S ANSWER KEY & SOLUTION KEY FINAL ROUND - 12 (PCB) Dt.21.04.2024

PHYSICS

SECTION - A (35 Questions)

01. **(1)** Solid sphere reaches the bottom first because

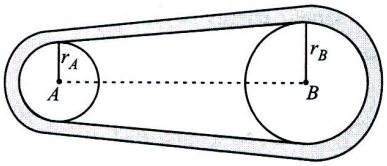
for solid cylinder $\frac{K^2}{R^2}=\frac{1}{2}$ and for hollow cylinder

$\frac{K^2}{R^2}=1$

Acceleration down the inclined plane $\propto \frac{1}{K^2/R^2}$.

Solid cylinder has greater acceleration , so it reaches the bottom first.

02. **(1)**



As the belt does not slip, $v_A = v_B$

or $r_A\omega_A = r_B\omega_B$ or $\frac{\omega_A}{\omega_B}=\frac{r_B}{r_A}=3$

If both the wheels have same angular momentum, then

$I_A\omega_A = I_B\omega_B$ or $\frac{I_B}{I_A}=\frac{\omega_A}{\omega_B}=3$

03. **(1)** $\frac{dQ}{dt}=\frac{KA\Delta\theta}{l}$

For both rods K, A and $\Delta\theta$ are same.

$\therefore \frac{dQ}{dt}\propto\frac{1}{l}$

So $\frac{(dQ/dt)_{\text{Semicircular}}}{(dQ/dt)_{\text{Straight}}}=\frac{l_{\text{Straight}}}{l_{\text{Semicircular}}}=\frac{2r}{\pi r}=\frac{2}{\pi}$

04. **(2)** Current density $J=\frac{i}{A}=\frac{i}{\pi r^2}\Rightarrow\frac{J_1}{J_2}=\frac{i_1}{i_2}\times\frac{r_2^2}{r_1^2}$

But the wires are in series, so they have the same current, hence $i_1=i_2$. So $\frac{J_1}{J_2}=\frac{r_2^2}{r_1^2}=9:1$

05. **(1)** **(A)→(2); (B)→(1); (C)→(4); (D)→(3)**

06. **(3)** At the time of maximum elongation

$\Delta PE_g = \Delta PE_s$

$Mgx=\left(\frac{1}{2}k_1x^2+\frac{1}{2}k_2x^2\right)-0$

$4(10)\,x=\frac{1}{2}\,(400)\,x^2$

$x=\frac{1}{5}m\Rightarrow x_{\max}=20$ cm

07. **(3)** $a_{\text{rel}}=g-g=0$

$\vec{v}_{rel}=$ constant

$=50+50=100$ m/s

08. **(2)** Here, $\vec{M}=50\hat{i}\ Am^2$, $\vec{B}=(0.5\hat{i}+3.0\hat{j})T$

$\vec{\tau}=\vec{M}\times\vec{B}=(50\hat{i})\times(0.5\hat{i}+3.0\hat{j})$

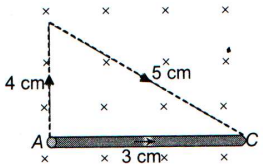
$\vec{\tau}=150\times\hat{i}\times\hat{j}=150\hat{k}$ Nm

09. **(1)** Using $R_{T_2}=R_{T_1}[1+\alpha(T_2-T_1)]$

$\Rightarrow R_{100}=R_{50}[1+\alpha(100-50)]$

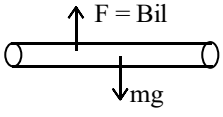
$\Rightarrow 7=5[1+(\alpha\times50)]\Rightarrow\alpha=\frac{(7-5)}{250}=0.008/°C$

10. **(3)** The given curved wire can be treated as a straight wire as shown.



Force acting on the wire AC,

F = Bil = 2 × 2× 3 × 10^{-2} = 12 × 10^{-2} N along y-axis.



F = 12 × 10^{-2} N.

mg = 10 × 10^{-3} × 10 = 10 × 10^{-2} N

$F_{net} = F - mg$

$F_{net} = 2 \times 10^{-2}$ N

$ma = 2 \times 10^{-2} \Rightarrow 10^{-2} a = 2 \times 10^{-2}$

$a = 2$ m/s^2

11. **(3)** Here, $V_0 = 10^{-6}$ m^3, $A = 2 \times 10^{-7}$ m^2

$\Delta T = 100°C, \Delta L = ?, \gamma = 18 \times 10^{-5} / °C$

Now,

$\Delta V = \gamma V(\Delta T) = 18 \times 10^{-5} \times 10^{-6} \times 100 = 18 \times 10^{-9} m^3$

As $\Delta V = A(\Delta L)$

$\therefore \Delta L = \frac{\Delta V}{A} = \frac{18 \times 10^{-9}}{2 \times 10^{-7}} = 9 \times 10^{-2} m = 9cm$.

12. **(1)** $\lambda = \frac{c}{f} = \frac{3 \times 10^8}{120 \times 10^6} = 2.5m$

13. **(3)**

14. **(4)** When $b = 0$, scattering angle, $\theta = 180°$.

15. **(2)** Liberated energy

Q = 117 × 8.5 + 117 × 8.5 – 7.6 × 236 = 195.4 MeV.

Thus, in fission of one Uranium nuclei nearly 195 MeV energy is liberated.

16. **(4)** $\upsilon_1 = \frac{dy_1}{dt} = 2 \times 10 \cos(10t + \theta)$

$\upsilon_2 = -3 \times 10 \sin 10t = 30 \cos(10t + \frac{\pi}{2})$

$\therefore$ Phase difference

$= (10t + \theta) - (10t + \frac{\pi}{2}) = \theta - \frac{\pi}{2}$.

17. **(2)** The velocity of transverse wave,

$v = \sqrt{\frac{T}{\mu}} \Rightarrow \frac{v_1}{v_2} = \sqrt{\frac{T_1}{T_2}} \Rightarrow \frac{v}{v} \times 2 = \sqrt{\frac{2.06 \times 10^4}{T}}$

$\Rightarrow T = \frac{2.06 \times 10^4}{4} = 0.515 \times 10^4$ N

$\Rightarrow T = 5.15 \times 10^3$ N

18. **(2)** Shift in fringe pattern $= \frac{\beta}{\lambda}(\mu - 1)t$

$= \frac{\lambda D / d}{\lambda}(\mu - 1)t = \frac{D}{d}(\mu - 1)t$

19. **(2)** F = BIL $\therefore$ Dimension of

$[B] = \frac{[F]}{[I][L]} = \frac{[MLT^{-2}]}{[I][L]} = [MT^{-2}I^{-1}]$

Now dimension of

$[P] = \frac{B^2 l^2}{m} = \frac{[MT^{-2}I^{-1}]^2 \times [L^2]}{[M]}$

$= [ML^2T^{-4}I^{-2}]$

20. **(3)** $f_1 = 3, f_2 = 5, n_1 = 3, n_2 = 2$

$f_{mixture} = \frac{n_1 f_1 + n_2 f_2}{n_1 + n_2} = \frac{9 + 10}{f} = \frac{19}{5}$

$\gamma_{mixture} = 1 + \frac{2 \times 5}{19} = \frac{29}{19} = 1.52.$

21. **(3)** As, current in loop A increases with time, the loop B opposes the increases in magnetic flux (due to increasing current in A). According to Lenz's law, induced current in B will be such that the loop B is repelled by the loop A.

22. **(2)**

23. **(4)** Process iaf: $\Delta Q = \Delta U + \Delta W$

$\Delta U = U_f - U_i = \Delta Q - \Delta W = 50 - 20 = 30J$

Process f to i :

$\Delta Q = \Delta U + \Delta W = U_i - U_f + \Delta W$

$= -30 - 13 = -43$ J.

24. **(1)** Viscous force $(F) = \eta A \times \frac{dv}{dx} \propto A$ (Where A is the area of the plates).

Hence, the correct answer is option (1)

25. **(2)** Here, $\Delta x = 3.75 \mu m = 3.75 \times 10^{-6} m$

$\lambda = 5000 \mathring{A} = 5 \times 10^{-7} m$

Now $\frac{\Delta x}{\lambda} = \frac{3.75 \times 10^{-6}}{5 \times 10^{-7}} = \frac{37.5}{5} = 7.5$

$\Delta x = 7.5 \lambda$

i.e. path difference is odd integral multiple of half the wavelength. Therefore, the point will be dark.

26. **(3)**

$\because$ Least count is of three decimal places

So correct measurement will be 5.320 cm

27. **(3)** The capacitance of a parallel plate capacitor in the absence of the dielectric is

$C_0 = \frac{\varepsilon_0 A}{d}$ ...(i)

where A is the area of each plate and d is the distance between them.

The capacitance of a parallel plate capacitor in the presence of dielectric slab of thickness t and dielectric constant K, is

$$C=\frac{\varepsilon_0 A}{(d-t)+\left(\frac{t}{K}\right)}=\frac{\varepsilon_0 A}{\left(d-\frac{3}{4}d\right)+\left(\frac{3d}{4K}\right)}$$

$$C=\frac{\varepsilon_0 A}{\frac{d}{4}+\frac{3d}{4K}}=\frac{4K\varepsilon_0 A}{d(K+3)} \quad ...(ii)$$

Divide (ii) by (i), we get

$$\frac{C}{C_0}=\frac{4K\varepsilon_0 A}{d(K+3)}\times\frac{d}{\varepsilon_0 A}=\frac{4K}{K+3}$$

28. **(2)** $\vec{F}_1+\vec{F}_2+\vec{F}_3+\vec{F}_4+\vec{F}_5=2(4\hat{i})$ ...(i)

and $\vec{F}_2+\vec{F}_3+\vec{F}_4+\vec{F}_5=2(7\hat{j})$ ...(ii)

From (i) and (ii), $\vec{F}_1=8\hat{i}-14\hat{j}$

$$\vec{a}_1=\frac{\vec{F}_1}{m}=4\hat{i}-7\hat{j}\Rightarrow a_1=\sqrt{16+49}=\sqrt{65}\ \text{m/s}^2$$

29. **(1)** 30. **(2)**

31. **(1)** Work done W = $\vec{F}\times\vec{s}$

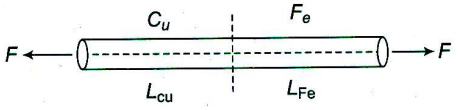
Here, displacement in the direction of force is R, so

Work done = FR

32. **(1)** In a purely inductively or capacitive circuit, power factor, $\phi=0$ and no power is dissipated even though a current is flowing in the circuit. In such case, current is referred to as wattless current.

33. **(4)**

34. **(2)**



Stress is same $\sigma=F/A$

Stain $\in_{Cu}=\frac{\sigma}{Y_{Cu}},\in_{Fe}=\frac{\sigma}{Y_{Fe}}$.

35 **(1)**

SECTION - B (Attempt Any 10 Questions)

36. **(3)** As force, F = mass × accen $=m(-\omega^2 y)=-m\omega^2 y$

i.e., $F\propto y$ so $\frac{F_2}{F_1}=\frac{y_2}{y_1}$ or

$$F_2=F_1\times\frac{y_2}{y_1}=\frac{9\times6}{4}=13.5N.$$

37. **(1)**

38. **(1)** According to de-Broglie theory, de-Broglie wave is given by $\lambda=\frac{h}{p}=\frac{h}{mv}$

$v=u+at$

$$v=v_0-\frac{eE}{m}t$$

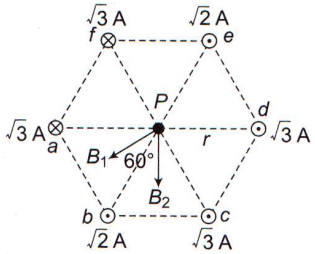
Hence, the correct answer is option (1).

39. **(4)** Here, the centre of mass of the system remains unchanged when the mass m moved a distance $L\cos\theta$, let the mass $(m+M)$ moves a distance x in the backward direction.

$\therefore (M+m)x-mL\cos\theta=0$

$$\therefore x=\frac{mL\cos\theta}{M+m}.$$

40. **(2)** Magnetic field at P will be zero due to b and e. Field at P due to c and f.



$$B_1=2\left[\frac{\mu_0\sqrt{3}}{2\pi r}\right]=\frac{4\times10^{-7}\sqrt{3}}{3\times10^{-2}}=\frac{40}{\sqrt{3}}\mu T$$

Field at P due to a and d :

$$B_2=2\left[\frac{\mu_0\sqrt{3}}{2\pi r}\right]=\frac{40}{\sqrt{3}}\mu T$$

Net field at P :

$$B=\sqrt{B_1^2+B_2^2+2B_1B_2\cos60^0}=40\mu T$$

41. **(2)** Here, n_1 = 500, L_1 = 125 mH, n_2 = 800, L_2 = ?

$$\frac{L_2}{L_1}=\frac{n_2^2}{n_1^2}=\frac{(800)^2}{(500)^2}=\frac{64}{25}$$

$$\Rightarrow L_2=\frac{64}{25}L_1=\frac{64}{25}\times125mH=320mH.$$

42. **(2)** $W=\frac{2\pi}{T}=100\pi\Rightarrow T=\frac{2}{100}s=20$ ms

time for $\frac{A}{2}$ to A (like SHM)

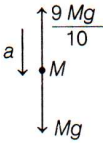
$$=\frac{T}{6}=3.3\,\text{ms}$$

43. **(2)** By Newton's third law of motion,

Reaction by floor on mass M = $\frac{9Mg}{10}$ (Upward)

From figure,

F_{net} = on cabin of mass M



$= Mg - \frac{9Mg}{10} = \frac{Mg}{10}$ (downward)

By second law, $\frac{Mg}{10} = Ma \Rightarrow a = \frac{g}{10}$

44. **(1)** $A_1 = 5, A_2 = 3$

$\Delta\phi = 2\pi(1.5) = 3\pi$

$A_{net} = \sqrt{A_1^2 + A_2^2 + 2A_1A_2\cos(3\pi)}$

$= |A_1 - A_2| = 2$ cm

45. **(1)** $(n+1)$ divisions of vernier scale
$= n$ divisions of main scale

$\therefore$ 1 vernier division = $\frac{n}{n+1}$ main scale division

Least count = 1 M.S.D. – 1 V.S.D.

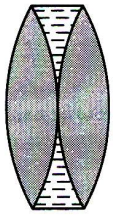
$= \left(1 - \frac{n}{n+1}\right) M.S.D. = \left(\frac{1}{n+1}\right) M.S.D. = \frac{a}{n+1}$

46. **(4)** $\frac{1}{f} = (1.5-1)\left(\frac{1}{R} + \frac{1}{R}\right)$

$\therefore \; R = f$

For the water len, $\frac{1}{f'} = \left(\frac{4}{3} - 1\right)\left(-\frac{1}{R} - \frac{1}{R}\right)$

$= \frac{1}{3}\left(-\frac{2}{f}\right)$



or $\frac{1}{f'} = \frac{-2}{3f}$

Now using, $\frac{1}{F} = \frac{1}{f_1} + \frac{1}{f_2} + \frac{1}{f_3}$

we have, $\frac{1}{F} = \frac{1}{f} + \frac{1}{f} + \frac{1}{f} = \frac{2}{f} - \frac{2}{3f} = \frac{4}{3f}$

$\therefore F = \frac{3f}{4}$.

47. **(3)** When a particle is released from rest position under gravity, then $v = 0$ but $a \neq 0$.

Also, a body s momentarily at rest at the instant, if it reverse the direction.

Therefore, Statement I is true but Statement II is false.

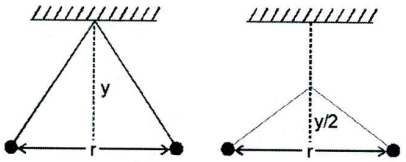
48. **(3)** Let v be the velocity with which the satellite strikes the surface of the earth. According to law of conservation of total mechanical energy, we get

$-\frac{GMm}{R+h} = \frac{1}{2}mv^2 - \frac{GMm}{R}$ or $v^2 = \frac{2GM}{R} - \frac{2GM}{R+h}$

$\because v_0 = \sqrt{\frac{GM}{R+h}}$ and $v_e = \sqrt{\frac{2GM}{R}}$

$\therefore v = \sqrt{v_e^2 - 2v_0^2}$.

49. **(1)**

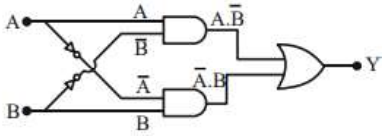


From figure, $\tan\theta = \frac{F_e}{mg} \Rightarrow \frac{r/2}{y} = \frac{\frac{kq^2}{r^2}}{mg}$

[$\because F = \frac{kq^2}{r^2}$ from coulomb's law]

$\Rightarrow r^3 \propto y \Rightarrow r'^3 \propto \frac{y}{2} \Rightarrow \frac{r'}{r} = \frac{1}{2^{1/3}} \Rightarrow r' = \frac{r}{\sqrt[3]{2}}$

50. **(2)**



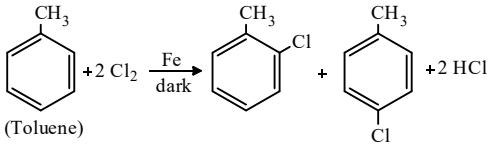
$Y = A \cdot \overline{B} + \overline{A} \cdot B$

This is XOR GATE

CHEMISTRY

SECTION - A (35 Questions)

51. **(1)**



52. **(1)**

In π acid ligand back bonding also take place which in value filled orbitals of metal and vacant orbitals of ligand this is synergic effect.

53. **(4)**

$[CoCl(NH_3)_3(H_2O)_2]Cl_2$

54. **(3)**

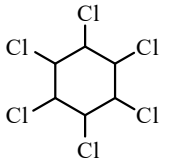
(P)-(2); (Q)-(1); (R)-(4); (S)-(3)

55. **(1)**

$\because$ Strength of acid $\propto \frac{1}{pK_a}$

$\therefore$ Formic acid will be strongest acid.

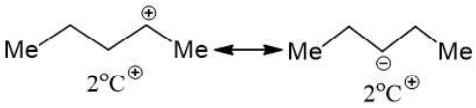
56. **(2)**



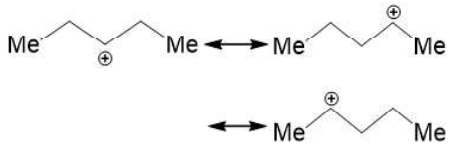
Structre of B.H.C.

57. **(1)**

Here, (1) is stable because it would not change to other stable carbocation. It can only change $2^{o}C^{\oplus}$ to $2^{o}C^{\oplus}$



On the other hand, (2) can change to two $2^{o}C^{\oplus}$ structures



Furthermore, (3) is stabilized by 1, 2-Me shift and (4) is stabilized by 1, 2-$H^{\oplus}$ shift.

58. **(1)**

$Co^{3+} = [Ar]3d^6$, unpaired $e^-(n) = 4$

Spin magnetic moment

$$(\mu) = \sqrt{4(4+2)} = \sqrt{24}\text{B.M.}$$

$Cr^{3+} = [Ar]3d^3$, unpaired $e^-(n) = 3$

Spin magnetic moment

$$(\mu) = \sqrt{3(3+2)} = \sqrt{15}\text{B.M.}$$

$Fe^{3+} = [Ar]3d^5$, unpaired $e^-(n) = 5$

Spin magnetic moment

$$(\mu) = \sqrt{5(5+2)} = \sqrt{35}\text{B.M.}$$

$Ni^{2+} = [Ar]3d^8$, unpaired $e^-(n) = 2$

Spin magnetic moment

$$(\mu) = \sqrt{2(2+2)} = \sqrt{8}\text{B.M.}$$

59. **(2)**

+3

60. **(1)**

In osmosis, solvent molecules move from lower concentration (higher vapour pressure) to higher concentration (lower vapour pressure)

61. **(4)**

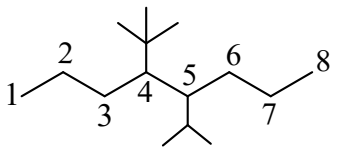
$$\text{Anode}: 2Cl^-(aq) \longrightarrow Cl_2(g) + 2e^-$$

$$\text{Cathode}: 2H_2O + 2e^- \longrightarrow H_2(g) + 2OH^-(aq)$$

Net reaction

$$2Na^+(aq) + 2Cl^-(aq) + 2H_2O(l) \longrightarrow Cl_2(g) + H_2(g) + 2OH^-(aq) + 2Na^+(aq)$$

62. **(3)**



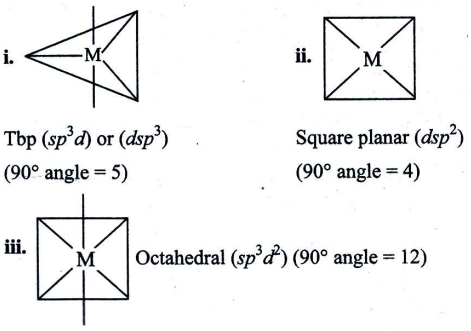
63. **(2)**

Same functional group but different chain around functional group.

64. **(1)**

H_2S has a bent shape and hence has a finite dipole moment while all other molecuels have zero dipole moment.

65. **(4)**



66. **(3)**

$$\text{Anode}: 2Ag(s) \rightleftharpoons 2Ag^+(aq) + 2e^-$$

$$\text{Cathode}: Cu^{2+}(aq) + 2e^- \rightleftharpoons Cu(s)$$

$$\text{Net reaction}: 2Ag(s) + Cu^{2+}(aq) \rightleftharpoons 2Ag^+(aq) + Cu(s)$$

67. **(2)**

Lower the activation energy, easier/faster will be the reaction.

68. **(3)**

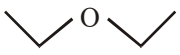
$$CH_3CH_2CH_2OH \xrightarrow{K_2Cr_2O_7, H^+} CH_3CH_2COOH$$

n-propyl alcohol — propanoic acid

$$CH_3CHOHCH_3 \xrightarrow{K_2Cr_2O_7, H^+} CH_3COCH_3$$

isopropyl alcohol — Acetone

69. **(2)**



70. **(2)**

Isoelectronic with three bond order

71. **(3)**

Moles of $Mg^{2+} = \frac{48}{24} = 2$ mole

Number of electrons $= 2 \times 10\ N_A = 20\ N_A$

72. **(4)**

$V \propto \frac{Z}{n}$

73. **(4)**

– COOH

74. **(1)**

All carbonyl compounds produce orange precipitate with 2, 4-Dinitrophenyl hydrozine.

75. **(1)**

The more the negative charge, the larger the size of anion.

Moreover along the period ($\rightarrow$) size of atom decreases.

$\therefore$ Size of $O^{\ominus} > F^{\ominus}$

Size of atom is less than its anion. Hence the order is $O^{2-} > O^{\ominus} > F^{\ominus} > F$

76. **(2)**

Factual statement

77. **(2)**

K L M N..... > energy increases.

78. **(3)**

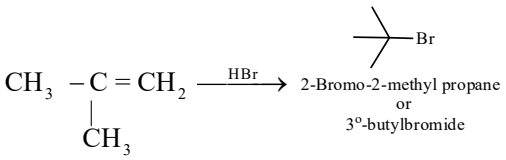
Radial node $(n - l - 1) = 2$

$l = 0,\ n = 3$

79. **(1)**

$CH_3COOH,\ C_2H_5OH$

80. **(4)**



81. **(4)**

In P_4O_{10}, there are four shorter P = O bonds and six longer P–O–P bonds.

82. **(3)**

Kr and Xe do form some chemical compounds.

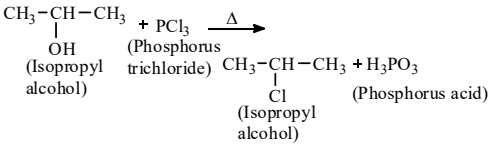
83. **(3)**

$C(s) + \frac{3}{2}H_2(g) + \frac{1}{2}Cl_2(g) \longrightarrow CH_3Cl(g)$

84. **(2)**

For O_3 to be stable, the reaction shouldn't be favourable in forward direction.

85. **(4)**



SECTION - B (Attempt Any 10 Questions)

86. **(1)**

(1) For zero order reaction $t_{1/2} \propto A_0$

(2) For zero order $A_0 - A_t = kt$

or $2t_{1/2} = t_{completion}$

(3) For 1st order reaction $t_{1/2} = \frac{0.693}{k}$

(4) Rate law expression can contain reactants, products or catalysts but not intermediates.

87. **(3)**

Hofmann's bromamide reaction is used to convert amide to amine.

$RCONH_2 + Br + 4KOH$

$\longrightarrow \underset{\text{amide}}{RNH_2} + K_2CO_3 + 2KBr + \underset{\text{amine}}{2H_2O}$

88. **(2)**

$H_2\overset{+3}{C}_2O_4.2H_2O \longrightarrow \overset{+4}{C}O_2$

$n_f = 2$

$E = \frac{126}{2} = 63$

$HNO_3\ (n_f = 1)\ \ E = \frac{63}{1} = 63$

89. **(2)**

For $3d_{xy}$ orbital:

Number of nodal plane = $\ell = 2$ (xz & yz plane)

Number of radial nodes = $n - \ell - 1 = 3 - 2 - 1 = 0$

90. **(3)**

In this reaction

$[A] = CH_3CH_2CH_2CH_2O^-MgBr^+$

$[B] = CH_3CH_2CH_2CH_2OH$

$[C] = CH_3CH_2CH_2COOH$

91. **(1)**

(i)-(c), (ii)-(e), (iii)-(a), (iv)-(b), (v)-(d)

92. **(3)**

A is true but R is false

93. **(3)**

A red coloured ppt. is obtained

94. **(3)**

Work = area enclosed $= \frac{1}{2}(5P_1 \times 2V_1) = 5P_1V_1$

95. **(2)**

$$Q_C = \frac{[SO_3(g)]^2}{[SO_2(g)]^2[O_2(g)]^1} = 1000 > k_c$$

i.e., reaction moves backward.

96. **(3)**

$CHCl_3$ is stored in dark bottles to prevent oxidation of $CHCl_3$ in presence of sunlight.

97. (3)

$$\underset{\text{But-1-ene (X)}}{CH_3CH_2CH=CH_2} \xrightarrow{HBr} \underset{(Y)}{CH_3CH_2CH_2CH_2Br} \xrightarrow[\text{Acetone}]{NaI} CH_3CH_2CH_2CH_2I$$

98. **(1)**

On ionisation it gives maximum number of (four) ions.

99. **(1)**

$\because (T_b)_{Solvent} < (T_b)_{Solution}$;

$\therefore \Delta S_{Solv} > \Delta S_{Solution}$

$(\Delta H_{Solution}) = (\Delta H)_{Solvent}$

[Only solvent participate in vaporisation]

$(T_b)_{Solvent} < (T_b)_{Solution}$

[Due to elevation in BP of solution]

100. **(1)**

Assertion is correct, reason is correct; reason is a correct explanation for assertion.

BOTANY

Section - A (35 Questions)

101. **(1)** (NCERT 11th, Page no-10, Paragraph-1.3.5, Line no- 1)

102. **(3)** (11th NCERT para 8.5.10 based conceptual / Page no.138)

103. **(2)** (11th NCERT para10.1.1 based / Page no.163)

104. **(2)** [NCERT class XI, Page no. 88, Subpoint 6.2]

105. **(4)** [NCERT class XI, Page 246, (First paragraph)]

106. **(3)** (NCERT XI Page No. 236, 14.7 last Paragraph, 1st line)

107. **(3)** (11th NCERT Page no.37 to 38)

108. **(4)** (11th NCERT Page no.32 to 33)

109. **(4)** (11th NCERT Page no.31 Fig.3.1(b)

110. **(1)** (NCERT 11th, Page no- 27, Paragraph- 1st , Line no- 2,3 and 4)

111. **(2)** (NCERT 11th, Page no- 21, 2nd paragraph, line no- 3)

112. **(1)** (NCERT 12th, Page no- 35, Paragraph-2.4.2, Line no- 1,2)

113. **(4)** (NCERT XII, Pg 108, Para 1, Line 7)

114. **(3)** (NCERT XI page no. 212, sub-topic 13.6.1 – 3rd and 4th line)

115. **(3)** (NCERT XII, Pg 121, Based on DNA FINGER PRINTING)

116. **(4)** (NCERT XI-page no. 219 last line and first two lines of page no. 220)

117. **(4)** (NCERT 12th, Page no- 27, Paragraph-2.2.3, Line no- 3,4)

118. **(2)** (NCERT 12th, Page no- 27, Paragraph- 2nd, Line no- 6,7)

119. **(2)** (12th NCERT Page no.248, conceptual.)

120. **(3)** (NCERT XII, Pg 90 (Sickle-cell anaemia), Pg 113 (Mutations and Genetic Code))

121. **(2)** [NCERT Class XI, Page no. 91, Starting paragraph]

122. **(3)** (NCERT XI ; Page No.78; Sub-topic 5.8)

123. **(2)** (NCERT XII, Pg 106, Para 4, Line 9)

124. **(3)** (NCERT XII, Pg 106, Para 5, Line 6)

125. **(4)** (NCERT XI; Added family Malvaceae)

126. **(1)** (NCERT XII, Pg 75, Law of Segregation)

127. **(2)** (NCERT XII, Pg 78, Based on 2nd para concept)

128. **(2)** (NCERT XII, Pg 88, based on Mutation and Law of dominance)

129. **(1)** (11th NCERT para 10.4.1 based / Page no.168)

130. **(4)** (NCERT 11th, Page no- 23, Paragraph-2.3.1, Line no- 6 and 7)

131. **(3)** (NCERT XII, Pg 114, based on translation)

132. **(3)** (NCERT XII, Pg 77, Based on Para 2nd)

133. **(1)** (NCERT XI; Page No. 67; Sub-topic 5.1.2)

134. **(2)** (11th NCERT para8.4.2, 8.5.6/ Page no.129,136)

135. **(2)** (NCERT XII, Pg 99, Figure 6.4a)

SECTION - B (Attempt Any 10 Questions)

136. **(4)** [NCERT class XI, Page 248, 24, 9point 15.4.3.1]

137. **(1)** (NCERT XI Pg.233; 2nd Paragraph, last 4th line)

138. **(3)** (11th NCERT para10.4.1 based / Page no.168)
139. **(4)** (11th PK NCERT Page no 35 TO 39, CONCEPTUAL)
140. **(4)** (12th NCERT Page no.248 fig.14.4(b), concept)
141. **(2)** (NCERT XII, Pg 75, based on test cross)
142. **(2)** (NCERT 11th, Page no-8, Paragraph-1st, Line no-16-19)
143. **(2)** (11th NCERT para 10 introduction based/ Page no.162)
144. **(3)** (NCERT XI – conceptual – page no. 218, 1st paragraph)
145. **(3)** (NCERT XI; Page No. 80; Sub-topic 5.9.2)
146. **(1)** [NCERT class XI, Page 250, point 15.4.3.4]
147. **(2)** (NCERT XI Pg.230, 1st Para, 1st line)
148. **(4)** (11th NCERT para 8.4.1 / Page no. 129)
149. **(3)** (NCERT 12th, Page no- 26 and 27, Concept based)
150. **(2)** (NCERT 11th, Page no-23, Paragraph- 2nd, Line no-11-15)

ZOOLOGY

Section - A (35 Questions)

151. **(3)** (NCERT 12th, p.no. 64, para 2,line 8)
152. **(1)** (NCERT 12th, p.no. 62, para 5, line 2)
153. **(1)** [NCERT P.No.212, 3rd para]
154. **(2)** (NCERT 11th, Page no- 157, Paragraph- 1st, Line no- 1-4)
155. **(3)** (Page No. 337, last Paragraph)
156. **(1)** (Page No. 53; Phylum arthropoda)
157. **(4)** [NCERT P.No.312, Synovial Joint]
158. **(4)** (NCERT Pg.199, 3 points)
159. **(1)** (NCERT 12th, p.no. 43, para3, line2)
160. **(2)** (12th NCERT 10.1 BIOTECHNOLOGICAL APPLICATIONS IN AGRICULTURE)
161. **(1)** [NCERT P.No.304, Last Para]
162. **(3)** (NCERT Page No. 274)
163. **(4)** (NCERT Page No. 130-133)
164. **(1)** [NCERT P.No.208, GOM Points: 5th point]
165. **(3)** (12th NCERT para10.2.3 / Page no.183)
166. **(1)** (NEET-2019/NCERT Page - 284)
167. **(1)** (NEET-2014/NCERT Page - 280)
168. **(3)** (NCERT 12th, Page no- 129, 1st Paragraph, Line no- 1-4)
169. **(4)** (NCERT 12th, Page no- 133, 1st Paragraph, Line no- 10,11)
170. **(2)** (NCERT-12th, Page no- 133, 1st paragraph concept based)
171. **(2)** (NCERT 11th, Page no- 151, Paragraph- 9.8 , Line no- 4-6)
172. **(4)** (12th NCERT Page no 231)
173. **(4)** (12th NCERT Page no.266 to 267)
174. **(4)** (12th NCERT Page no.261 1st para)
175. **(3)** (NCERT 11th p.no 111, fig.7.14)
176. **(3)** (Page No. 292 1st line)
177. **(4)** (Page No. 298, last two lines of 1st paragraph)
178. **(2)** [NCERT P.No.311, 2nd para 8th Line]
179. **(1)** [NCERT P.No.321, Line 9th to 12th]
180. **(2)** [NCERT P.No.321, Forebrain Last 4 Lines]
181. **(2)** (NCERT 12th, p.no. 60, para2)
182. **(3)** (NCERT 12th, p.no. 44, para4,45-para1)
183. **(2)** (NCERT Pg. No. 154-155)
184. **(3)** (NCERT Page No. 145)
185. **(1)** (NCERT Conceptual Page No. 340, 4th line of 2nd paragraph)

SECTION - B (Attempt Any 10 Questions)

186. **(2)** (NCERT 11th, Page no- 148, Paragraph- 9.5)
187. **(2)** (NCERT 12th , Page no 137, 2nd paragraph, Line no 10 and 11)
188. **(3)** (12th NCERT Page no.230 fig.13.5)
189. **(3)** [NCERT P.No.312, Synovial Fluid]
190. **(3)** (NCERT 11th p.no 101, 120)
191. **(2)** (Page No. 51; Phylum - platy helminthes)
192. **(4)** [NCERT P.No.193, 3rd para]
193. **(4)** (Page No. 337, 2nd line and 1st line of 3rd paragraph)
194. **(2)** [NCERT P.No. 316, first 2 lines & P.No.318, Para Below Diagram]
195. **(1)** (NEET-2018/NCERT Page - 149)
196. **(3)** (NCERT Page No. 143)
197. **(3)** (NCERT 11th p.no 118, para 1, line5)
198. **(3)** (NCERT 12th, p.no. 46, para3, line7)
199. **(2)** (12th NCERT para10 .3/ Page no.183)
200. **(2)** (NCERT Pg. No. 190)