NCERT–XII. Page - 108
**157.** (2) NCERT–XII. Page - 176
**158.** (4) NCERT–XII. Page - 168
**161.** (3) NCERT–XI. Page - 157
**162.** (2) NCERT–XI. Page - 274-275
**165.** (3) NCERT–XII. Page - 30-31
**166.** (2) NCERT–XII. Page - 249
**168.** (4) NCERT–XII. Page - 106
**175.** (3) NCERT–XII. Page - 229
**176.** (3) NCERT–XII. Page - 243
**177.** (1) NCERT–XII. Page - 198
**178.** (3) NCERT–XII. Page - 209
**179.** (1) NCERT–XI. Page - 218

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