S ANSWER KEY & SOLUTION KEY FINAL ROUND - 19 (PCB) Dt.29.04.2024

PHYSICS

SECTION - A (35 Questions)

01. **(4)** When capacitor's are connected in parallel

$Q \propto C, E \propto C$

$\frac{Q_2}{Q_1} = \frac{C_2}{C_1}$ $\frac{E_2}{E_1} = \frac{C_2}{C_1}$ $Q_2 = \frac{3Q}{2}$ $E_2 = \frac{3E}{2}$

02. **(3)** Initial angular frequency $\omega_0 = \sqrt{\frac{K}{M}}$

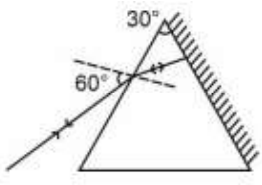
Final angular frequency $\omega' = \sqrt{\frac{K}{M+m}}$

Now applying conservation of linear momentum

$M \times A_0\sqrt{\frac{K}{M}} = A'\sqrt{\frac{K}{M+m} \times (M+m)^2}$

$A' = A_0\sqrt{\frac{M}{M+m}}$

03. **(2)**



$r_2 = 0^0$

$r_1 = A = 30^0$

$i = 60°$ $\quad \therefore \mu = \frac{\sin 60^0}{\sin 30^0} = \sqrt{3}$

04. **(2)** Heat produced $H = I^2Rt$

$\Rightarrow 160 = 5^2 \times R \times 10$

$\Rightarrow R = \frac{160}{250} = \frac{16}{25} = 0.64\,\Omega$

05. **(2)**

06. **(1)** Balanced Wheatstone bridge

$R_{eff} = \frac{12 \times 6}{18} + 2 = 6\,\Omega$

$I = \frac{12}{R_{eff}} = \frac{12}{6} = 2A$

07. **(4)** $mv = Ft$

$F = \frac{mv}{t}$

08. **(2)** Two forces are perpendicular to each other therefore resultant of the two forces is

$R = \sqrt{T^2 + T^2} = = T\sqrt{2}$

09. **(3)** According to Stefan's law, the energy emitted by a body per second is directly proportional to the fourth power of the temperature of the body.

Here, the temperature of blue glass is more than that of red glass, so it will look bright.

10. **(3)** $F = qE$

$W = Fd\cos\theta$

$12 = qEd\cos\theta$

$12 = 0.4E \times 2 \times \frac{1}{2}$

$E = 30$ N/C

11. **(2)** $\frac{5V}{4L_1} = \frac{V}{L} \Rightarrow L_1 = \frac{5L}{4}$

12. **(4)** $C = C_v + \frac{R}{1-n}$

$C = \frac{5R}{2} - R = \frac{3R}{2}$

13. **(2)** $(K.E)_{max} = 6 - 4 = 2eV$

14. **(3)**

15. **(3)** $\theta = w_0 t + \frac{1}{2}\alpha t^2$

Given $w_0 = 0$

$\theta = \frac{1}{2}\alpha t^2$

In first 3 seconds makes 10 rotations

So $\theta = 10 \times 2\pi = 20\pi$

$$20\pi = \frac{1}{2} \propto (3)^2 \qquad ...(i)$$

In first 6 seconds let us assume it makes n rotations so $\theta = n \times 2\pi = 2\pi n$

$$2\pi n = \frac{1}{2} \propto (6)^2 \qquad ...(ii)$$

Dividing equation (i) by (ii)

$n = 40$ rotations.

So from 3 sec to 6 sec no. of rotation is

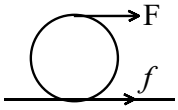
$40 - 10 = 30$ rotation.

16. **(3)** Stress $= \eta \cdot \frac{dv}{dx} \Rightarrow 10^{-3} \times \frac{5-0}{10} = 0.5 \times 10^{-3}$

17. **(3)** As $\lambda = \frac{v}{f} = \frac{330}{330} = 1m$

So first resonance will be obtained at $\frac{\lambda}{4} = 25$ cm

18. **(1)** For a ring



$F + f = ma$ ...(i)

$(F - f)R = MR^2\alpha$ ...(ii)

$a = R\alpha$ ...(iii)

on solving (i), (ii) and (iii) $f = 0$

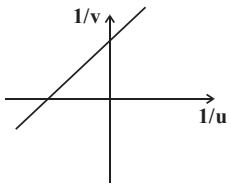
19. **(3)** For a solenoid $B = \mu_0 nI$, where n is number of turns per unit length.

20. **(3)** For convex lens $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$$\Rightarrow \frac{1}{v} = \frac{1}{u} + \frac{1}{f}$$

on comparing $y = mx + c$

$\Rightarrow$



21. **(2)** Surface tension $= \frac{F}{l} = \frac{MLT^{-2}}{L} = MT^{-2}$

22. **(1)** $\frac{p^2}{2m} = mgh$ or $\frac{p}{\sqrt{2gh}}$

23. **(3)** Since P-V indicator diagram is given, so work done gas is area under the cyclic diagram.

$\Delta W =$ work done by gas $= \frac{1}{2}(5-2) \times (6-1) = 7.5$ J

24. **(4)** The magnetic moment of a diamagnetic atom is equal to zero.

25. **(1)** Electric field is always perpendicular to equipotential surface.

26. **(3)**

27. **(1)** According to question, one half of its kinetic energy is converted into heat in the wood.

$$\frac{1}{2}mv^2 \times \frac{1}{2} = ms\Delta T$$

$$\Rightarrow \Delta T = \frac{v^2}{4 \times s} = \frac{210 \times 210}{4 \times 4.2 \times 0.03 \times 1000} = 87.5^0 C$$

28. **(1)** Width of central maximum

$$= \frac{2\lambda D}{a} = \frac{2 \times 6250 \times 10^{-10} \times 0.5}{2 \times 10^{-4}}$$

$$= 3125 \times 10^{-6} m = 312.5 \times 10^{-3} \text{ cm}$$

29. **(2)** The time taken to move from equilibrium position to extreme position is T/4 = 2s. As it takes 1/2 s to reach P, to move from P to extreme position it takes 1.5 s and for return journey another 1.5 s. Hence after 3s it will be again at P.

30. **(3)** $I_A = \frac{1}{2}m_A r^2$

$$\Rightarrow I_A = \frac{1}{2}\pi r^4 t\rho \qquad ...(i)$$

Similarly $I_B = \frac{1}{2} \times (\pi 16r^2 \frac{t}{4}\rho)16r^2 = \frac{64\pi r^4 t\rho}{2}$ ...(ii)

$$\frac{I_A}{I_B} = \frac{\frac{1}{2}\pi r^4 t\rho}{\frac{64\pi r^4 t\rho}{2}} \Rightarrow 64I_A = I_B \Rightarrow I_B > I_A$$

31. **(4)** Zero. When the object is at the centre of curvature, the image will also be at the centre of curvature.

32. **(4)** $\lambda = \frac{1}{\sqrt{2}\pi n d^2}$

33. **(3)** Frequency of emitted radiation

$$v = RC\left(\frac{1}{2^2} - \frac{1}{3^2}\right)$$

$$v = RC\frac{5}{36}$$

34. **(3)** K.E. $= E_T$ & P.E. $= 2E_T$

35. **(2)** Impuse (I) = change in momentum

$I = mv_2 - mv_1 = m(v_2 - v_1)$

Increase in K.E. =

$$\frac{1}{2}mv_2^2 - \frac{1}{2}mv_1^2 = \frac{1}{2}m(v_2 - v_1)(v_2 + v_1) = \frac{I(v_1 + v_2)}{2}$$

SECTION - B (Attempt Any 10 Questions)

36. **(4)** $\chi \propto \frac{1}{T}$ and let $\frac{1}{T} = b$ so $\chi \propto b$

$\Rightarrow$ straight line

37. **(2)** As we know slope of stopping potential versus frequency is $h/e \Rightarrow h = \text{slope} \times e$

38. **(4)**

39. **(2)** $R_B^2 = \frac{FL}{Y_B \pi \Delta L}, R_S^2 = \frac{FL}{Y_S \pi \Delta L}$

$$\therefore \frac{R_B^2}{R_S^2} = \frac{Y_S}{Y_B} = \frac{2\times10^{10}}{10^{10}} = 2$$

$$R_B = \sqrt{2}R_S \Rightarrow R_S = \frac{R_B}{\sqrt{2}}.$$

40. **(3)** $\frac{\Delta V}{V} = 0.1\%$

$P = \rho gh$ ....(i)

$$B = -\frac{P}{\Delta V / V}$$

$$P = -B \times \frac{\Delta V}{V} = |B| \times \frac{\Delta V}{V}$$ ...(ii)

$$\rho gh = |B| \times \frac{\Delta V}{V}$$

$$h = \frac{|B| \times \frac{\Delta V}{V}}{\rho g} = \frac{9\times10^8}{10^3 \times 10} \times \frac{0.1}{100} = 90 \text{ m}$$

41. **(2)** $\frac{\text{Magnetic moment}}{\text{Angular momentum}} = \frac{Q}{2M} \Rightarrow \frac{Q}{2M} I\omega = \mu$

$$= \frac{Q}{2M}\frac{ML^2}{3}\omega \Rightarrow = \frac{\pi f Q L^2}{3}$$

42. **(2)** $R = \frac{V^2}{P} = \frac{40\times40}{20} = 80\Omega$

$$i = \frac{40}{80} = 0.5A$$

$$i_{rms} = 0.5A = \frac{V_{rms}}{Z} = \frac{200}{Z}$$

$Z = 400\,\Omega$

$\sqrt{R^2 + X_c^2} = 400$

$X_C^2 = (400)^2 - (80)^2 \Rightarrow X_C = 100\sqrt{15.36}$

43. **(2)** Potential energy of particle at the centre of square

$$= -4\left(\frac{GMm}{a/\sqrt{2}}\right)$$

$$\therefore -4\left(\frac{GMm}{a/\sqrt{2}}\right) + \frac{1}{2}mv^2 = 0 \Rightarrow v^2 = \frac{8\sqrt{2}GM}{a}.$$

44. **(2)** $\Rightarrow m_1 v_1 = m_2 v_2$

$$\Rightarrow \frac{m_1}{m_2} = \frac{v_2}{v_1}$$

$$\frac{R_1}{R_2} = \left(\frac{v_2}{v_1}\right)^{1/3} \quad \left(\therefore m = \rho\frac{4}{3}\pi R^3\right)$$

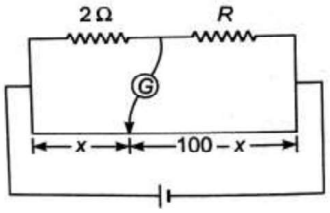
$$\Rightarrow \frac{R_1}{R_2} = \left(\frac{1}{2}\right)^{1/3}$$

45. **(3)** The change in temperature due to heating, changes the overall current, hence it changes overall I-V characteristics of the diode.

46. **(1)** For diamagnetic $\chi > 1$

$\mu_t < 1$

47. **(1)**



$$\frac{2}{R} = \frac{x}{100 - x}$$ ....(i)

Now interstage

$$\frac{R}{x+20} = \frac{2}{80-x}$$

$$\frac{R}{2} = \frac{x+20}{80-x} \Rightarrow \frac{2}{R} = \frac{80-x}{x+20}$$ ...(ii)

Solve (i) and (ii)

$(x + 20)\, x\, (100 - x)\, (80 - x)$

$x = 40$

Put the value of x and we get $R = 3\Omega$

48. **(2)** $\Delta L = \frac{WL}{2AY} = \frac{\rho ALgL}{2AY} = \frac{\rho g L^2}{2Y}$

49. **(2)** The bullets are fired at the same initial speed

$$\frac{H}{H'}=\frac{u^2\sin^2 60^0}{2g}\times\frac{2g}{u^2\sin^2 30^0}=\frac{\sin^2 60^0}{\sin^2 30^0}$$

$$=\frac{(\sqrt{3}/2)^2}{(1/2)^2}=\frac{3}{1}$$

50. **(4)** $E=h\nu=E_3-E_1\Rightarrow 13.6\left[\frac{1}{1^2}-\frac{1}{3^2}\right]=12.1\text{ eV}$

Therefore, stopping potential

$eV_0=h\nu-\phi_0$

$=12.1-5.1$

[$\because$ work function $\phi_0=5.1$]

$V_0=7V$

CHEMISTRY

SECTION - A (35 Questions)

51. **(1)** $K_2Cr_2O_7+4H_2SO_4\rightarrow K_2SO_4+Cr_2(SO_4)_3+4H_2O+3[O]$

$[SO_2+H_2O+[O]\rightarrow H_2SO]\times 3$

$K_2Cr_2O_7+H_2SO_4+3SO_2\rightarrow K_2SO_4+Cr_2(SO_4)_3+H_2O$

Thus X, Y and Z of H_2SO_4, SO_2 and H_2O respectively are 1, 3, 1.

52. **(1)** Increases one by one from IA to VIIA

53. **(3)** The reaction of propene with HOCl proceeds via the addition of Cl+ in the first step. HOCl has Cl+ and OH– ions.

The reaction takes place as follows

$$CH_3-CH=CH_2+Cl^+\xrightarrow[\text{addition}]{\text{Electrophilic}}CH_3-\overset{+}{C}H-CH_2-Cl\xrightarrow{OH^-}CH_3-\underset{OH}{CH}-CH_2-Cl$$

54. **(4)** I is super saturated, II is saturated and III is unsaturated solution. In solution I and II, amount of dissolved substance is same.

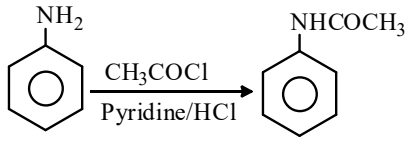
55. **(3)** Statement(3) is correct for resonance because resonance affects bond lengths but not bond angles while (1), (2) and (4) are false statements.

Due to resonance, delocalisation of electrons in every bond which is participating in resonance attains partial double character. Thus, their bond length decreases but causes no effect on bond angle.

56. **(1)** At cathode : $2H^+ + 2e^-\rightarrow H_2$

At anode : $2OH^-\rightarrow H_2O+1/2O_2+2e^-$

57. **(4)** σ bond of O=O is formed by axial overlapping of p–p orbital while π bond is formed by sidewise overlapping of p–p orbital.

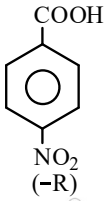
58. **(4)** 

Formation of N-acetylated product is due to presence of lone pair of electrons on nitrogen atom.

59. **(2)** $r=k[A][B]$

If B is in large excess then rate becomes independent of [B] and will depend only on [A]. Therefore, the order reaction with respect to [A] is one.

60. **(1)** The correct match is. A-IV, B-III, C-I, D-II

61. **(4)** 

So, due to (–R) effect in (4) it is more acidic.

62. **(2)** Assertion is true but Reason is false.

The correct form of Reason is :

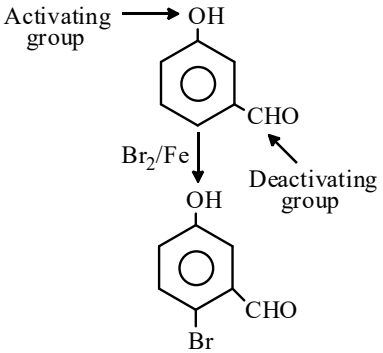
According to Le chatelier's principle, endothermic reaction favours increase in temperature and exothermic reaction favours decrease in temperature.

63. **(1)** Methylphenylether is obtained by the reaction of phenolate ions and methyl iodide.

$$\underset{\text{Phenolate}}{C_6H_5O^-}+\underset{\text{Methyl iodide}}{CH_3I}\longrightarrow\underset{\text{Methyl phenyl ether}}{C_6H_5OCH_3}+\underset{\text{Iodide ion}}{I^-}$$

64. **(1)** The correct match is A-II, B-III, C-I, D-IV

65. **(2)** The complete reaction can be written as

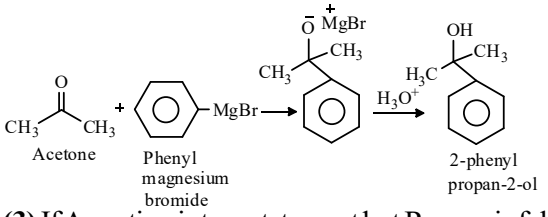


$\therefore$ Strongly activating group generally dominates over the deactivating group and –OH is ortho/para-directing group and p-product predominants

66. **(3)** They are chemically reactive than the pure metal

67. **(1)** Grignard reagent is, R–Mg–X. Tetramethyl lead, $Pb(CH_3)_4$ is sigma (σ) bonded complex.

68. **(2)** Acetone reacts with phenyl magnesium bromide followed by acidic hydrolysis to give 2-phenyl propan-2-ol.
The given reaction is as follows



69. **(3)** If Assertion is true statement but Reason is false

70. **(2)** Among the given statements A, B and E are correct while statements C and D are incorrect. Their correct form of these statements are :
All the hydrogen atom are not in the same plane in diborane.
The terminal B–H bonds are regular 2c–2e bonds.

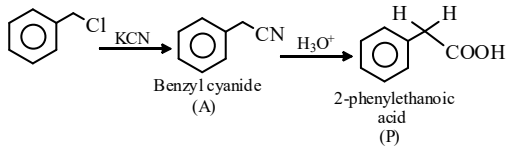
71. **(1)** Formula of the compound $BaCO_3$ suggests that 3 moles of oxygen atoms are contained in one mole of $BaCO_3$.
$\therefore$ 1.5 mole will be contained in 0.5 mole of $BaCO_3$.

72. **(3)** $r_n = \dfrac{0.529n^2}{Z}$ Å

$\therefore \quad r_3 = \dfrac{0.529\times 9}{Z}$ Å ; $r_4 = \dfrac{0.529\times 16}{Z}$ Å

$$\frac{r_3}{r_4} = \frac{\frac{0.529\times 9}{Z}}{\frac{0.529\times 16}{Z}} \; ; \; r_3/r_4 = 9:16$$

73. **(3)**



74. **(2)** C–C, C=C and $C\equiv C$ bond lengths are 1.54 Å, 1.34 Å and 1.20 Å respectively. In benzene, C=C is 1.40 Å. So, the correct order of their C–C bond length is
$C_2H_2 < C_2H_4 < C_6H_6 < C_2H_6$.

75. **(3)** 2s orbital has lower energy than 2p.

76. **(3)** The solution of borax is alkaline in nature. This is due to its hydrolysis.

$$Na_2B_4O_7 + 7H_2O \rightleftharpoons \underset{\text{strongalkali}}{2NaOH} + \underset{\text{weakacid}}{4H_3BO_3}$$

77. **(2)** $l = 3$ corresponds to f-subshell. This subshell contains maximum 14 electrons but an orbital can contain maximum 2 electrons only.

78. **(3)** Isolated system has no interaction with its surroundings. The boundary is sealed. Neither matter nor energy can be exchanged with surroundings.

79. **(2)** Mixture of aniline and water can be separated by simple distillation as they have sufficiently high difference in their boiling point.
Boiling point of chloroform = 334 K
Boiling point of aniline = 457 K

80. **(3)** Glucose gives silver mirror with ammonical silver nitrate because of the presence of –CHO group (aldehyde group) in the structure of glucose.

81. **(1)** H_3PO_2 is hypophosphorus acid.

82. **(4)** First member of each transition series i.e, Sc, y, La and Ad do not show variable valency. They show only +3 oxidation state.

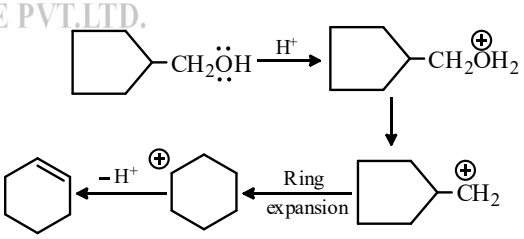
83. **(4)**

	AB	+	CD	$\rightleftharpoons$	AD	+	CB
Initial moles	1		1		0		0
At equilibrium	$1-\frac{3}{4}=\frac{1}{4}$		$1-\frac{3}{4}=\frac{1}{4}$		$\frac{3}{4}$		$\frac{3}{4}$

$$K_c = \frac{[AD][CB]}{[AB][CD]} = \frac{3/4\times 3/4}{1/4\times 1/4} = 9$$

84. **(4)** In elemental state, oxidation state is zero.

85. **(3)** A ring expansion creates the six membered carbocation intermediate which is more stable than cyclopentyl methyl membered carbocation.



SECTION - B (Attempt Any 10 Questions)

86. **(3)** Among the given statements, Statement B and D are incorrect whereas A, C and E are correct. The correct form of statements B and D are :
Azeotropic mixture are binary mixture having same composition in liquid and vapour phase.
Chloroform and Diethyl ether shows negative deviation from Raoult's law.

87. **(3)** 'A' = $CH_3–CH_2–CH_2–CH_3$;
B = $(CH_3)_3$ CH; C=$(CH_3)_3$COH
'C' gives immediate turbidity with Lucas reagent.

88. **(2)** $d^6 - t_{2g}^{2,2,2} eg^{0,0}$ (In low spin)

$$\text{C.F.S.E.} = -0.4 \times \Delta_0 + 3P = -\frac{12}{5}\Delta_0 + 3P$$

89. **(2)** $2NO_2 \underset{k_2}{\overset{k_1}{\rightleftharpoons}} N_2O_4$

$$\text{Rate} = -\frac{1}{2}\frac{d[NO_2]}{dt} = k_1[NO_2]^2 - k_2[N_2O_4]$$

$\therefore$ Rate of disappearance of NO_2

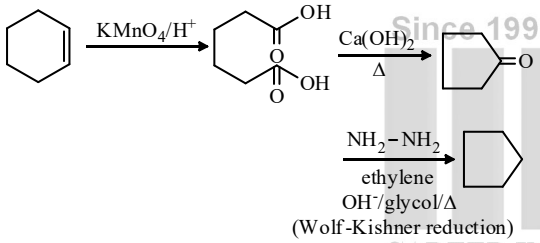
$$\text{i.e.,} \; -\frac{d[NO_2]}{dt} = 2k_1[NO_2]^2 - 2k_2[N_2O_4]$$

90. **(4)** Statement I is true as more number of carbonyl group, more will be the acidic strength. This is because the carbonyl carbon is electron withdrawing group. In both aldehydes and ketones, C-atom is double bonded with oxygen atom.

91. **(4)** turns acidified $K_2Cr_2O_7$ paper green

92. **(4)** NO_3^- is reduced in preference to H_3O^+.

93. **(3)** The complete sequence of reaction is as follows



94. **(3)** In PF_5, SF_6 and H_2SO_4, the central atom has more than eigth valence electrons hence they exhibit expanded octet. This is possible due to availability of 3d-orbitals. Elements in and beyond the third period of the periodic table do not follow octet rule thus it applies mainly to the second period elements of the peridic table.

95. **(1)**

	$N_2(g)$	+	$3H_2(g)$	$\rightleftharpoons$	$2NH_3(g)$
At equilibrium	(n–0.5n)		(3n–1.5n)		n

Total no. of moles = n –0.5n + 3n –1.5n + n = 3n

$$x_{N_2} = \frac{0.5n}{3n} = \frac{1}{6}, x_{H_2} = \frac{1.5n}{3n} = \frac{1}{2}, xNH_3 = \frac{n}{3n} = \frac{1}{3}$$

$$K_p = \frac{(pNH_3)^2}{(pN_2)(pH_2)^3} = \frac{\left(\frac{1}{3}.P\right)^2}{\left(\frac{1}{6}P\right).\left(\frac{1}{2}P\right)^3}$$

$$= \frac{1}{9} \times 6 \times 8P^{-2} = \frac{16}{3P^2}$$

96. **(2)** The correct match is A-(iv), B-(ii), C-(iii), D-(i).

A. The reaction of aliphatic primary amines with a mixture of sodium nitrite and HCl forms aliphatic alcohols and nitrogen.

$$R'NH_2 \xrightarrow{NaNO_2+HCl} R'OH + N_2$$

B. The reaction of aniline (aromatic primary amine) with a mixture of sodium nirite and HCl forms benzene diazonium chloride. This reaction is called diazotisation.

$$PhNH_2 \xrightarrow{NaNO_2+HCl} Ph - N^+ \equiv NCl^-$$

C. $PhNH_2 \xrightarrow[2)H_2O/\Delta]{1)NaNO_2+HCl} PhOH$

D. $PhNH_2 \xrightarrow[2)CH_3CH_2OH]{1)NaNO_2+HCl} C_6H_6$

97. **(2)** The correct match is. A-I, B-IV, C-II, D-III

98. **(2)** Weight of benzoic acid = 1.89 g;

Temperature of bomb calorimeter = 25°C = 298 K;

Mass of water (m) = 18.94 kg = 18940 g;

Increase in temperature (ΔT) = 0.632°C and specific heat of water (s) = 0.998 cal/g-deg.

Heat gained by water or heat liberated by benzoic acid (Q) = $ms\Delta T$ = 18940 × 0.998 × 0.632 = 11946.14 cal.

Since 1.89 g of acid liberates 11946.14 cal of heat, therefore heat liberated by 122 g of acid

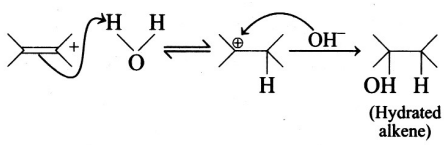
$$= \frac{11946.14 \times 122}{1.89}$$

= 771,126.5 cal = 771.126 kcal

(where, 122 g is the molecular weight of benzoic acid)

99. **(3)** Finkelstein reaction is a nucleophilic substitution reaction

Hydration of alkene involves act of adding electrophilic hydrogen on nucleophilic alkenes. So, it is a electrophilic addition reaction.



Nitration of benzene involves substitution of H^+ from benzene by a nitro group (electrophile). So, it is a electrophilic substitution reaction.

Reaction of alkene with NBS involves formation of free radical Br from NBS reagent and hydrogen atom at allylic position will get substitution by bromine radical. So, it is a type of free radical substitution reaction.

Hence, the correct match is

A-(ii), B-(i), C-(iv), D-(iii).

100. **(2)** Mass of solution = 100 × 1.08 = 108 g

Mass of HCl present in solution

$$= \frac{108 \times 20}{100} = \frac{108}{5} \text{g}$$

$$\text{Number of moles} = \frac{108}{5} \times \frac{1}{36.5} = 0.6$$

(Molecular weight of HCl = 36.5)

BOTANY

Section - A (35 Questions)

101. **(3)** (NCERT 11th para 8.5.3.3/ Page no.134)
102. **(3)** (NCERT 11th, Page no- 22, 1st paragraph, Line no- 8,9)
103. **(2)** (NCERT 11th para 10.2.5concept based / Page no.166)
104. **(1)** (NCERT 11th page no. 212 –13.6.1 - concept based)
105. **(3)** (NCERT 12th : Page no36, Last paragraph, Line no- 36-39)
106. **(2)** (NCERT 11th Page no. 30,3.1, last line)
107. **(2)** (NCERT 11th, Page no- 26, 1st paragraph, Line no- 9, 10, 11)
108. **(4)** (NCERT 11th, Page no- 10, 3rd paragraph, Line no- concept based)
109. **(1)** (NCERT 11th para 10.1.1 concept based / Page no.164)
110. **(3)** (NCERT 11th,Page no.31 fig.3.1 conceptual, table 3.1)
111. **(3)** (NCERT 11th Pg.229, 14.1)
112. **(3)** (NCERT 11th Pg.234, 14.5)
113. **(1)** (NCERT 11th page no. 211 – 1st paragraph)
114. **(3)** [NCERT 11th, Page no. 90, First paragraph, Point no. 6.2.3]
115. **(1)** [NCERT 11th, Page 242, Figure 15.4]
116. **(2)** (NCERT 11th, Page No. 79, Fig. 5.21)
117. **(4)** (NCERT XII, Pg 74, Para 5, Line 7)
118. **(3)** (NCERT 12th Pg 75, Para 1, 1st line, para 2, 1st line, Para 3, 3rd line; Pg. 76, Para 1, Line 3rd
119. **(3)** (NCERT 12th, Pg 80, Para 1, Based on 2nd line)
120. **(4)** (NCERT 11th para 8.5.3.2, Figure 8.6/ Page no. 134)
121. **(4)** [NCERT 11th, Page no. 86, Line no. 08-09]
122. **(2)** (NCERT 12th, Page no- 27, Last paragraph, Line no- 37, 38)

(NCERT 12th Page no-28, 1st paragraph, Line no- 12, 13, 14)

123. **(2)** (NCERT 12th, Page no- 23, 2nd paragraph, line no- 4,5)
124. **(1)** (NCERT 11th, Page no- 24, 2nd paragraph, Line no- 16, 17, 18 19)
125. **(4)** (NCERT 11th Pg.229, 14.1)
126. **(2)** (NCERT 12th, Pg 120, Para last, Last two lines)
127. **(4)** (NCERT 12th, Pg 109, Sub point 6.5.3, Line 6)
128. **(1)** (NCERT 12th, Pg 109, Sub point 6.5.3, Line 4)
129. **(3)** (NCERT 12th Page no.243,3rd para last line.)
130. **(4)** (NCERT 11th, Page No. 72, sub-topic 5.4 and 5.5)
131. **(2)** (NCERT 12th, Pg 78, Para 3, Line 4)
132. **(3)** (NCERT 12th, Pg 89, Para 2)
133. **(4)** (NCERT 12th, Pg 114, Para 2)
134. **(3)** (NCERT 12th, Pg 115, Para last)
135. **(1)** (NCERT 12th, Pg 117, Para 2, Line 1)

SECTION - B (Attempt Any 10 Questions)

136. **(4)** [NCERT 11th, Page 249, Point 15.4.3.2]
137. **(2)** [NCERT 11th, Page 241, Point 15.1.3 (First paragraph)]
138. **(3)** (NCERT 11th Page No. 70, 74 and 75)
139. **(3)** (NCERT 11th PK, Page no.31(fig.3.1) and,3.1.2 Page no.33, lst line)
140. **(4)** (NCERT 11th, Page no- 20, 1st paragraph, Line no- 5 and 6)
141. **(2)** (NCERT 11th, Page no- 11, Table- 1.1)
142. **(2)** (NCERT 11th page no. 212 –13.6.1 - concept based)
143. **(4)** (NCERT 12th Page no 21, 1st Paragraph, Line no- 22-24)
144. **(2)** (NCERT 11th para 8.5.3.2,/ Page no. 133)
145. **(3)** (NCERT 12th, Pg 73, Para 2, Line 23)
146. **(3)** (NCERT 11th PK, Gymnosperm concept based.)

147. **(3)** (NCERT 11th, Page No. 71, sub-topic 5.3.4)

148. **(4)** (NCERT 11th para8.5.1 / Page no.132)

149. **(2)** (NCERT 11th para10.4.1 / Page no.168,169)

150. **(1)** (NCERT 12th page no.243 1st para, Secondary productivity is productivity produced by consumers or heterotrophs, not available for consumption.)

ZOOLOGY

Section - A (35 Questions)

151. **(2)** (NCERT 11th Page No. 195)

152. **(3)** (NCERT 11th Page No. 199)

153. **(1)** (NCERT 12th; Page. No. 130)

154. **(2)** (NCERT 12th; Page. No. 144)

155. **(3)** (NCERT 11th Page No. 298, 4th line of 4th paragraph)

156. **(4)** (NCERT 12th page no. 267 ,1st line)

157. **(1)** (NCERT 12th, Page no- 140, 3rd paragraph, Line no- 20,21)

158. **(1)** (NCERT 11th, Page no- 159, Pareagraph-9.12.6)

159. **(3)** (NCERT 12th, Page no-136, Figure-7.8)

160. **(2)** (NCERT 12th para 10.2.2/ Page no.182)

161. **(3)** (NCERT 12th, Page no.232,1st para)

162. **(4)** [NCERT 12th P.No.211, 1st para]

163. **(2)** [NCERT 12th P.No.201, 2nd Para]

164. **(1)** [NCERT 12th P.No.211, 1st para]

165. **(3)** (NCERT 11th Page No. 56 Class chondrichthyes)

166. **(1)** (NCERT 11th Page No. 52; 1th line of Annelida)

167. **(3)** (NCERT 11th Page No. 294; 1st line of 5th paragraph)

168. **(1)** [NCERT 11th P.No.311,Pectoral Girdle]

169. **(2)** [NCERT 11th P.No.307, 6th Line]

170. **(4)** [NCERT 11th P.No.306, Fig 20.3]

171. **(2)** (NCERT 11th, page no-147, 1st paragraph, last line)

172. **(3)** (NCERT 12th, Page no-131, 1st paragraph, line no- 6,7)

173. **(2)** (NCERT 12th page no 43, last para)

174. **(3)** (NCERT 12th p.no 45, para1)

175. **(3)** (NCERT 12thp.no 54, para2)

176. **(3)** (NCERT 12th p.no 64, para2)

177. **(4)** [NCERT 11th P.No.311, 3rd Para]

178. **(4)** [NCERT 11th P.No.321, last Para, 1st line]

179. **(2)** (NCERT 11th page no 111, FIG 7.14)

180. **(3)** (NCERT 11th page no 103, fig no 7.4)

181. **(2)** (NCERT 11th p.no119, para1)

182. **(1)** (NCERT 11th Page No. 339, 5th line of 4th paragraph)

183. **(4)** (NCERT 12th Page no.233, (i),2nd para)

184. **(4)** (NCERT 11th Page No. 190)

185. **(1)** (NCERT 12th; Page No. 130-133)

SECTION - B (Attempt Any 10 Questions)

186. **(4)** (NCERT 11th, Page n0-147, Table 9.5)

187. **(3)** (NCERT 12th p.no 60, last para)

188. **(4)** (NCERT 11th NCERT conceptual)

189. **(4)** [NCERT 11th P.No.320, 3rd para]

190. **(2)** (NCERT 12th para 10.2.2/ Page no.182)

191. **(2)** [NCERT 12th P.No.197, Para just above Fig 11.2]

192. **(3)** [NCERT 11th P.No.304,Last para,307 First para last 4 Lines and Last para]

193. **(3)** (NCERT 12th; Page. No. 130)

194. **(4)** (NCERT XI; Page No. 51; 3rd line of phylum ctenophora)

195. **(1)** (NCERT 11th; Page No. 199)

196. **(4)** (NCERT 12th Page no.261 last para, please note: mammals more than amphibians)

197. **(2)** (NCERT 11th; Page No. 186)

198. **(4)** (NCERT 12th, p.no.47, para3)

199. **(2)** (NCERT 12th para 10.2.3 / Page no.183)

200. **(3)** (NCERT 12th, Page no-128, Figure-7.1)