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IIT-JEE/NEET/FOUNDATION

NEET(UG) – 2025

(ANSWER KEY & SOLUTION)

PAPER CODE – 48

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

SOLUTION

PHYSICS

Q.1 **(1)**

Sol. $I_d = \epsilon_0 \frac{\partial}{\partial t}\{EA\}$

$I_d = \epsilon_0 A \frac{\partial}{\partial t}\left\{\frac{\sigma}{\epsilon_0}\right\}$

I_d = constant

$B = \frac{\mu_0 I}{2\pi R}$

Q.2 **(4)**

Sol. $P = 5 \times 10^{-6}$ cm

$E = 4 \times 10^5$ N/C

$U(i) = \vec{P} \cdot \vec{E} = -PE\cos 0^\circ = -PE$

$U(f) = -\vec{P} \cdot \vec{E} = -PE\cos 60^\circ = \frac{-PE}{2}$

$(\Delta U) = -\frac{PE}{2} + PE = \frac{PE}{2} = \frac{5\times10^{-6}\times4\times10^5}{2}$

$= 10 \times 10^{-1} = 1J$

Q.3 **(3)**

Sol. $V_1 = \sqrt{2\times10\times40} = \sqrt{800}$

$V_2 = \sqrt{2\times10\times10} = \sqrt{200}$

$\Delta P = 0.5(V_2 - V_1)$

$= 0.5\left[\sqrt{200} + \sqrt{800}\right]; = 0.5\left[30\sqrt{2}\right] = 21NS$

Q.4 **(1)**

Sol. $I_0 \rightarrow$ after first polaroid

$I = I_0 \cos^2 22.5^\circ \cos^2 (90^\circ - 22.5^\circ)$

$= \frac{I_0}{4}\sin^2 45^\circ = \frac{I_0}{8}$

Q.5 **(4)**

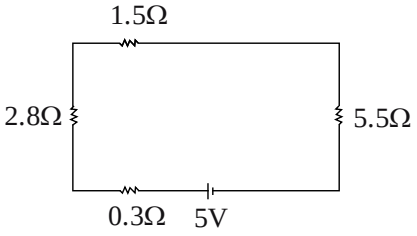
Sol. $W_{all} = \Delta KE$

$-f_1 \times 1000 = 0 - 100;\ -f_2 \times 1500 = 0 - 225$

$\frac{f_1}{f_2} = \frac{2}{3}$

Q.6 **(4)**

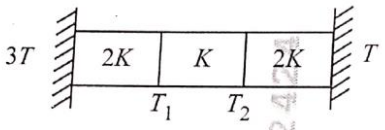
Sol.



$i = \frac{V}{R_{eq}} = \frac{5}{10.1} = 0.5A$

Q.7 **(1)**

Sol.



$\frac{2kA}{\ell}(3T - T_1) = \frac{kA}{\ell}(T_1 - T_2) = \frac{2kA}{\ell}(T_2 - T)$

$6T - 2T_1 = T_1 - T_2 = 2T_2 - 2T$

$6T - 2T_1 = T_1 - T_2$ ...(i)

$T_1 - T_2 = 2T_2 - 2T$...(ii)

$\frac{T_1}{T_2} = \frac{5}{3}$

Q.8 **(4)**

Sol. conceptual demped oscillation

Q.9 **(2)**

Sol. $V_A - 1 - 5 - 4 = V_B$

$V_A - V_B = 10V$

Q.10 **(1)**

Sol. $F = \frac{mv^2}{r} = \text{constant}$

$v^2 \propto r$, $v \propto r^{1/2}$

$mvr = \frac{nh}{2\pi}$

$r \propto n^{2/3}$

Q.11 **(4)**

Sol. $t = x^2 + x$

$1 = 2x\frac{dx}{dt} + \frac{dx}{dt}$

$\rightarrow 1 = (2x+1)\frac{dx}{dt}$

$$\rightarrow \frac{dx}{dt} = \frac{1}{(2x+1)}$$

$$\rightarrow v = \frac{1}{(2x+1)}$$

$$a = \frac{vdv}{dx} = \frac{1}{(2x+1)}\frac{d}{dx}\left(\frac{1}{(2x+1)}\right)$$

Q.12 (4)

Sol. $M = I(\pi R^2)$

$$= \frac{q \times qB}{2\pi m}[\pi R^2] \quad \phi = (BA) = \frac{e^2 B}{2\pi m} \times \frac{\phi}{B}$$

$$= \frac{e^2}{2\pi m} \times \frac{nh}{E} = \frac{eh}{2\pi m}$$

(for n = 1)

Q.13 (4)

Sol. $f_0 = 2cm$

$f_e = 4cm$

$L = 40cm$

$D = 25cm$

$$(m) = \frac{L}{f_0} \times \frac{D}{f_e}$$

$$(m) = \frac{40}{2} \times \frac{25}{4}$$

$$(m) = 125$$

Q.14 (2)

Sol. $$\rightarrow t_1 = \sqrt{\frac{2L}{g(\sin\theta - \mu\cos\theta)}}$$

$$t_2 = \sqrt{\frac{2L}{g\sin\theta}}$$

$$\rightarrow \sqrt{\frac{2L}{g(\sin\theta - \mu\cos\theta)}} = 2\sqrt{\frac{2L}{g\sin\theta}}$$

$$\rightarrow \frac{2L}{g(\sin\theta - \mu\cos\theta)} = \frac{2L \times 4}{g\sin\theta}$$

$$\rightarrow \sin\theta = 4\sin\theta - 4\mu\cos\theta$$

$$\rightarrow 4\mu\cos\theta = 3\sin\theta$$

$$\mu = \frac{3}{4}\tan 45 = \frac{3}{4} = 0.75$$

Q.15 (3)

Sol. $\omega = 100\pi$

$2\pi f = 100\pi$

$f = 50\,Hz$

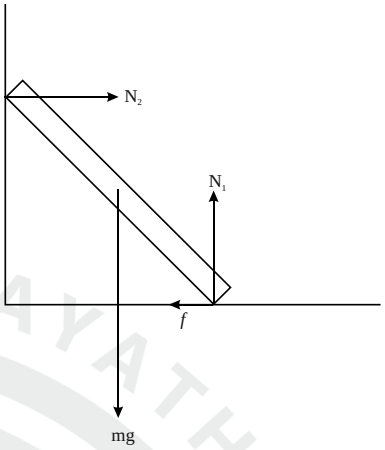
$$T = \frac{1}{50} \times 1000 \times 10^{-3}$$

$T = 20\,ms$

Q.16 (4)

Sol. $N_1 = mg$

$f = N_2$



$$mg\frac{L}{2}\sin 60^o = N_2 L\cos 60^o$$

$N_2 = 100\sqrt{3}$

Q.17 (2)

Sol. $F = \frac{kq^2}{r^2}$ and $F' = \frac{k\frac{q}{2} \times \frac{3q}{4}}{r^2} = \frac{3kq^2}{8r^2} = \frac{3F}{8}$

Q.18 (2)

Sol. $(V - 60) \times 30 = d$...(i)

$(V + 60) \times 10 = d$...(ii)

from equation (i) and (ii)

$V = 120$ kmph

$30(V - 60) = V \times t$

$= 30 \times 60 = 120 \times t$

$t = 15$ min.

Q.19 (4)

Sol. $$P_{mix} = \frac{P_1V_1 + P_2V_2}{V_1 + V_2} = \frac{2+6}{5} = 1.6$$

Q.20 (4)

Sol. $2\pi r = n\lambda$

$$r = 0.052 \times \frac{n^2}{z} = 0.052 \times 4$$

$$\lambda = \frac{2\pi r}{n} = \frac{2\pi \times 0.052}{2} \times 4 = 0.67nm$$

Q.21 (4)

Sol. $$z = \sqrt{20^2 + (45-25)^2} = 20\sqrt{2}$$

$$I_{rms} = \frac{V_{rms}}{z} = 220 = \frac{220}{20\sqrt{2}} = 7.8A$$

$$\tan\phi = \frac{X_L - X_C}{R} = \frac{20}{20}$$

$$\phi = 45°$$

Q.22 **(1)**

Q.23 **(4)**

Sol. $f = \frac{v}{2\ell}$

$$f' = \frac{v}{4\frac{\ell}{2}} = \frac{v}{2\ell} = f$$

Q.24 **(2)**

Sol. $(V_{p/max} = \omega_P A_P = \omega_Q A_Q)$

$$\frac{A_Q}{A_p} = \frac{\omega_p}{\omega_Q} = \sqrt{\frac{k_p}{k_Q}} = \sqrt{\frac{k_1}{k_2}}$$

Q.25 **(2)**

Sol. $Y = \overline{(A+B)} \cdot \overline{AB}$

A	B	4
0	0	1
1	0	0
0	1	0
1	1	0

NOR GATE

Q.26 **(2)**

Sol. $11 \times 10^5 \times 30 \times 10^{-3} = \mu \times \frac{100}{12} \times 300$

$\mu = 13.3$

$\Delta\mu = 18.2 - 13.3 = 4.8$ mol

$$\frac{4.8 \times 32}{1000} = 0.156 \text{ kg}$$

Q.27 **(1)**

Sol. magnification = m × m × m × m = m^4

power = p + p + p + p = 4p

Q.28 **(4)**

Sol. $P\Delta V_1 = P\Delta V_2$

$$\pi r_A^2 \times 16 = \pi r_B^2 \times 9$$

$$\frac{r_A}{r_B} = \frac{3}{4}$$

Q.29 **(1)**

Sol. $T = KS^\alpha A^\beta \rho^\gamma R^\delta$

$T = [MT^{-2}]^\alpha [L^2]^\beta [ML^{-3}]^\gamma [L]^\delta$

$T = KM^{\alpha+\gamma} L^{2\beta+\alpha-3\gamma} T^{-2\alpha}$

$\alpha + \gamma = 0$

$\alpha = -\gamma$

$$\frac{2S}{R} = \frac{1}{2}\rho V^2$$

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

$$a = -\frac{1}{2}$$

$$\alpha = -\frac{1}{2}$$

$\beta = -1$

$$\gamma = -\frac{1}{2}$$

Q.30 **(1)**

Sol. $V^2 = gl\sin\theta$

$$\frac{1}{2}mv_0^2 = mgl + mgl\sin\theta + \frac{1}{2}mgl\sin\theta$$

$$\frac{1}{2}mv_0^2 = mgl + \frac{3}{2}mgl\sin\theta$$

$$\frac{1}{2}mv_0^2 = mgl\left[\frac{2+3\sin\theta}{2}\right]$$

$$v_0^2 = 2gl\left[\frac{2+3\sin\theta}{2}\right] = gl(2+3\sin\theta)$$

$$v^2 = gl\sin\theta$$

$$\frac{v^2}{v_0^2} = \frac{gl\sin\theta}{gl(2+3\sin\theta)}$$

$$\frac{v}{v_0}\left(\frac{\sin\theta}{2+3\sin\theta}\right)^{1/2}$$

Q.31 **(1)**

Sol. $\frac{\Delta P}{P} = \frac{3\Delta a}{a} + \frac{2\Delta b}{b} + \frac{\Delta c}{c} + \frac{1}{2}\frac{\Delta d}{d}$

$= 3 \times 1 + 3 \times 2 + 2 \times 1 + \frac{1}{2} \times 4$

$= 13\%$

Q.32 **(2)**

Sol. $I_1 \times \omega_1 = I_2 \times \omega_2$

$$\frac{2}{5}MR^2 \times \frac{2\pi}{27} = \frac{2}{5}M\left(4R^2\right) \times \frac{2\pi}{T}$$

$T = 108$ Days

Q.33 **(3)**

Sol. $T^2 \propto R^3$

$$\frac{T_{martin}}{T_{Mercury}} = \left(\frac{R_{martin}}{R_{Mercury}}\right)^{3/2}$$

$$T_{martin} = \frac{687}{8} \approx 88$$

Q.34 (1)

Sol. $R' = \frac{R}{8}$

$$\frac{8}{R} + \frac{8}{R} + \frac{8}{R} + \frac{8}{R} = \frac{32}{R}$$

$$R_{eq.} = \frac{R}{32} + \frac{R}{32} = \frac{R}{16}$$

Q.35 (1)

Sol. $\lambda_p = \frac{hc}{E}$

$$\lambda_e = \frac{h}{\sqrt{2mE}}$$

$$\frac{\lambda_p}{\lambda_e} = \frac{c \times \sqrt{2m}}{\sqrt{E}}$$

Q.36 (1)

Sol. $V_1 = \frac{4}{3}\pi \times 8R^3 = 8V$

$$V_2 = \frac{4}{3}\pi R^3 = V$$

$$I_{max} = \frac{2}{5}(8M) \times 4R^2 = 32 \times \frac{2}{5}MR^2$$

$$I_2 = \frac{2}{5} \times MR^2 + MR^2 = \frac{7}{5}MR^2$$

$$\left(\frac{64}{5} - \frac{7}{5}\right)MR^2 = \frac{57}{5}MR^2$$

$$\frac{I_2}{I_{Rest}} = \frac{7MR^2 \times 5}{5 \times 57MR} = \frac{7}{57}$$

Q.37 (4)

Sol. $V = \frac{E}{B} = \frac{3 \times 10^8}{100} = \frac{E}{9 \times 10^{-4}}$

$E = 27 \times 10^2$ V m^{-1}

Q.38 (3)

Sol. $v = \frac{\omega}{k} = \frac{1.5 \times 10^9}{5} = 3 \times 10^8$

$$V = \frac{E}{B}, 3 \times 10^8 = \frac{60}{B}$$

$B = 2 \times 10^{-7}$ T

Q.39 (4)

Sol. $g' = g\left(\frac{R}{R+h}\right)^2$

$$w' = 48\left(\frac{R}{R + \frac{R}{3}}\right)^2 = 27N$$

Q.40 (3)

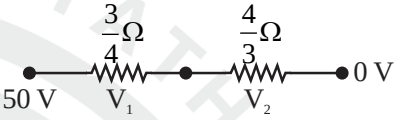
Sol. $n = \tan i_p$

$$\sqrt{3} = \tan i_p$$

$\boxed{i_p = 60^o}$, angle of reflection is 60°.

Q.41 (4)

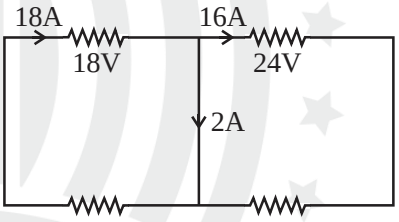
Sol.



$$R_{eq.} = \frac{3}{4} + \frac{4}{3} = \frac{25}{12}$$

$$V_1 = 24 \times \frac{3}{4} = 18V$$

$$V_2 = 24 \times \frac{4}{3} = 24V$$



V = IR

50 = I × (25/12)

I = 24 A

Q.42 (3)

Sol. $C = \frac{2\varepsilon_0 A}{d}$

$$C = \frac{2\varepsilon_0 A}{d} = \frac{\varepsilon_0 A}{d - \frac{3d}{8} - \frac{d}{2} + \frac{3d}{8 \times k_1} + \frac{d}{2k_2}}$$

$$k_2 = \frac{64}{30}$$

$$\frac{k_1}{1.25} = \frac{64}{30}$$

$k_1 = 2.66$

Q.43 **(1)**

Sol. Reading = MSR + CSR – Zero error

50 mm + 8 × 0.1 – 1 mm

= 49.8 mm

= 4.98 cm

Q.44 **(3)**

Sol. $\frac{m_1}{m_2}=\frac{I_1}{I_2}\left(\frac{r_1}{r_2}\right)^2=\frac{1}{4}$

Q.45 **(4)**

Sol. $R=\frac{\left[1+\left(\frac{dy}{dx}\right)^2\right]^{3/2}}{\frac{d^2y}{dx^2}}$

find $\frac{dy}{dx}$ is small $\left(\frac{dy}{dx}\right)^2\approx 0$

$R=\frac{dx^2}{d^2y}$

$\Delta P=\frac{T}{R}-\frac{T}{\infty}=\frac{T}{R}$

$\rho gy=S\frac{d^2y}{dx^2}$

$\frac{d^2y}{dx^2}=\frac{\rho gy}{S}$

CHEMISTRY

Q.46 **(4)**

Sol. $AlH(iBu)_2[DIBAl-H]$ reduces ester and cyanides in to Aldehyde.

Q.47 **(1)**

Sol. As ^{+}I effect increase, it decreases the acidity of carboxylic acid.

$\therefore$ the order of decreasing acidity is

$HCOOH > CH_3COOH > (CH_3)_2 CHCOOH > (CH_3)_2 CCOOH$

Q.48 **(2)**

Sol. Lassaigne's test, also known as sodium fusion test, is a chemical method use to detect the presence of nitrogen, sulfur and halogens in organic compound.

(This test is only for N, S and halogens) and not for carbon.

Q.49 **(3)**

Sol. $7.2\,mol/lt \xrightarrow{t_{1/2}} 3.6 mol/lit \xrightarrow{t_{1/2}} 1.8 mol/t \xrightarrow{t_{1/2}} 0.9$

Total no. of half-life

$=3\left[t_{1/2}=\frac{0.693}{k}\right]\therefore 3t_{1/2}$

$=3\times\frac{0.693}{0.03}=69.3$

Q.50 **(4)**

Sol. **Statement-I:** If a hypothetical diatomic molecule has bond order =0, which mean its does not exist (cannot be stable)

Statement-II: Bond length $\propto \frac{1}{\text{Bond length}}$

Q.51 **(2)**

Q.52 **(1)**

Sol. $\Delta T_b=k_b.m.i$

Q.53 **(3)**

Sol.  Undergoes faster S_N2 reaction as I^- is a good leaving group than Cl^- because of its larger size

Q.54 **(3)**

Sol. Alkali metal (K) show only +1 oxidation state.

$H_2O_2 \rightarrow 2+2x=0 \Rightarrow x=-1$

$H_2SO_4 \rightarrow 2+x-8=0 \Rightarrow x=+6$

Q.55 **(1)**

Sol. Haber process – Fe catalyst

Weaker oxidation – $PdCl_2$

Wilkinson catalyst – $[(PPh_3)_3RhCl]$

Ziegler catalyst – $TiCl_4$ with $Al(CH_3)_3$

Q.56 **(1)**

Sol. Nitrogen a member of the pnicogen group (Group 15), reacts with hydrogen to from ammonia a colourless gas with a pungent smell.

Arsenic, also a pnicogen, similarly reacts with hydrogen to form arsine, a colourless and toxic gas

Antimony pentoxide, with the formula a Sb_2O_5 is well known chemical compound.

Q.57 **(1)**

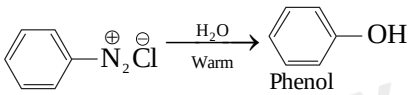
Sol. **Statement-I:** Ferromagnetism is permanent magnetism

$\therefore$ it can be considered as an extreme form of Para magnetism.

Statement-II: $Cr^{2+} \rightarrow 3d^4 4s^0$ (4-unpaired electrons)

Nd^{3+} $Nd^{3+} \rightarrow 4f^3 6s^0$ (3-unpaired electrons)

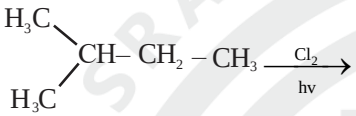
Q.58 **(2)**

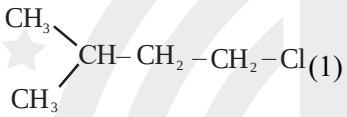
Sol. 

Q.59. **(3)**

Q.60 **(2)**

Sol.



(1) 

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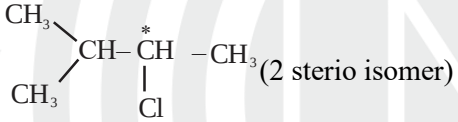
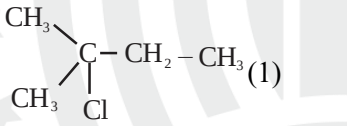
(2) 

(2 sterio isomer)

(3) 

(1)

(4) 

(2 sterio isomer)

Total products = 6

Q.61 **(4)**

Sol. Isoelectronic species have same no. of electrons K^+, Cl^-, Ca^{2+}, S^{2-} all have 18 electrons.

At. Radius increase as we go down the group.

Q.62 **(3)**

Sol. $Ba^{+2}(aq.) + SO_4^{-2}(aq) \rightarrow BaSO_4(s)$

$\Delta H_f(BaSO_4(s))$

= Heat of crystallisation of

$BaSO_4 + \Delta H_f(SO_4^{-2}) + \Delta H_f(Ba^{+2})$

$-349 = -4.5 - 216 + \Delta H_f(Ba^{+2})$

$\Delta H_f(Ba^{+2}) = -128.5$

Q.63 **(4)**

Q.64 **(3)**

Sol. $\Delta H = E_{a(R)} - E_a(p)$,

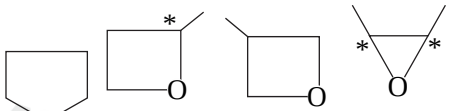
For exothermic $\rightarrow \Delta H = -ve$

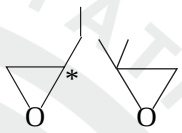
$\therefore E_a(p) > E_a(R)$

Q.65 **(4)**

Sol. D-fructose is a keto sugar.

Q.66 **(1)**

Sol. 
(2 isomers) (1) (1-meso + 2-enantiomer)


(2 isomer) (1)

Total isomers = 10

Q.67 **(1)**

Sol. $K_p = K_c(RT)^{\Delta ng}$

$A(g) \rightleftharpoons 2B(g)$

$\Delta n_g = (2-1) = 1$

$\frac{K_b}{K_f} = K_c = \frac{1}{2500}$

$\therefore K_p = \frac{1}{2500} \times (0.0831 \times 1000)^1$

$K_p = 0.033$

Q.68 **(2)**

Sol. $n_1 = 2$ to $n_2 = 3$

$\frac{1}{\lambda_1} = Rz^2\left[\frac{1}{(2)^2} - \frac{1}{(3)^2}\right]$

$\frac{1}{\lambda_1} = \frac{5}{36}$

$\lambda_1 = \frac{36}{5}$

$\frac{1}{\lambda_2} = Rz^2\left[\frac{1}{(4)^2} - \frac{1}{(6)^2}\right]$

$\frac{1}{\lambda_2} = \frac{20}{36 \times 76}$

$\frac{1}{\lambda_2} = \frac{36 \times 16}{20}$

$$\frac{\lambda_1}{\lambda_2} = \frac{36}{5} \times \frac{20}{6 \times 16} = \frac{1}{4}$$

Q.69 **(1)**

Sol. $\alpha = \frac{\Lambda_m}{\Lambda_m^\infty}$

Λ_m = molar conductivity at concentration

Λ_m^∞ = Limiting molar conductivity

$\Lambda_m^\infty = \Lambda_+^\circ + \Lambda_-^\circ$

$= 349.6 + 50.4 = 400\ Scm^2\ mol^{-1}$

$\alpha = \frac{0.050}{400} = 0.225$

Q.70 **(4)**

Sol. $P = P_A + P_B$

$P = P_X^0 \chi_X + P_Y^0 \chi_Y$

$= \left(63 \times \frac{5}{15}\right) + \left(78 \times \frac{10}{15}\right) = 73 \text{torr.}$

$P_{Obs.} < P_A + P_B$

$\therefore$ Negative deviation

Q.71 **(4)**

Sol. A. $\frac{212}{106} \times N_A = 2 \times 6N_A = 12N_A$

B. $\frac{248}{62} \times 3N_A = 4 \times 3N_A = 12N_A$

C. $\frac{240}{40} \times 3N_A = 6 \times 3N_A = 18N_A$

D. $\frac{12}{2} \times 2N_A = 12N_A$

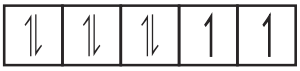
E. $\frac{220}{44} \times 3N_A = 15N_A$

Q.72 **(1)**

Sol. A. $[NiCl_4]^{2-}$

$Ni^{2+} \rightarrow 3d^8\ 45^o$

$Cl \rightarrow$ weak field ligand

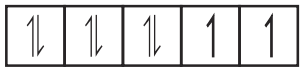


2 unpaired e^- $\therefore$ paramagnetic

D. $[Ni(H_2O)_6]^{2+}$

$Ni^{2+} \rightarrow 3d^8\ 45^o$

$H_2O \rightarrow$ weak field ligand



2 unpaired e^- $\therefore$ paramagnetic

Q.73 **(2)**

Sol. $t_{99.9\%} = 10\ t_{1/2}$

$t_{1/2} = 1$ min.

$t_{99.9\%} = 10 \times 1 = 10$ min.

Q.74 **(3)**

Sol. $E = -2.18 \times 10^{-18} \frac{Z^2}{n^2}$

Li^{2+}

$E = -2.18 \times 10^{-18} \frac{3^2}{1^2}$

$= -2.18 \times 9 \times 10^{-18}$

$= -19.62 \times 10^{-18} J$

$r = 0.529 \times \frac{n^2}{z}$

$n = 1, z = 3 = 17.6$ pm

For He^+

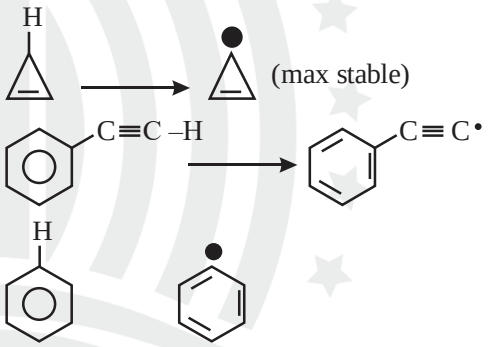
$E = -2.18 \times 10^{-18} \times \frac{4}{1}$

$= -8.72 \times 10^{-18} J$

$r_n = 26.4$ pm

Q.75 **(3)**

Sol.



II > I > III

Q.76 **(2)**

Sol. Fact based

Q.77 **(3)**

Sol. $H_2O > NH_3 > CHCl_3 \rightarrow$ (Correct order of dipole moment)

$N_2 > O_2 > H_2 \rightarrow$ (Bond enthalpy according to Bond order)

Q.78 **(4)**

Sol. Fact

Q.79 **(1)**

Sol. $\underbrace{\text{N – ethylethanamine}}_{\text{(lone pair localised)}} > \text{ethanamine}$

According to +I effect

$> \underbrace{\text{N – methylaniline}}_{\text{(lone pair deloclasied)}} > \text{benzenamine}$

According to +I effect

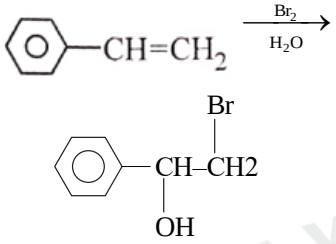
Q.80 **(4)**

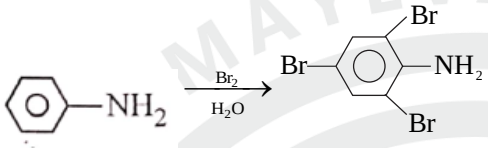
Sol. Wavelength of light absorbed $\propto \frac{1}{\text{Strength of the ligand}}$

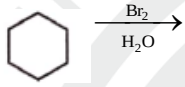
Order of the strength of ligand.

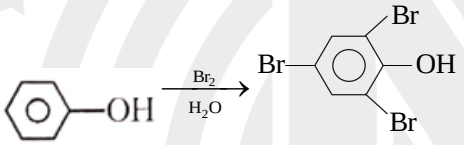
$CN^- > NH_3 > H_2O$

Q.81 **(3)**

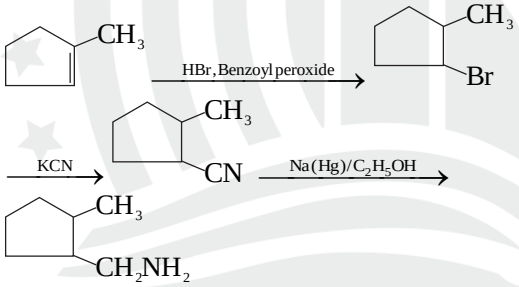
Sol. (1) 

(2) 

(3)  No reaction (no decolourisation)

(4) 

Q.82 **(3)**

Sol. 

Q.83 **(3)**

Sol. (A) $CHCl_3 + C_6H_5NH_2 \Rightarrow$ Simple distillation

(B) Crude oil in petroleum $\Rightarrow$ Fractional distillation

(C) Glycerol from spent-lye $\Rightarrow$ Distillation under reduced pressure

(D) Aniline – water $\Rightarrow$ Steam distillation

Q.84 **(4)**

Sol. A. $[Ne]3s^1$ (s-block)

B. $[Ar]3d^3 4s^2$ (d-block)

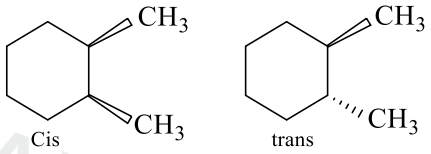
C. $[Kr]4d^{10}5s^2 5p^5$ (p-block)

D. $[Ar]3d^{10}4s^1$ (d-block)

E. $[Rn]5f^0 6d^2 7s^2$ (f-block)

Main group elements = s-block and p-block

Q.85 **(2)**

Sol. 

Q.86 **(2)**

Sol. $H_3PO_4 \rightleftharpoons H^{\oplus} + H_2PO_4^{\ominus}$ (K_{a_1})

$H_2PO_4^{\ominus} \rightleftharpoons H^{\oplus} + HPO_4^{-2}$ (K_{a_2})

$HPO_4^{-2} \rightleftharpoons H^{\oplus} + PO_4^{-3}$ (K_{a_3})

$H_3PO_4 \rightleftharpoons 3H^{\oplus} + PO_4^{-3}$ (K)

Hence $K = K_{a_1} \times K_{a_2} \times K_{a_3}$

$\log K = \log K_{a_1} + \log K_{a_2} + K_{a_3}$

$K_{a_1} > K_{a_2} > K_{a_3}$

Q.87 **(4)**

Q.88 **(2)**

Sol. $\Delta H = +ve$ (Endothermic reaction)

$\therefore$ Proceeds in forward direction high temperature.

According to Le-chatelier principle

Conc. Of reactant (N_2 and O_2) increases, reaction shifts in forward direction.

Q.89 **(3)**

Q.90 **(4)**

Sol.