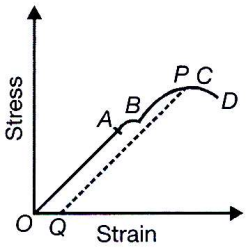
S ANSWER KEY & SOLUTION KEY FINAL ROUND - 04 (PCB) Dt.07.04.2024

PHYSICS

SECTION - A (35 Questions)

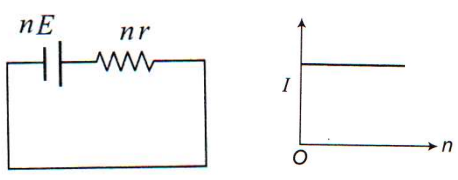
01. **(1)** Initially due to the action of gravity, the lead shot will move with increasing velocity for some time. Then due to the viscosity of the glycerine column, the lead shot will attain a constant terminal velocity. As initially, there is some upthrust on the shot due to glycerine the increase of velocity will not be fully linear. So the variation is shown by plot (1).
Hence, the correct answer is option (1).

02. **(4)** Stress-strain graph of a ductile material is shown in figure. Point A shows limit of proportionality. Hooke's law is valid upto this limit. Point B shows yield point. Material is elastic upto this point. If the material is strained upto this point, then on releasing it will regain its original shape and size. But the material is deformed beyond this limit, say upto point P ; then on releasing, it will follow dotted line PQ. It means a deformation OQ will remain permanently. Hence, final length of the wire will contract but final length will be greater than original length. Therefore, only option (4) is correct.



03. **(4)** Molecules of an ideal gas move randomly with different speeds.

04. **(4)** If n batteries are in series than the circuit can be made as $I = \frac{nE}{nr} = \frac{E}{r} =$ constants



05. **(2)** By Come
$KE_A + U_A = KE_B + U_B$

$0 + mg(1) = \frac{1}{2}mv^2 + mg \times 0.5$

$v = \sqrt{g} = \sqrt{10}\text{m/s}$

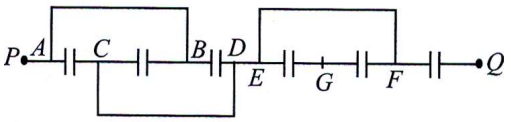
06. **(3)** $r = \frac{\sqrt{2mk}}{qB} = \frac{1}{B}\sqrt{\frac{2mV}{q}} \Rightarrow r \propto \sqrt{m}$

$\Rightarrow \frac{m_1}{m_2} = \left(\frac{R_1}{R_2}\right)^2$.

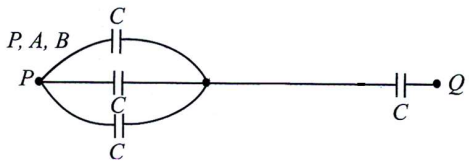
07. **(2)** $\frac{v_A}{v_B} = \sqrt{\frac{T_A}{T_B}} \times \frac{D_B}{D_A} = \sqrt{\frac{1}{2}} \times \frac{2}{1} = \sqrt{2}:1$

08. **(1)** In the battery connected capacitor V remains constant while C increases with the introduction of dielectric.

09. **(3)**



Capacitors between points E and F are short circuited.



$\therefore \frac{1}{C_{eq}} = \frac{1}{3C} + \frac{1}{C} = \frac{4}{3C}$

$\Rightarrow \therefore C_{eq} = \frac{3}{4}C.$

10. **(2)**

11. **(3)** Net force $= 8\hat{i} + 4\hat{j} + 4\hat{k}$

$\vec{a} = \frac{\vec{F}}{m} = 2\hat{i} + \hat{j} + \hat{k}$

12. **(3)** The bulb will become suddenly bright when the contact is broken. This is because time of break is smaller. Therefore, induced emf at break $e = \frac{d\phi}{dt}$ becomes large.

13. **(4)**
The induced emf between the ends of the bar = $Bl\upsilon$

Induced current $I = \frac{e}{R} = \frac{Bl\upsilon}{R}$

Electric power, $P = I^2R = \frac{e^2}{R} = \frac{B^2l^2\upsilon^2}{R}$

This the rate of heat dissipation. When υ is halved, P becomes one fourth, i.e., a quarter of initial value.

14. **(4)**

15. **(4)** $\lambda = \frac{h}{p} = \frac{h}{mv}$

$\Rightarrow v = \frac{h}{m\lambda}$

$\frac{v_p}{v_\alpha} = \frac{m_\alpha}{m_p} \times \frac{\lambda_\alpha}{\lambda_p}$

$= 4 \times 2 = 8.$

16. **(1)**

17. **(2)** Jump to second orbit leads to Balmer series. When an electron Jumps from 4th orbit to 2nd orbit, one gets second line of Balmer series.

18. **(3)**

19. **(3)** $y = a\sin\omega t + b\cos 2\omega t$ is a non-harmonic oscillatory function as it is a combination of two harmonic functions.

20. **(1)**

21. **(2)** The magnetic field due to a circular coil of radius R at a point on the axis of the coil located at a distance r from the centre of the coil.

$B = \frac{\mu_0}{4\pi}\frac{2\pi iR^2}{(R^2+r^2)^{3/2}}$

Given, $r >> R$ then we have , after neglecting R,

$B = \frac{\mu_0}{4\pi}\frac{2\pi iR^2}{r^3}$

Also area $A = \pi R^2$

$B = \frac{\mu_0}{2\pi}\frac{Ai}{r^3}$

$\Rightarrow B \propto \frac{1}{r^3}.$

22. **(3)** $\vec{E}$ and $\vec{B}$ are mutually perpendicular to each other and are in phase i.e. they become zero and minimum at the same place and at the same time.

23. **(3)** From the principle of dimensional homogeneity

$[x] = [bt^2] \Rightarrow [b] = \left[\frac{x}{t^2}\right]$

$\therefore$ Unit of $b = km/s^2$

24. **(1)** $C = \sqrt{\frac{\gamma RT}{M}}$

$\Rightarrow C = \frac{1}{\sqrt{M}}$

$\frac{C_{H_2}}{C_{O_2}} = \sqrt{\frac{32}{2}} = 4:1.$

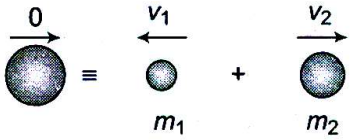
25. **(3)**

26. **(3)** $T^2 \propto R^3$

27. **(2)** As heat gained by 1st liquid = heat lost by 2nd liquid.

$\therefore mc_1(32-20) = mc_2(40-32)$

$\therefore \frac{c_1}{c_2} = \frac{8}{12} = \frac{2}{3}.$

28. **(4)** 

$0 = -m_1v_1 + m_2v_2 \Rightarrow m_1v_1 = m_2v_2 = p$

$\frac{E_1}{E_2} = \frac{p^2/2m_1}{p^2/2m_2} = \frac{m_2}{m_1}.$

29. **(2)** $V = \frac{KP\cos\theta}{r^2}$

$V \propto \frac{1}{r^2}$

30. **(2)** Work done again frictional force

$= \mu N \times 10$

$= 0.1 \times 5 \times 10 = 5J$

31. **(2)** $U = x^2 - 8x$

$F = -\frac{dU}{dx} = -2x + 8$

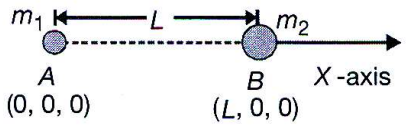
For equilibrium $F = 0$

$-2x + 8 = 0$

$x = 4m$

32. **(4)**

33. **(2)** If follows from the figure that,



$$X_{CM} = \frac{m_1 \times 0 + m_2 \times L}{m_1 + m_2} = \frac{m_2 L}{m_1 + m_2}$$

$$Y_{CM} = \frac{m_1 \times 0 + m_2 \times 0}{m_1 + m_2} = 0$$

$$Z_{CM} = \frac{m_1 \times 0 + m_2 \times 0}{m_1 + m_2} = 0$$

i.e., the centre of mass is at a distance $\frac{m_2 L}{m_1 + m_2}$ from m_1 internally on the line joining the two particles.

34. **(3)** $g = \frac{4\pi^2 l}{T^2}$

Percentage error in g,

$$\frac{\Delta g}{g} \times 100 = \left(\frac{\Delta l}{l} + 2\frac{\Delta T}{T}\right) \times 100$$

$$= \frac{1}{100} \times 100 + 2 \times \frac{1}{100} \times 100$$

$$= 1\% + 2\% = 3\%.$$

35. **(4)** Mass of disc $\propto$ area

$\therefore M_A = 4M_B$

$$\therefore \frac{I_A}{I_B} = \frac{\frac{1}{2}M_A R_A^2}{\frac{1}{2}M_B R_B^2} = 4 \times 4 = 16.$$

SECTION - B (Attempt Any 10 Questions)

36. **(1)**

37. **(1)**

38. **(4)** Path difference at P,

$$S_2P - S_1P = \frac{\lambda}{2}$$

$$\sqrt{5}d - 2d = \frac{\lambda}{2}$$

$$\Rightarrow d = \frac{\lambda}{2(\sqrt{5} - 2)}$$

39. **(2)** The smallest frequency and largest wavelength in ultraviolet region will be for transition of electron from orbit 2 to orbit 1.

$$\therefore \frac{1}{\lambda} = R\left(\frac{1}{n_1^2} - \frac{1}{n_2^2}\right)$$

$$\Rightarrow \frac{1}{\lambda_{max}} = R\left(\frac{1}{1^2} - \frac{1}{2^2}\right) = R\left(1 - \frac{1}{4}\right) = \frac{3R}{4}$$

$$\Rightarrow \frac{1}{\lambda_{min}} = R\left(\frac{1}{3^2} - \frac{1}{\infty^2}\right) = \frac{R}{9}$$

$$\Rightarrow \frac{1/\lambda_{max}}{1/\lambda_{min}} = \frac{3R/4}{R/9}$$

$$\Rightarrow \lambda_{min} = \frac{3}{4} \times 9(\lambda_{max}) = \frac{27}{4} \times 122 = 823.5nm.$$

The highest frequency and smallest wavelength for infrared region will be for transition of electron from ∞ to 3rd orbit.

40. **(1)** Volume constant

$$\frac{4}{3}\pi R^3 = 27 \times \frac{4}{3} \times \pi r^3$$

$$R^3 = 27r^3$$

$$R = 3r$$

$$r = \frac{R}{3}$$

$$r^2 = \frac{R^2}{9}$$

Work done $= T \cdot \Delta A$

$$= 27T(4\pi r^2) - T4\pi R^2$$

$$= 27T4\pi\frac{R^2}{9} - 4\pi R^2 T$$

$$= 8\pi R^2 T.$$

41. **(2)** (A) $\rightarrow$ (2); (B) $\rightarrow$ (3); (C) $\rightarrow$ (4); (D) $\rightarrow$ (1)

42. **(4)** Speed of aeroplane $u = 720 \times \frac{5}{18} = 200$ m/s

Time to reach ground

$$t = \sqrt{\frac{2H}{g}} = \sqrt{\frac{2 \times 400}{9.8}} = 9 \text{ second}$$

Horizontal range is $x = ut = 200 \times 9 = 1800$ m

43. **(2)** $I_p = I + 9I + 2\sqrt{I \times 9I}\cos\frac{\pi}{2}$

$I_P = 10I$

$I_Q = I + 9I + 2\sqrt{I \times 9I}\cos\pi = 10I - 6I = 4I$

$\therefore I_P - I_Q = 10I - 4I = 6I$

44. **(2)**

45. **(4)** $R_1 + R_2 = R_1(1 + \alpha t) + R_2(1 - \beta t)$

$\Rightarrow R_1 + R_2 = R_1 + R_2 + R_1\alpha t - R_2\beta t \Rightarrow \frac{R_1}{R_2} = \frac{\beta}{\alpha}$

46. **(1)** From the relation of stopping distance $d_s = -\frac{v_0^2}{2a}$

Keeping a = constant, $d_s \propto v_0^2$

When initial velocity is doubled,

$v_0' = 2v_0$

$\Rightarrow d_0'' = -\frac{(2v_0)^2}{2a} = -\frac{4v_0^2}{2a} = 4d_s$

Hence, doubling the initial velocity increases the stopping distance by a factor of 4.

Stopping distance is an important factor considered in setting speed limits because it is the distance travelled by vehicle before stopping, e.g. in school zones.

So, statement I is incorrect but II and II are correct.

47. **(4)** For end to end (series combination)

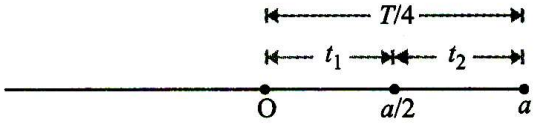
$\frac{d_1 + d_2}{(K_{eq})(A)} = \frac{d_1}{K_1 A} + \frac{d_2}{K_2 A} \Rightarrow \frac{d_1 + d_2}{K_{eq}} = \frac{d_1}{K_1} + \frac{d_2}{K_2}$

Equivalent thermal conductivity,

$K_{eq} = \frac{d_1 + d_2}{\left(\frac{d_1}{K_1} + \frac{d_2}{K_2}\right)}$

48. **(3)**

49. **(2)** Given, $t_1 + t_2 = \frac{T}{4}$ or $t_2 = \frac{T}{4} - t_1$



At time, $t = t_1$, $x = a/2$

$\therefore \frac{a}{2} = a\sin\omega t$ or $\omega t_1 = \frac{\pi}{6}$ or $t_1 = \frac{\pi}{6\omega}$

$\therefore t_2 = \frac{T}{4} - \frac{\pi}{6\omega} = \frac{2\pi}{4\omega} - \frac{\pi}{6\omega} = \frac{2\pi}{6\omega}$

$\therefore t_1 : t_2 = 1 : 2.$

50. **(1)** 20 division of vernier scale = 8 div. of main scale $\Rightarrow$ 1V.S.D. $= \left(\frac{8}{20}\right)M.S.D. = \left(\frac{2}{5}\right)M.S.D.$

Least count = 1 M.S.D. – 1 V.S.D.

$= 1\text{ M.S.D.} - \left(\frac{2}{5}\right)M.S.D. = \left(1 - \frac{2}{5}\right)M.S.D.$

$= \frac{3}{5}M.S.D. = \frac{3}{5} \times 0.1\text{ cm} = 0.06\text{ cm}$

(Q.1 M.S.D. $= \frac{1}{10}$ cm = 0.1 cm).

CHEMISTRY

SECTION - A (35 Questions)

51. **(1)**
Kolbes reaction of phenol.

52. **(3)**
On dilution degree of dissociation of a weak water depends on the extent of its ionization.

53. **(3)**

$2C_6H_5COOH \rightarrow (C_6H_5COOH)_2$

before association	1 mol	0
after association	1 – x	x/2

Total $= 1 - x + \frac{x}{2} = 1 - \frac{x}{2}$

$i = \frac{1 - x/2}{1}$

as $i = 1 - \frac{x}{2}$

54. **(1)**
(i)–(c), (ii)–(a), (iii)–(b)

55. **(2)**
(Molecular weight)/6.

56. **(3)**
Aniline must be acetylated to decrease the activity nature of NH_2 group.

57. **(3)**
Here benzaldehyde has no α-hydrogen so it does not give aldol condensation.

58. **(3)**

$P_{total} = 3P$

$\Rightarrow \quad P = \frac{0.318}{3} = 0.106$

$\therefore \quad K_p = 4P^3 = 4.76 \times 10^{-3}$

59. **(2)**

$\overset{+1}{Na}_2\ \overset{x}{S}_4\ \overset{-2}{O}_6$ $\therefore 2 + 4x - 12 = 0$ or $4x = 10$ or $x = +2.5$.

(Actually two S-atoms have an oxidation state of 'zero' and the remaining two have oxidation state of +5 each).

60. **(1)**

Due to low charge anions and large size of cation, effective nuclear charge will be less and due to strong force of attraction, the smaller anions will not allow electron density to polarise towards cation.

61. **(1)**

$2\underset{\uparrow sp^3d}{PCl_5} \rightleftharpoons \underset{\uparrow sp^3}{PCl_4^{\oplus}} + \underset{\uparrow sp^3d^2}{PCl_6^{\ominus}}$

62. **(1)**

In (2), (3) and (4), carbanion is stablised by resonance, but in (1) it is not stabilized. Moreover (+I) effect of (Me) group destablizes the carbanion in (1).

63. **(4)**

SN^2 reaction is fevaourable by small alkyl groups.

64. **(3)**

Reducing agents donate electrons.

65. **(3)**

N_2, CO, CN^-, O_2^{+2} all have 14 electrons so they are iso electronic.

66. **(1)**

Electron releasing group ($-CH_3$) increases basic nature while electron withdrawing ($-NO_2$, $-CN$) decreases the basic nature of amines. –I and –R effect of –CN is lesser than $-NO_2$, so III is more basic than II.

67. **(2)**

1-(2), 2- (1), 3-(4), 4- (3)

68. **(3)**

(1), (4)

69. **(1)**

Fe^{2+}, Mn^{2+}

70. **(4)**

Statement-1 is false, Statement-2 is false

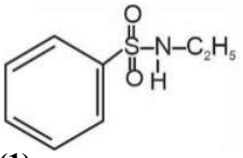
71. **(4)**

Zn, Cd and Hg belong to 3d, 4d and 5d series of transition elements (group 12). Do to imperfect screening effect of d-and f-orbitals in transition elements, EN increases down the group 12.

72. **(2)**

If both assertion and reason are true but reason is not the correct explanation of assertion.

73. **(1)**



74. **(1)**

Tropone is a non-benzenoid aromatic compounds

75. **(4)**

For NaOH, M = N

$N_1V_1 = 100ml \times 1N = 100ml(N)$

For H_2SO_4, $N_2V_2 = 10ml \times 10N = 100ml(N)$

Hence, $N_1V_1 = N_2V_2$.

76. **(3)**

As enthalpy of reaction is negative, hence it is an exothermic reaction.

77. **(3)**

Lead prefers to form divalent compounds because +2 oxidation state of Pb is most stable due to inert-pair effect. In carbonate ion, all the three C–O bonds are equal due to resonance.

78. **(2)**

Stronger 2p (B)-2p(F) π bonding

79. **(1)**

Conc. HNO_3

80. **(4)**

Addition of HCl is according to Markovnikov rule.

$$CH_3{-}C{\equiv}CH + HCl \xrightarrow{R_2O_2} CH_3{-}\underset{\displaystyle Cl}{\overset{\displaystyle Cl}{\overset{|}{\underset{|}{C}}}}{-}CH_3$$

81. **(2)**

(A) → (i), (B) → (ii), (C) → (iii), (D) → (iv)

82. **(2)**

If both assertion and reason are true but reason is not the correct explanation of assertion

83. **(4)**

Linkage isomerism, ionization isomerism and geometrical isomerism

84. **(3)**

$[Fe(CO)_4]^{2-}$ Since metal atom is carrying maximum –ve charge therefore it would show maximum

synergic bonding as a result C–O bond length would be maximum.

85. **(4)**

1-Alkyne and 2 -Alkyne can give both Baeyer's reagent and Br_2 in CCl_4 test. Therefore can not be destinguished.

SECTION - B (Attempt Any 10 Questions)

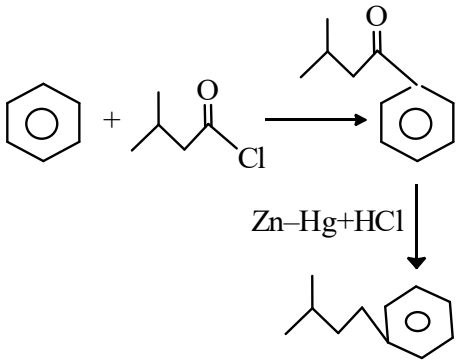
86. **(4)**

TeF_6 undergoes hydrolysis to form $Te(OH)_6$. SF_6 does not hydrolyse because of its compact symmetrical structure.

87. **(1)**

The absorption of energy or the observation of colour in a complex transition compound depends on the charge of the metal ion and the nature of the ligands attached. The same metal ion with different ligands shows different absorption depending upon the type of ligand. The presence of weak field ligands make the central metal ion to absorb low energies i.e., of higher wavelength. The field strength of ligands can be obtained from spectrochemical series. i.e., (weak field) $I^- < Br^- < S^{2-} < Cl^- < NO_3^- < F^- < OH^- < H_2O < NH_3 < NO_2^- < CN^- < CO$ (strong field).

88. **(4)**



89. **(1)**

If both assertion and reason are true and reason is the correct explanation of assertion.

90. **(3)**

wt. of metallic chloride = 74.5

wt. of chlorine = 35.5

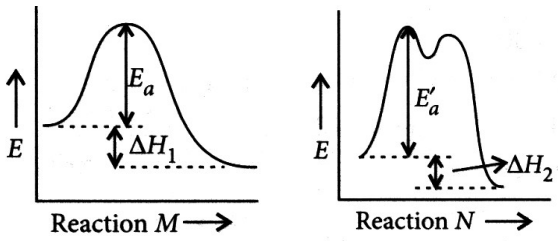
wt. of metal = 74.5 – 35.5 = 39

Equivalent weight of metal

$$= \frac{\text{weight of metal}}{\text{weight of chlorine}} \times 35.5$$

$$= \frac{39}{35.5} \times 35.5 = 39$$

91. **(3)**



$E_a < E_a^{'}$ So, reaction M is faster

$\Delta H_1 > \Delta H_2$; so, reaction M is more exothermic.

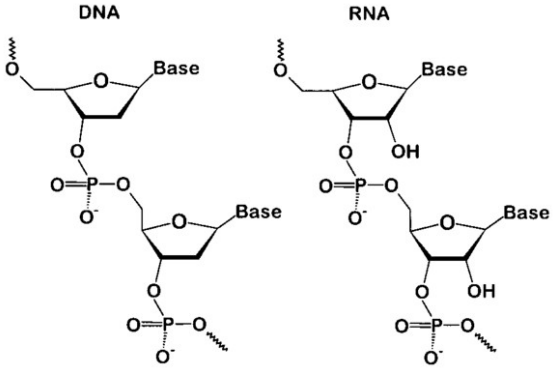
92. **(3)**

Three equatorial lone pairs on the central I atom and two axial bonding pairs in a trigonal bipyramidal arrangement.

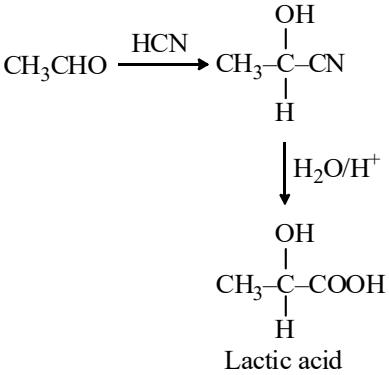
93. **(3)**

Conceptual fact.+

94. **(3)**



95. **(4)**



Lactic acid

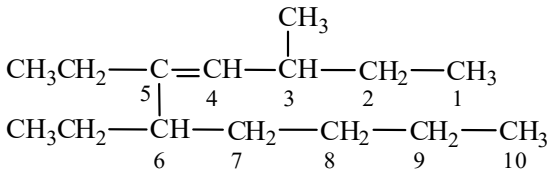
96. **(2)**

Infinite dilution, each ion makes definite contribution to equivalent conductance of an electrolyte, whatever be the nature of the other ion of the electrolyte

97. **(2)**

CH_3COONa, NaCN (Salt of WA and SB)

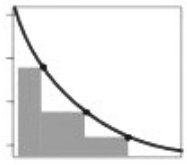
98. **(1)**



99. **(3)**
For a spontaneous reaction
ΔG should be $(-ve)$, which is possible if $\Delta S = +ve$, $\Delta H = +ve$ and $|T\Delta S| > |\Delta H|$
$[As\ \Delta G = \Delta H - T\Delta S]$.

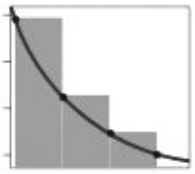
100. **(1)**

Expansion

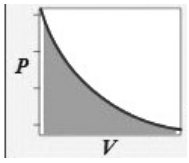


irreversible

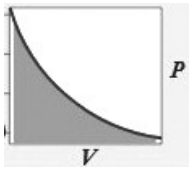
Compression



irreversible



reversible



reversible

BOTANY

Section - A (35 Questions)

101. **(3)** (NCERT 11th, Page no-25, Last Paragraph, Line no- 8,9)
102. **(4)** [NCERT class XI, Page no. 89, Figure 6.4]
103. **(3)** (NCERT 12th, Page no-21, 3rd paragraph, Line no- 7 and 8)
104. **(2)** (NCERT 12th, Page no-31, 2nd paragraph, Line no- 17-21)
105. **(2)** (NCERT XI Pg.237, 1st Para, 1st line)
106. **(3)** (NCERT XII, Pg 77, Based on Table 5.2 (Multiple alleles))
107. **(1)** [NCERT class XI, Page no. 91 (Line no.-08-11), 92 (Line no.-03-04), 93 (Point 6.3.4), 87 (Line no.-01-02)]
108. **(2)** (11th Para 8.5.6, Figure 8.9, Page no.136)
109. **(2)** (NCERT 11th, Page no-23, Paragraph-2.3.2, Line no- 1-4)
(NCERT 11th, Page no-24, 1st Paragraph, Line no- 1-5)
110. **(4)** (NCERT XI Pg. No. 210 figure 13.3a and 13.3b based)
111. **(4)** (NCERT XI Page No. 69; Sub-topic 5.3)
112. **(4)** (NCERT XI Page No.73; Sub-topic 5.5)
113. **(1)** (12th NCERT Page no.39, last para)
114. **(3)** (11th NCERT page no.32 to 44)
115. **(1)** (NCERT 12th, Sexual Reproduction in flowering plants, NCERT conceptual)
116. **(3)** (NCERT XI Pg. No. 218, 1st and 2nd paragraph)
117. **(4)** (NCERT XII, Pg 71, Table 5.1)
118. **(2)** (11th Para 8.5.3, Page no. 133, 134)
119. **(4)** (NCERT XII, Pg 85, based on POLYGENIC INHERITANCE)
120. **(4)** [NCERT class XI, Page no. 90, First paragraph, Point no. 6.2.3]
121. **(2)** (11th Para 10.4.2, Page no. 169/bot.)
122. **(3)** (11th Para 10.4.1, Page no. 168)
123. **(3)** (NCERT 11th, Page no-9, Paragraph-1.3.3, Line no-4,5)
(NCERT 11th, Page no-10, Paragraph-1.3.4, Line no-8,9)
124. **(4)** (NCERT XI; Sub-topic 5.7.2, 5.9.2; 5.5 & added family)
125. **(3)** (11th NCERT Page no.38)
126. **(3)** (12th NCERT page no.249 2nd para)
127. **(1)** (NCERT XII, Pg 80, Based on Law of Independent Assortment)
128. **(2)** (NCERT XII, Pg 105, Figure 6.7 Meselson and Stahl's Experiment based)
129. **(4)** (NCERT XII, Pg 122, Para 2)
130. **(4)** (NCERT XII, Pg 115, Para 2, Line 7)
131. **(2)** (NCERT XII, Pg 117, Fig- 6.14)
132. **(3)** [NCERT XI, Page 248 (Point 15.4.3.1), 249 (Point 15.4.3.2) & 250 (Line no.- 02)]
133. **(4)** (NCERT XI Pg.235, 146, 2nd para, 7th line)
134. **(1)** (NCERT XI Pg.232, 14.3, 1st Para, 6th line)
135. **(3)** (NCERT 11th, Page no-26, 2nd Paragraph, Line no- 2,3)

SECTION - B (Attempt Any 10 Questions)

136. **(2)** [NCERT XI, Page 243, Figure 15.6]
137. **(2)** (NCERT XI; Sub-topic 5.3 and 5.5)
138. **(2)** (NCERT XII, Pg 121, Para 3, line 1)

139. **(4)** (NCERT XII, Pg 99, Para 5, Line 12)
140. **(3)** (12th NCERT Page no.245, conceptual)
141. **(2)** (NCERT XII, Pg 76, Para 1, Line 3)
142. **(4)** (11th Para 8.3, Page no. 126, 127)
143. **(2)** (11th NCERT Page no.33 table 3.1)
144. **(1)** (NCERT 11th, Page no-20,21, Paragraph-2.2.1, 2.2.2, 2.2.3)
145. **(1)** (NCERT 12th, Page no-23, 2nd paragraph, Line no- 20-22)
146. **(2)** (11th Para 10.1.1 concept based/Page no. 163)
147. **(3)** (NCERT XI Pg. No. 220, 13.9, 3rd and 4th paragraph)
148. **(2)** (11th Para8.5.5, Page no.135)
149. **(2)** (NCERT XII, Pg 75, 5.2.1 Law of Dominance, 5.2.2 Law of Segregation)
150. **(3)** (NCERT 11th, Page no-9, Paragraph-1.3.3, Line no-1 and 2)

ZOOLOGY

Section - A (35 Questions)

151. **(2)** (12th Para 10.2.2 Page no. 182)
152. **(4)** (12th Para10.3, Page no.184)
153. **(4)** (NCERT 11th, Page no- 143, Table-9.1)
154. **(4)** (NCERT 11th, Page no-146, Paragraph- 9.2, Line no- 1 to 23 concept based)
155. **(3)** (NCERT 12th, Page no-137, 3rd Paragraph, Line no- 11 and 12)
156. **(1)** (NCERT 12th, Page no-138, Figure-7.9)
157. **(1)** (NCERT 12th, Page no-131,1st paragraph, line no- 10-13)
158. **(1)** (NCERT XI Page No. 212, 2nd Paragraph of 16.5)
159. **(3)** (NCERT XI Page No. 333, 10th line of 2nd paragraph)
160. **(1)** (NCERT XI Page No. 334, 2nd paragraph)
161. **(3)** (NCERT XI Page No. 54, examples of mollusca)
162. **(1)** (NCERT XI Page No. 49, 13th line of phylum porifera)
163. **(4)** [NCERT P. No.305 1st Para & Dig:20.2]
164. **(4)** [NCERT P.No.306 Last Para]
165. **(2)** [NCERT P.No.310 12th Line]
166. **(4)** [NCERT P. No.317 Last Para , 9th & 10Th Line]
167. **(4)** [NCERT P. No.321, Last Para]
168. **(1)** [NCERT P. No.321 Hindbrain, Lst Line]
169. **(2)** [NCERT P.No. 208, 2nd last para,P-213,3rd & 4th lineP-208,GMO Points,]
170. **(3)** [NCERT P.No.212, 3rd para]
171. **(4)** (12th NCERT page no.229 concept based)
172. **(4)** (12th NCERT Page no.267)
173. **(2)** (12th NCERT, Page no.263,15.1.4)
174. **(2)** (NCERT 12th p.no 48., para3)
175. **(1)** (NCERT12th p.no 48.,43)
176. **(4)** (NCERT12th p.no 59, para2)
177. **(1)** (NCERT 11th, p.no.118, para2, Line7)
178. **(3)** (NCERT 11th, p.no.114, para3, Line9)
179. **(3)** (NCERT12th p.no 62, MTP)
180. **(3)** (NCERT Pg.No. 150-152)
181. **(2)** (NCERT Pg. No. 186, Respiratary volumes)
182. **(2)** (NCERT Page No. 198, Human circulatory system)
183. **(3)** (NCERT Pg. No. 203, Disorders)
184. **(2)** (NCERT Pg. No-159)
185. **(3)** (NCERT Pg. No-285)

Section - B (Attempt Any 10 Questions)

186. **(4)** (12th NCERT Page no.232 table no.13.1, concept)
187. **(4)** (NCERT12th p.no 43,47)
188. **(3)** (NCERT 11th, p.no.103, para3, Line8)
189. **(4)** (NCERT Pg. No. 160, Drug & alcohol)
190. **(4)** (Page No. 197, Circulatory pathways)
191. **(1)** (NCERT based extra)
192. **(3)** (NCERT XI Page No. 294, last paragraph)
193. **(4)** (12th Para10.3, Page no.184)
194. **(1)** (NCERT XI Page No. 52; phylum Aschelminthes)
195. **(3)** (NCERT 11th, Page no-144, 2nd Paragraph, Line no-4 and 5)
196. **(4)** (NCERT 12th, Page no-137, 3rd Paragraph, Line no- 5 to 8)
197. **(3)** (NCERT12th p.no 59, para1, line1)
198. **(1)** [NCERT P.No.209, 9th & 10th Line]
199. **(1)** [NCERT P. No.321 Midbrain 1st Line]
200. **(4)** [NCERT Practical Syllabus. P.No.125 Point IX]