Monarch Institute
Success path for NEET Preparation

Class 11th Full Syllabus - Key

PHYSICS

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
3	3	1	1	1	1	3	1	2	4
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
1	2	2	3	1	4	3	3	1	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
2	1	3	3	4	3	1	3	2	1
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	3	3	3	1	3	4	2	2	3
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
1	1	1	3	1	1	1	2	3	1

BOTANY

51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
2	2	3	4	4	1	3	3	4	1
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
4	1	2	2	3	1	3	4	3	1
71	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
4	3	3	1	3	4	4	1	4	1
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
2	1	2	4	3	3	3	1	1	2
91	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**
4	3	4	1	4	3	1	3	1	1

ZOOLOGY

101	**102**	**103**	**104**	**105**	**106**	**107**	**108**	**109**	**110**
4	2	4	1	2	2	3	4	2	4
111	**112**	**113**	**114**	**115**	**116**	**117**	**118**	**119**	**120**
3	1	1	2	3	3	1	4	1	2
121	**122**	**123**	**124**	**125**	**126**	**127**	**128**	**129**	**130**
2	2	4	1	3	2	4	3	4	2
131	**132**	**133**	**134**	**135**	**136**	**137**	**138**	**139**	**140**
2	2	4	3	3	2	4	1	1	2
141	**142**	**143**	**144**	**145**	**146**	**147**	**148**	**149**	**150**
3	2	1	3	4	4	3	4	3	2

CHEMISTRY

151	**152**	**153**	**154**	**155**	**156**	**157**	**158**	**159**	**160**
2	2	3	3	4	4	1	1	3	3
161	**162**	**163**	**164**	**165**	**166**	**167**	**168**	**169**	**170**
1	3	3	3	2	1	2	4	3	3
171	**172**	**173**	**174**	**175**	**176**	**177**	**178**	**179**	**180**
1	4	3	4	2	3	4	2	4	3
181	**182**	**183**	**184**	**185**	**186**	**187**	**188**	**189**	**190**
4	1	3	1	3	4	4	1	3	1
191	**192**	**193**	**194**	**195**	**196**	**197**	**198**	**199**	**200**
4	1	1	2	1	1	1	4	3	2

SOLUTIONS

PHYSICS

Section -A

1. Ans (3)

$436.32 + 227.2 + 0.301 = 663.821$

Minimum significant fig. after decimal is one, therefore appropriate significant fig. is 663.8

2. Ans (3)

$x = at^2 - bt^3$

$v = \frac{dx}{dt} = 2at - 3bt^2$

$a = \frac{dv}{dt} = 2a - 6bt = 0$

$\Rightarrow t = \frac{a}{3b}$

3. Ans (1)

$S_n = u + \frac{g}{2}(2n - 1)$; when u = 0 then $S_1 : S_2 : S_3 = 1 : 3 : 5$

4. Ans (1)

$t = \sqrt{\frac{2h}{g}} \Rightarrow \frac{t_1}{t_2} = \sqrt{\frac{h_1}{h_2}} = \sqrt{\frac{1}{2}} = \frac{1}{\sqrt{2}}$

6. Ans (1)

$F = \frac{vdm}{dt}$

$\Rightarrow 200 = 300\ \frac{dm}{dt}$

$\frac{dm}{dt} = \frac{2}{3} \simeq 0.7$ kg/s

7. Ans (3)

$\alpha = \frac{\omega - \omega_0}{t}$

$= \frac{2\pi}{t}(n - n_0)$ Here : $\left[n_0 = \frac{1200}{60} = 20 \text{ rps} \quad n = \frac{3120}{60} = 52 \text{ rps} \right]$

$= \frac{2\pi}{16}(52 - 20)$

$= 4\pi$ rad/s^2

8. Ans (1)

$$g_h = \frac{g}{\left(1+\frac{h}{R}\right)^2}$$

At h = R/2

$$\Rightarrow g_h = \frac{g}{\left(1+\frac{R/2}{R}\right)^2}$$

$$\Rightarrow g_h = \frac{4}{9}g$$

$$\Rightarrow mg_h = \frac{4}{9}(mg)$$

$$\Rightarrow w' = \frac{4}{9} \times 63 = 28 \text{ N}$$

9. Ans (2)

$$E = \frac{1}{2} \times F \times \Delta\ell = \frac{1}{2} \times 100 \times 1 \times 10^{-3} = 0.05 \text{ J}$$

10. Ans (4)

Q = const.

Av = const.

$$v \propto \frac{1}{A} \propto \frac{1}{R^2} \propto \frac{1}{D^2}$$

$$\frac{V}{V'} = \left(\frac{2D}{D}\right)^2 = 4$$

$$V' = \frac{V}{4}$$

11. Ans (1)

$$2T\ell = mg \Rightarrow \ell = \frac{mg}{2T} = \frac{1 \times 1000}{2 \times 70} = 7 \text{ cm}$$

12. Ans (2)

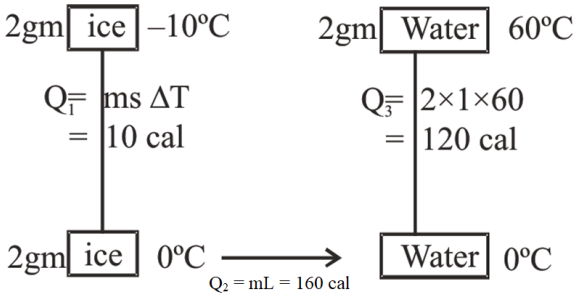
h = 1000 m ; ρ = 1000 kg/m^3 ; g = 10 m/s^2

$P = P_0 + \rho gh$

$P = 10^5 + 10^3 \times 10 \times 1000$

$P = 101 \times 10^5$ Pa $\approx$ 100 atm

13. Ans (2)



Q = 10 + 160 + 120 = 290 cal.

14. Ans (3)

$\gamma = \alpha_x + \alpha_y + \alpha_Z$

$\gamma = \alpha_1 + \alpha_2 + \alpha_2$

$= \alpha_1 + 2\,\alpha_2$

15. Ans (1)

Area $\propto T^4$

16. Ans (4)

W = +250 J T = constant ($\Delta U = 0$)

According to FLOT

$Q = W + \Delta U \Rightarrow Q = W = +250$ J

It means 250 J of heat has been added to the gas.

17. Ans (3)

$$\frac{KA(90-\theta)}{\ell} = \frac{KA(\theta-30)}{\ell} + \frac{KA(\theta-0)}{\ell} + \frac{KA(\theta-60)}{\ell}$$

$90 - \theta = 3\theta - 90°$

$\theta = 45°$

18. Ans (3)

$$A = \sqrt{3^2+4^2} = 5$$

19. Ans (1)

Distance between consecutive threads = pitch

$$LC = 0.005 \text{ mm} = \frac{\text{Pitch}}{100}$$

$\Rightarrow$ Pitch = 0.5 mm

20. Ans (4)

Viscosity of liquid decreases with increase in temperature.

21. Ans (2)

$m_{ice}L_f = m_bS_b\Delta T$

$m_{ice}(80) = (2400)\,(0.1)\,(500 - 0)$

$m_{ice} = 1500$ gm = 1.5 kg

22. Ans (1)

$P = \vec{F}.\vec{V}$

= 4 W

24. Ans (3)

mgh' = 25% of mgh

$$h' = \frac{h}{4}$$

25. Ans (4)

$F_C = \frac{mv^2}{r} = \frac{0.2 \times 2^2}{0.1} = 8N$

28. Ans (3)

$[y] = [B]\,[t^3]$

$L^1 = [B] \times T^3$

$[B] = [LT^{-3}]$

29. Ans (2)

$S = ut + \frac{1}{2}at^2$

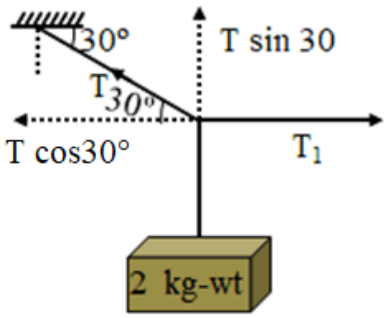
$S_1 = 0 + \frac{1}{2} \times a \times (10)^2 = 50\,a$

and, $S_1 + S_2 = 0 + \frac{1}{2} \times a\,(20)^2 = 200\,a$

$\therefore \frac{S_1}{S_1 + S_2} = \frac{1}{4}$

$\Rightarrow \frac{S_1}{S_2} = \frac{1}{3}$

31. Ans (3)



$T \sin 30° = 2$ kg wt

$\Rightarrow T = 4$ kg wt

$T_1 = T \cos 30°$

$= 4 \cos 30°$

$= 2\sqrt{3}$ kg-wt

32. Ans (3)

$F = \frac{dP}{dt}$, force will be maximum where slope is maximum.

33. Ans (3)

$v \propto \sqrt{T}$

$\frac{v_1}{v_2} = \sqrt{\frac{T_1}{T_2}}$

$\frac{v}{\sqrt{5}v} = \sqrt{\frac{T}{T + 800}}$

$\Rightarrow \frac{1}{5} = \frac{T}{T + 800} = \boxed{T = 200K}$ or $\boxed{-73°C}$

34. Ans (3)

$e = \frac{\ell_2 - 3\ell_1}{2} = \frac{51 - 3 \times 16.5}{2} = \frac{51 - 49.5}{2}$

$= \frac{1.5}{2} = 0.75$ cm

35. Ans (1)

mgh' = 75% of mgh

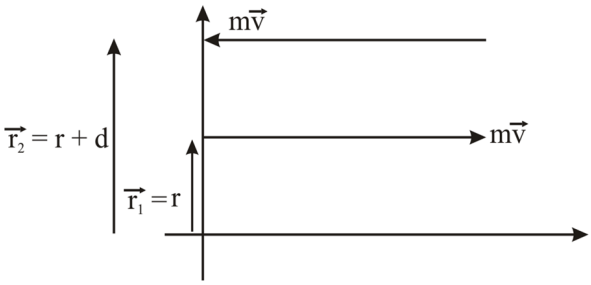
$h' = \frac{75}{100} \times 10 = 7.5$ m

Section - B

36. Ans (3)

$\left|\hat{A} - \hat{B}\right| = 2 \times 1 \times \sin\left(\frac{\theta}{2}\right) = 2\sin\left(\frac{\theta}{2}\right)$

38. Ans (2)



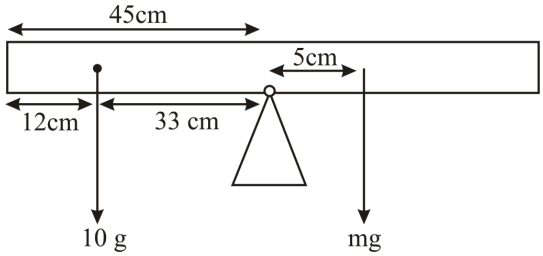
wrt origin

$\vec{L}_{sys} = \vec{L}_1 + \vec{L}_2$

$= -r_1(mv) + r_2(mv)$

$= mv(r_2 - r_1) = mvd$

39. Ans (2)



By $\tau_{net} = 0$

10g (33) = mg (5)

$\boxed{m = 66\ gm}$

40. Ans (3)

$V_\infty = \sqrt{v^2 - v_e^2}$

$\because v = 3v_e$

$V_\infty = \sqrt{9v_e^2 - v_e^2}$

$= 2\sqrt{2}v_e$

$\approx 2.8\ v_e$

$\approx 31.4\ Kms^{-1}$

41. Ans (1)

$C_p\Delta T = C_v\Delta T + \Delta W$

$\therefore \Delta W = (C_p - C_v)\,\Delta T$

Fraction of heat converted into work

$= \dfrac{\Delta W}{\Delta Q} = \dfrac{(C_p - C_v)\Delta T}{C_p\Delta T}$

$= 1 - \dfrac{1}{\gamma} = 1 - \dfrac{3}{5} = \dfrac{2}{5}$

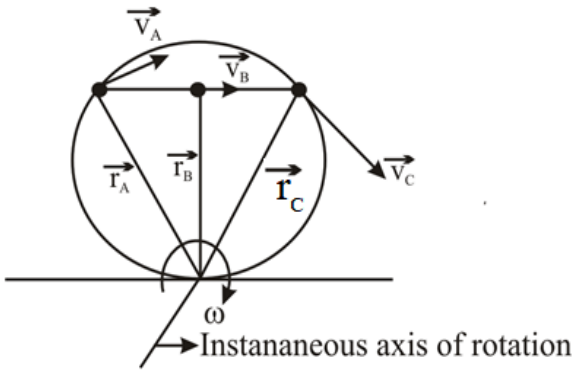
42. Ans (1)

Let plank shifted by x then $\Delta x_{CM} = 0$, as there is no external force on the system.

$m(L - x_{plank}) - Mx_{plank} = 0$

$X_{plank} = \dfrac{mL}{M + m}$

44. Ans (3)



wrt instantaneous axis of rotation, velocity of any point on the body is

$\boxed{v = \omega r} \Rightarrow \boxed{v \alpha r}$

Here

$\because\ r_A = r_C > r_B$

$\therefore\ v_A = v_C > v_B$

(Reference: NCERT Class-XI (part-I Page No. 174))

45. Ans (1)

(a) $v = \sqrt{\dfrac{2gh}{\left(1 + \frac{k^2}{R^2}\right)}}$ $\quad \because h_1 = h_2$ $\quad \therefore \boxed{V_1 = V_2}$

(b) $t = \dfrac{1}{\sin\theta}\sqrt{\dfrac{2h}{g}\left(1 + \dfrac{k^2}{R^2}\right)}$ $\quad \because \theta_1 > \theta_2$ $\quad \boxed{t_1 < t_2}$

Ans. (1) $\boxed{v_1 = v_2}$ & $\boxed{t_1 < t_2}$

47. Ans (1)

$h = \dfrac{2T\cos 0°}{r\rho g}$

$h = \dfrac{2 \times 70}{20 \times 10^{-4} \times 1 \times 1000}$

$h = 70$ cm

48. Ans (2)

$\Delta t = \dfrac{\alpha \Delta T\, t}{2}$

$5 = \dfrac{\alpha(T - 15)t}{2}$ ...(1)

$10 = \dfrac{\alpha(30 - T)t}{2}$ ....(2)

divide equation (1) by (2)

$\dfrac{1}{2} = \dfrac{T - 15}{30 - T}$

$3T = 60$

$T = 20°C$

49. Ans (3)

$y = a[\sin\omega t + \cos\omega t]$

$y = a\sqrt{2}\left(\dfrac{1}{\sqrt{2}}\sin\omega t + \dfrac{1}{\sqrt{2}}\cos\omega t\right)$

$y = a\sqrt{2}\sin\left(\omega t + \dfrac{\pi}{4}\right)$

50. Ans (1)

$2mv_0 = mv_1 + mv_2$

$v_1 + v_2 = 2v_0$ .....(i)

$v_2 - v_1 = e2v_0$ .....(ii)

From (i) + (ii)

$2v_2 = 2v_0\,(1 + e)$

$v_2 = v_0\,(1 + e)$

From (i) – (ii)

$2v_1 = 2v_0\,(1 - e)$

$v_1 = v_0\,(1 - e)$

$\dfrac{v_1}{v_2} = \dfrac{1 - e}{1 + e}$

BOTANY

Section - A

51. Ans (2)

NCERT-XI Pg # 6

52. Ans (2)

NCERT-XI Pg. No. 06

53. **Ans (3)**
NCERT-XI Pg # 21

54. **Ans (4)**
NCERT XIth, Page : 23, 24, Para-2.3.1, 2.3.3

55. **Ans (4)**
NCERT-XI, Pg. # 7

56. **Ans (1)**
NCERT XI page no.-35

57. **Ans (3)**
NCERT-XI, Pg#38

58. **Ans (3)**
NCERT-XIth Pg# 35,36

59. **Ans (4)**
NCERT (XI^{th}) Pg. # 68

60. **Ans (1)**
NCERT XI^{th} Pg.#72

61. **Ans (4)**
NCERT-XI Pg. # 80 (Fig. 5.22-f)

62. **Ans (1)**
NCERT-XI Pg. # 77

63. **Ans (2)**
NCERT-XI Pg. # 89

64. **Ans (2)**
NCERT (XI^{th}) Pg. # 89

65. **Ans (3)**
NCERT-XI Pg # 97

66. **Ans (1)**
NCERT XI Pg. 93

67. **Ans (3)**
NCERT-XI Pg. No. 94

68. **Ans (4)**
NCERT-XI Pg # 134, 135 para 8.5.4

69. **Ans (3)**
NCERT-XI Pg#136,137

70. **Ans (1)**
NCERT-XI Pg. # 138

71. **Ans (4)**
NCERT-XI Pg # 163

72. **Ans (3)**
NCERT-XI Pg. # 163, 10.1.1

73. **Ans (3)**
NCERT-XI Page # 166

74. **Ans (1)**
NCERT-XI Pg#207,208,210

75. **Ans (3)**
NCERT-XI Page No. # 211

76. **Ans (4)**
NCERT-XI Pg # 215

77. **Ans (4)**
NCERT-XI Pg.#227-228

78. **Ans (1)**
NCERT (XIth) Pg. # 232

79. **Ans (4)**
NCERT-XI Pg.# 250

80. **Ans (1)**
NCERT-XI Pg.#242

81. **Ans (2)**
NCERT-XI Pg. # 157, 158

82. **Ans (1)**
NCERT XI^{th} Pg.# 146 (E), 146 (H)

83. **Ans (2)**
NCERT-XI Pg. # 148

84. **Ans (4)**
NCERT XI Pg.# 145

85. **Ans (3)**
NCERT XI, Pg # 150

Section - B

86. **Ans (3)**
NCERT-XI Pg # 4,5

87. **Ans (3)**
NCERT-XI Pg # 20

88. **Ans (1)**
NCERT-XI Pg # 23-24

89. **Ans (1)**
NCERT XI Pg.#22, 26 and 27

90. **Ans (2)**
NCERT XI Pg # 39

91. **Ans (4)**
NCERT (XI) Pg. # 19, 31

92. **Ans (3)**
NCERT XI Pg.# 66

93. **Ans (4)**
NCERT-XI Pg.# 78, 79, 80

94. **Ans (1)**
NCERT-XI Pg # 90

95. **Ans (4)**
NCERT (XI) Pg. # 95 (Fig.)

96. **Ans (3)**
NCERT XI Pg # 125, 126

97. **Ans (1)**
NCERT-XI, Pg. # 134, 135, 136, 139

98. **Ans (3)**
NCERT-XI Pg. # 168

99. **Ans (1)**
NCERT (XIth) Pg. (E) # 229 (Figure of glycolysis)

100. **Ans (1)**
NCERT-XI, Pg-158

ZOOLOGY

Section -A

103. **Ans (4)**
NCERT XI, Pg. No. 46

105. **Ans (2)**
NCERT XIth Pg.#56 (E&H)

106. **Ans (2)**
NCERT-XI, Pg # 58

107. **Ans (3)**
NCERT XI Pg # 101

114. **Ans (2)**
NCERT Pg. No.117/7.5.2

117. **Ans (1)**
NCERT Pg. # 270,17.1.1

120. **Ans (2)**
NCERT-XII, Pg. # 294

122. **Ans (2)**
XIth NCERT Page No. – 279

124. **Ans (1)**
NCERT-XII, Pg. # 308

126. **Ans (2)**
NCERT (XI) Pg. # 311

131. **Ans (2)**
NCERT Page # 334

132. **Ans (2)**
NCERT Pg.# 334

134. **Ans (3)**
NCERT Pg.# 337, 338

Section - B

136. **Ans (2)**
NCERT XIth Page # 50

140. **Ans (2)**
NCERT Pg. No.118/7.5.2

141. **Ans (3)**
New NCERT update

142. **Ans (2)**
NCERT Pg. # 293

143. **Ans (1)**
NCERT-XII, Pg. # 297

146. **Ans (4)**
NCERT Pg.No.311

CHEMISTRY

Section - A

151. **Ans (2)**

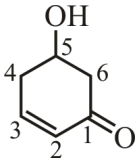
n-Butane $\longrightarrow$ Isobutane (x) $\longrightarrow$ $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}-Br$
(y)

154. Ans (3)

A = CH_2=CH–CH_2–Br,

B = CH_2=CH–CH_2–CH_2–CH=CH_2

156. Ans (4)



158. Ans (1)

A = C_6H_6, B = $C_6H_6Cl_6$ (BHC)

159. Ans (3)

Acid > Phenol acidic strength

160. Ans (3)

A = Benzene B = Friedel craft reaction

161. Ans (1)

A = CH_3–CH_3 B = CH_3–CH_2–Cl

C = CH_2=CH_2 D = $\begin{matrix} CH_2 & CH_2 \\ | & | \\ Br & Br \end{matrix}$

163. Ans (3)

Hint :- Left to Right in Period non-metallic character increases.

165. Ans (2)

Hint :- Size of nitrogen is larger than oxygen

166. Ans (1)

Hint :- Size of H is smaller So C = C > C – H

168. Ans (4)

Hint :- NF_3 is pyramidal

169. Ans (3)

Hint :- SP hybridisation is known as diagonal hybridisation.

172. Ans (4)

Hint :- Carbon suboxide (C_3O_2)

O = C = C = C = O

176. Ans (3)

C	H	O
$\frac{57.82}{12}$	$\frac{3.6}{1}$	$\frac{38.58}{16}$
4.81	3.6	2.4

E.F $\Rightarrow C_4H_3O_2$

180. Ans (3)

$pH = \frac{1}{2}(pK_w + pK_a - pK_b)$

(formic acid) (Ammonia)

$\Rightarrow pH = \frac{1}{2}(14 + 3.8 - 4.8) = 6.5$

182. Ans (1)

3 replacable H-atoms are present in H_3PO_4 are replaced by Na

$\therefore n = 3$

eq. wt. of $H_3PO_4 = \frac{M.wt.\ of\ H_3PO_4}{3} = \frac{98}{3}$

184. Ans (1)

NCERT Pg. # 277

185. Ans (3)

$KOH + HNO_3 \longrightarrow KNO_3 + H_2O$

0.4 mol 0.5 mol

(L.R.)

$\Delta H_{neut.} = -57.2 \times 0.4$

$= -22.88$ kJ

So heat released is 22.88 kJ

Section - B

188. Ans (1)

A = CH_3–CH=CH_2

B = CH_3–CHO, C = CH_2=O

196. Ans (1)

$h\nu = h\nu_0 + k.E$

$k.E = h(\nu - \nu_0)$

$= 6.626 \times 10^{-34}(1 \times 10^{15} - 8 \times 10^{14})$

$= 1.325 \times 10^{-19}$ J

200. Ans (2)

$\lambda = \frac{h}{mv} = \frac{6.626 \times 10^{-34}}{\left(\frac{20}{1000} \times 50\right)}$

$= 6.626 \times 10^{-34}$ m