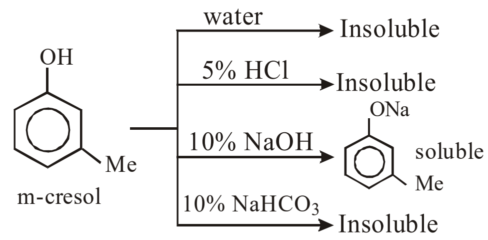
NEET 2020

FULL TEST-2 SOLUTIONS

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

(1) **(1).**



* Oleic acid is also soluble in $NaHCO_3$.

* o-toluidine is not soluble in NaOH as well as $NaHCO_3$.

* Benzamide is also not soluble in NaOH & $NaHCO_3$.

(2) **(3).** $r = K[A]^x[B]^y$

$0.045 = K(0.05)^x(0.05)^y$ ....(1)

$0.090 = K(0.10)^x(0.05)^y$ ....(2)

$0.72 = K(0.20)^x(0.10)^y$ ....(3)

From (1) ÷ (2),

$$\frac{0.045}{0.090} = \left(\frac{0.05}{0.10}\right)^x \Rightarrow x = 1$$

From (2) ÷ (3),

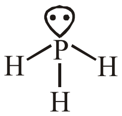
$$\frac{0.090}{0.720} = \left(\frac{0.10}{0.20}\right)^x \cdot \left(\frac{0.05}{0.10}\right)^y \Rightarrow y = 2$$

Hence, $r = K[A][B]^2$

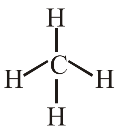
(3) **(3).** (a) $\overset{\oplus}{M}\overset{\ominus}{H} + HOH \rightarrow MOH + H_2$
Ionichydride/salinehydride

(b) $4BF_3 + 3LiAlH_4 \rightarrow 2B_2H_6 + 3LiF + 3AlF_3$

(c)



$\rightarrow$ phosphorous is electron rich hydride due to presence of lone pair

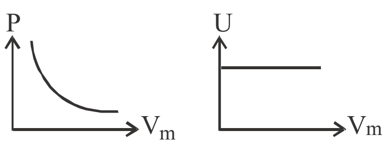


$\rightarrow$ It is electron precise hydride.

(d) HF & CH_4 are molecular hydride due to they are covalent molecules.

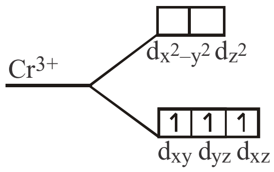
(4) **(3).** Isothermal expansion $PV_m = K$ (Graph-c)

$$P = \frac{K}{V_m}$$ (Graph-a)



(5) **(3).** All halides of Be are predominantly covalent in nature.

(6) **(3).** Degenerate orbitals of $[Cr(H_2O)_6]^{3+}$



Hence according to the options given, degenerate orbitals are d_{xz} & d_{yz}.

(7) **(4).** Ellingham diagram helps in predicting the feasibility of thermal reduction of ores.

(8) **(4).** $Z_B = 4,\ Z_A = 4 \times \frac{1}{2} = 2,\ Z_O = 8$

Formula ; $A_2B_2O_8 \equiv AB_2O_4$

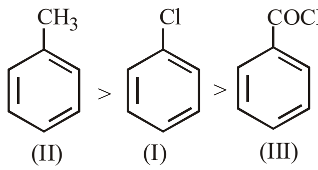
(9) **(4).** E.N. of Al = (1.5) ≅ Be (1.5)

(10) **(1).** Photochemical smog occurs in warm (sunlight) and has high concentration of oxidising agent therefore it is called photochemical smog/ oxidising smog.

(11) **(4).** $CH_3C \equiv CH \xrightarrow{DCl} H_3C-\underset{\underset{Cl}{|}}{C}=CHD$

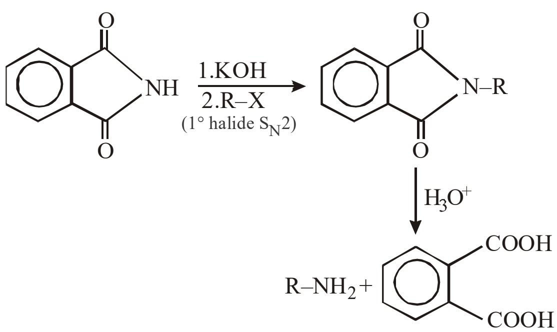
$\xrightarrow{DI} H_3C-\underset{\underset{Cl}{|}}{\overset{\overset{I}{|}}{C}}-CHD_2$

(12) **(3).** Rate of aromatic electophilic substitution is



(13) **(1).** $BeCl_2$ exist as $(BeCl_2)_n$ polymeric chain in solid form, while $BeCl_2$ exist as dimer $(BeCl_2)_2$ in vapour phase.

(14) **(2).** Gabriel phthalimide synthesis :

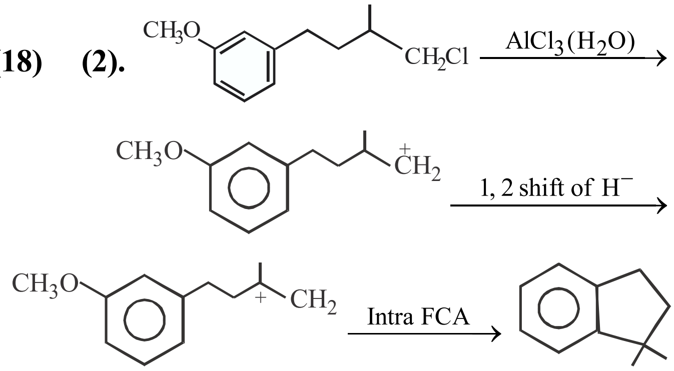


(15) **(2).** $CH \equiv CH > CH_3 - C \equiv CH > CH_2 = CH_2$
(Acidic strength order)

(16) **(2).** $3Cl_2 + 6\,OH^- \rightarrow 5Cl^- + ClO_3^- + 3H_2O$

(17) **(2).** Generally interstitial compounds are chemically inert.

(18) **(2).**



(19) **(1).** Rate of nucleophilic attack on carbonyl $\propto$ Electrophilicity of carbonyl group

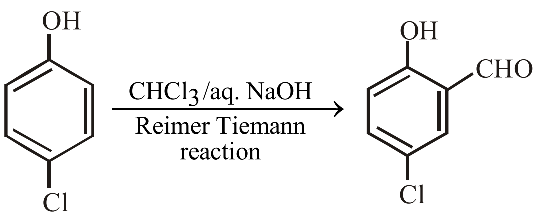
$C_2H_5 - \overset{O}{\overset{\|}{C}} - \ddot{N}H_2 < C_2H_5 - \overset{O}{\overset{\|}{C}} - OCH_3$ (NH_2: +m; OCH_3: +m)

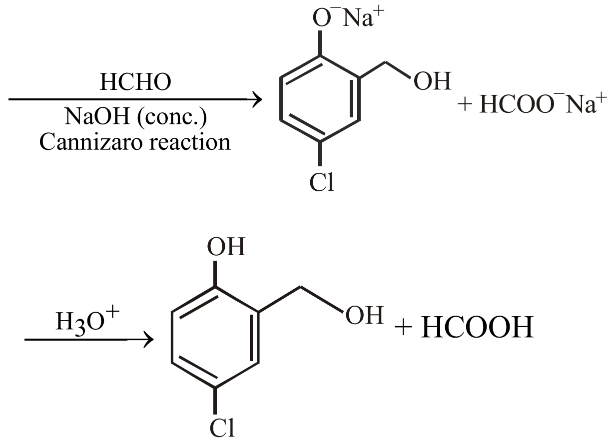
$< C_2H_5 - \overset{O}{\overset{\|}{C}} - O - \overset{O}{\overset{\|}{C}} - C_2H_5 < C_2H_5 - \overset{O}{\overset{\|}{C}} - Cl$ (O–C(O)–C₂H₅: +m; Cl: –I)

(20) **(4).** $K_{sp} = 4\,(s)^3 = 4 \times (1.84 \times 10^{-5})^3$
$Cd(OH)_2 \rightleftharpoons Cd^{+2} + 2OH^-$
$S' \quad S' \quad (10^{-2} + S') \approx 10^{-2}$
$S' \times (10^{-2})^2 = 4 \times (1.84 \times 10^{-5})^3$
$S' = 4 \times (1.84)^3 \times 10^{-11}$
$S' = 2.491 \times 10^{-10}$ M

(21) **(3).** In diamond C–C bond have only σ bond character while in case of graphite and fullerene (C60 and C70) C–C bond contain double bond character. That's why diamond having maximum C–C bond length.

(22) **(3).**

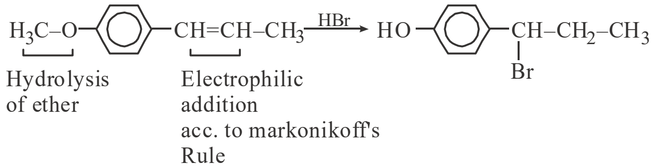




(23) **(2).** Work done on isothermal irreversible for ideal gas $= -P_{ext}(V_2 - V_1)$
$= -4\ N/m^2\ (1m^3 - 5m^3) = 16$ Nm
Isothermal process for ideal gas $\Delta U = 0$
$q = -w = -16$ Nm $= -16$ J
Heat used to increase temperature of Al
$q = n\,C_m\,\Delta T$

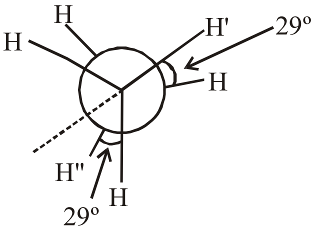
$$16\ J = 1 \times 24\ \frac{J}{mol \cdot K} \times \Delta T \quad ; \ \Delta T = \frac{2}{3} K$$

(24) **(2).**



(25) **(1).** $\Delta G° = -nF\,E°_{cell}$
$= -2 \times 96000 \times 2 = -384000\ J = -384$ kJ

(26) **(3).**



H'–C–C–H''
Hence angle between H'—C–C–H'' is (120° + 29°) = 149°.

(27) **(4).** O_2, NO, B_2 are paramagnetic according to M.O.T. where as CO is diamagnetic.

(28) **(2).** Sucrose $\xrightarrow{H_2O}$ α-D-glucose + β-D-fructose
Also named as invert sugar & it is a example of non-reducing sugar.

The glycosidic linkage is present between C_1 of α-glucose & C_2 of β-fructose.

(29) **(1).** $Rb + O_2(\text{excess}) \rightarrow RbO_2$

$2RbO_2 + 2H_2O \rightarrow 2RbOH + H_2O_2 + O_2$

(30) **(1).** $\Delta G = \Delta H - T\Delta S$

$$T = \frac{\Delta H}{\Delta S} = \frac{200}{40} = 5K$$

(31) **(3).**

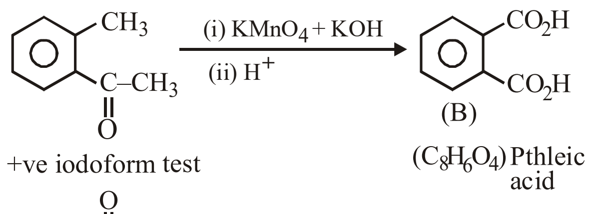
$$[X] \xrightarrow[NaOH]{Br_2} C_3H_9N \xrightarrow[KOH]{CHCl_3} CH_3CH_2CH_2{-}NC$$

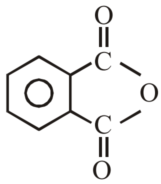
Hoffmann's Bromaide degradation — Carbylamine Reaction

Thus [X] must be amide with one carbon more than is amine.

Thus [X] is $CH_3CH_2CH_2CONH_2$.

(32) **(1).**

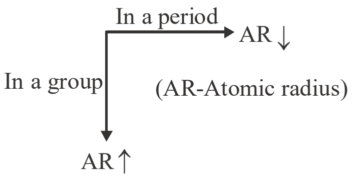




is used for prepareation of phenolphthalein indicator

Pthleic anhydride

(33) **(4).**



Atomic radii order : $C < S < Al < Cs$

Atomic radius of C : 170 pm

Atomic radius of S : 180 pm

Atomic radius of Al : 184 pm

Atomic radius of Cs : 300 pm

(34) **(3).** $X_{\text{solvent}} = 0.8$

If $n_T = 1$, $n_{\text{Solvent}} = 0.8$, $n_{\text{Solute}} = 0.2$

$$\text{Molality} = \frac{0.2}{\frac{0.8 \times 18}{1000}} = 13.88$$

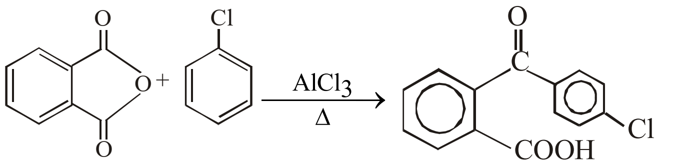
(35) **(1).** In 'K', 2s orbital feel maximum attraction from nucleus (So having less energy) due to more Z_{eff}.

(36) **(3).** Temporary hardness is due to soluble $Mg(HCO_3)_2$ and $Ca(HCO_3)_2$

$$Mg(HCO_3)_2 \xrightarrow{\text{Boil}} Mg(OH)_2\downarrow + 2CO_2\uparrow$$

$$Ca(HCO_3)_2 \xrightarrow{\text{Boil}} CaCO_3\downarrow + H_2O + CO_2\uparrow$$

(37) **(3).**



Fridel-craft acylation. –Cl group is an ortho & para directing.

(38) **(1).** As we move down the group, bond strength decreases, thereby decreasing the catenation tendency. Hence the order is as expected $C > Si > Ge \approx Sn$

(39) **(1).**

$$H-\overset{\overset{\large O}{\|}}{C}-H + Ph-\underset{\underset{\large CH_3}{|}}{CH}-CH_2MgX$$

$$\longrightarrow Ph-\underset{\underset{\large CH_3}{|}}{CH}-CH_2-CH_2-OH$$

(40) **(4).** Haemoglobin $\rightarrow$ positive sol

Ag – sol $\rightarrow$ negative sol

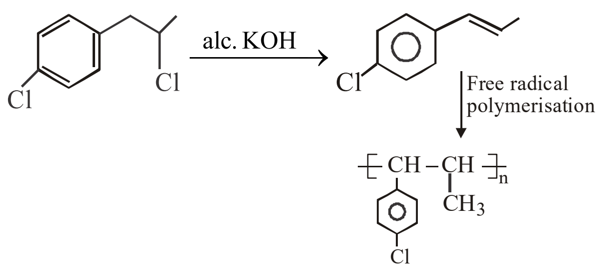
(41) **(4).** CCl_4 cannot get hydrolyzed due to the absence of vacant orbital at carbon atom.

(42) **(2).** $K_f = 4$ K-kg/mol, $m = 0.03$ mol/kg, $i = 3$

$\Delta T_f = i\,K_f \times m$

$\Delta T_f = 3 \times 4 \times 0.03 = 0.36$ K

(43) **(1).**



(44) **(3).** HF has highest boiling point among hydrogen halides because it has strongest hydrogen bonding.

(45) **(2).** Nylon-6,6 is a condensation polymer of hexamethylene diamine and adipic acid. Buna-S, Teflon and Neoprene are addition polymer.

(46) **(3).** At t = 0, $A_0 = \frac{dN}{dt} = 1600\ C/s$

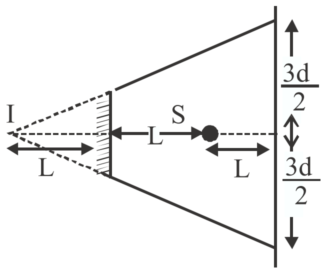
At t = 8s, A = 100 C/s

$\frac{A}{A_0} = \frac{1}{16}$ in 8 sec

Therefore half life is $t_{1/2} = 2$ sec

$\therefore$ Activity at t = 6 will be $1600\,(1/2)^3 = 200 C/s$

(47) **(1).**



(48) **(4).** $M = \mu_0 n_1 n_2 \pi r_1^2$

$L = \mu_0 n_1^2 \pi r_1^2 \Rightarrow \frac{M}{L} = \frac{n_2}{n_1}$

(49) **(4).** $3\left(\frac{v}{2\ell}\right) = 240$; $3\frac{v}{2\times 2} = 240$

v = 320 m/s

Fundamental frequency $= \frac{v}{2\ell} = \frac{320}{2\times 2} = 80$ Hz

(50) **(2).** $\frac{1}{2}\left(m + \frac{I}{R^2}\right)v^2 = mgh$

If radius of gyration is k, then

$$h = \frac{\left(1+\frac{k^2}{R^2}\right)v^2}{2g} \ ; \ \frac{k_{ring}}{R_{ring}} = 1$$

$$\frac{k_{solid\ cylinder}}{R_{solid\ cylinder}} = \frac{1}{\sqrt{2}}$$

$$\frac{k_{solid\ cylinder}}{R_{solid\ cylinder}} = \sqrt{\frac{2}{5}}$$

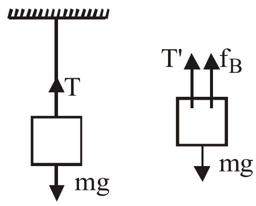
$$h_1 : h_2 : h_3 :: (1+1) : \left(1+\frac{1}{2}\right) : \left(1+\frac{2}{5}\right)$$

$$:: 20 : 15 : 14$$

(51) **(1).** $K_{max} = \frac{hc}{\lambda} - \frac{hc}{\lambda_0} = hc\left(\frac{\lambda_0 - \lambda}{\lambda\lambda_0}\right)$

$= 1237\left(\frac{380-260}{380\times 260}\right) = 1.5$ eV

(52) **(2).** $\frac{F}{A} = y\frac{\Delta\ell}{\ell}$



$\Delta\ell \propto F$ ....(i)

$T = mg$

$T = mg - f_B$

$= mg - \frac{m}{\rho_b}\cdot\rho_\ell\cdot g$

$= \left(1 - \frac{\rho_\ell}{\rho_b}\right)mg = \left(1-\frac{2}{8}\right)mg$

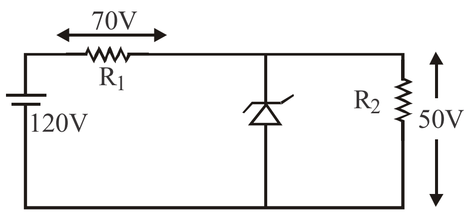
$T' = \frac{3}{4}mg$. From (i), $\frac{\Delta\ell'}{\Delta\ell} = \frac{T'}{T} = \frac{3}{4}$

$\Delta\ell' = \frac{3}{4}\Delta\ell = 3$ mm

(53) **(4).** Assuming zener diode does not undergo breakdown, current in circuit $= \frac{120}{15000}$

= 8mA

$\therefore$ Voltage drop across diode = 80 V > 50 V. The diode undergo breakdown.



Current is $R_1 = \frac{70}{5000} = 14$ mA

Current is $R_2 = \dfrac{50}{10000} = 5$ mA

$\therefore$ Current through diode = 9mA

(54) **(1).** For a diatomic gas, $C_p = \dfrac{7}{2}R$

Since gas undergoes isobaric process

$\Delta Q = nC_p \Delta T$

Also, $\Delta W = nR\Delta T = 10$ J (given)

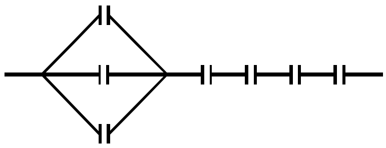
$\therefore \Delta Q = n\dfrac{7}{2}R\Delta T = \dfrac{7}{2}(nR\Delta T) = 35$ J

(55) **(4).** $F = \dfrac{dV}{dr} = kr = \dfrac{mv^2}{r}$

$mvr = \dfrac{nh}{2\pi}$; $r^2 \propto n$; $r^2 \propto \sqrt{n}$

$E = \dfrac{1}{2}kr^2 + \dfrac{1}{2}mv^2 \propto r^2 \propto n$

(56) **(4).** $C_{eq} = \dfrac{6}{13}\mu F$



Therefore three capacitors most be in parallel to get 6 in $\dfrac{1}{C_{eq}} = \dfrac{1}{3C} + \dfrac{1}{C} + \dfrac{1}{C} + \dfrac{1}{C} + \dfrac{1}{C}$

$C_{eq} = \dfrac{3C}{13} = \dfrac{6}{13}\mu F$

(57) **(4).** For A : $R = C_p - C_v = 7$

$C_v = \dfrac{fR}{2} = 22 \Rightarrow f = \dfrac{44}{7} = 6.3$

$f \simeq 6$ → 5 (Rotation + Translational), 1 (Vibration)

For B : $R = C_p - C_v = 9$

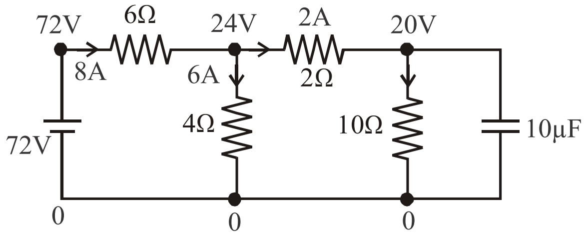
$C_v = \dfrac{fR}{2} = 21 \Rightarrow f = \dfrac{42}{9}$

$f \simeq 5$ → 5 (Rotation + Translational), 0 (Vibration)

(58) **(2).** S = Area under graph

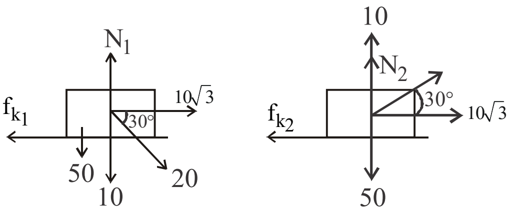
$\dfrac{1}{2} \times 2 \times 2 + 2 \times 2 + 3 \times 1 = 9$ m

(59) **(3).** Applying point potential method



$q = cV = 10\mu F \times 20 = 200\ \mu C$

(60) **(2).**



$N_1 = 60,\ N_2 = 40$

$a_1 = \dfrac{10\sqrt{3} - 0.2 \times 60}{5}$

$a_2 = \dfrac{10\sqrt{3} - 0.2 \times 40}{5}$

$a_1 - a_2 = 0.8$

(61) **(3).** Height of liquid rise in capillary tube

$h = \dfrac{2T\cos\theta_c}{\rho rg} \Rightarrow h \propto \dfrac{1}{r}$

When radius becomes double height become half $h' = h/2$

Now, $M = \pi r^2 h \times \rho$

and $M' = \pi(2r)^2(h/2) \times \rho = 2M$

(62) **(2).** $\dfrac{F}{A} = y \cdot \dfrac{\Delta\ell}{\ell}$; $[Y] = \dfrac{F}{A}$

Now from dimension,

$F = \dfrac{ML}{T^2}$; $L = \dfrac{F}{M} \cdot T^2$

$L^2 = \dfrac{F^2}{M^2}\left(\dfrac{V}{A}\right)^4 \quad \because T = \dfrac{V}{A}$

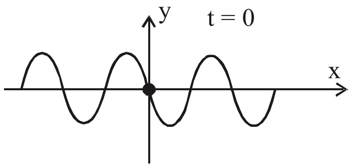
$L^2 = \dfrac{F^2}{M^2A^2}\dfrac{V^4}{A^2}$; $[F = MA]$

$$L^2 = \frac{V^4}{A^2} \; ; \; [Y] = \frac{[F]}{[A]} = F^1V^{-4}A^2$$

(63) (4). $\frac{GM}{(R+h)^2} = \frac{GM}{2R^2}$

$R + h = \sqrt{2}\, R$

$h = (\sqrt{2} - 1)\, R = 2.6 \times 10^6$ m

(64) (3). 

$y = A \sin (kx - \omega t + \phi)$

At $x = 0, t = 0, y = 0$ and slope is negative

$\Rightarrow \phi = \pi$

(65) (4). $R = \frac{u^2 \sin 2\theta}{g}$

$A = \pi R^2$; $A \propto R^2$; $A \propto u^4$

$$\frac{A_1}{A_2} = \frac{u_1^4}{u_2^4} = \left[\frac{1}{2}\right]^4 = \frac{1}{16}$$

(66) (4). Applying angular momentum conservation, about axis of rotation, $L_i = L_f$

$$\frac{ML^2}{12}\omega_0 = \left(\frac{ML^2}{12} + m\left(\frac{L}{2}\right)^2 \times 2\right)\omega$$

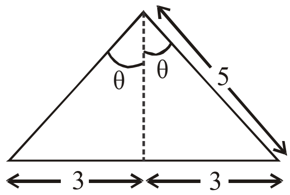
$$\omega = \frac{M\omega_0}{M + 6m}$$

(67) (3). $V_{gain} = \left(\frac{\Delta I_C}{\Delta I_b}\right)\frac{R_{out}}{R_{in}} = \left(\frac{5 \times 10^{-3}}{100 \times 10^{-6}}\right) \times 10^3$

$$= \frac{1}{20} \times 10^6 = 5 \times 10^4$$

$$P_{gain} = \left(\frac{\Delta I_C}{\Delta I_b}\right)(V_{gain})$$

$$= \left(\frac{5 \times 10^{-3}}{100 \times 10^{-6}}\right)(5 \times 10^4) = 2.5 \times 10^6$$

(68) (4). 

$B = \frac{\mu_0 I}{4\pi d} 2 \sin\theta$; $d = 4$ cm

$\sin\theta = 3/5$

(69) (1). Limit of resolution of telescope $= \frac{1.22\,\lambda}{D}$

$$\theta = \frac{1.22 \times 500 \times 10^{-9}}{200 \times 10^{-2}} = 305 \times 10^{-9} \text{ radian}$$

(70) (3). Since P–V indicator diagram is given, so work done by gas is area under the cyclic diagram.

$\therefore$ ΔW = Work done by gas $= \frac{1}{2} \times 4 \times 5$ J

$= 10$ J

(71) (3). From lens equation, $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$

$$\frac{1}{v} - \frac{1}{(-20)} = \frac{1}{(0.3)} = \frac{10}{3}$$

$$\frac{1}{v} = \frac{10}{3} - \frac{1}{20} \; ; \; \frac{1}{v} = \frac{197}{60} \; ; \; v = \frac{60}{197}$$

$$m = \frac{v}{u} = \frac{60/197}{20}$$

Velocity of image wrt. to lens is given by $v_{I/L} = m^2 v_{O/L}$

Direction of velocity of image is same as that of object $v_{O/L} = 5$ m/s

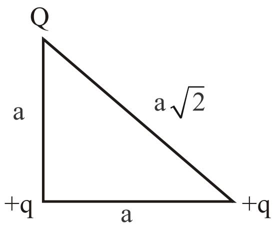
$$v_{I/L} = \left(\frac{60 \times 1}{197 \times 20}\right)^2 (5)$$

$= 1.16 \times 10^{-3}$ m/s towards the lens.

(72) **(1).** $U = K\left[\frac{q^2}{a} + \frac{Qq}{a} + \frac{Qq}{a\sqrt{2}}\right] = 0$

$\Rightarrow \quad q = -Q\left[1 + \frac{1}{\sqrt{2}}\right]$

$\Rightarrow \quad Q = \frac{-q\sqrt{2}}{\sqrt{2}+1}$



(73) **(4).** $v = \omega\sqrt{A^2 - x^2}$ ..... (1)

$a = -\omega^2 x$ ..... (2)

$|v| = |a|$ ..... (3)

$\omega\sqrt{A^2 - x^2} = \omega^2 x$

$A^2 - x^2 = \omega^2 x^2$

$5^2 - 4^2 = \omega^2(4^2) \Rightarrow 3 = \omega \times 4$

$T = 2\pi / \omega$

(74) **(4).** Path difference at central maxima $\Delta x = (\mu - 1)\,t$, whole pattern will shift by same amount which will be given by

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

According to the question, $t = \frac{n\lambda}{(\mu - 1)}$

(75) **(2).** $Q = P \times t$

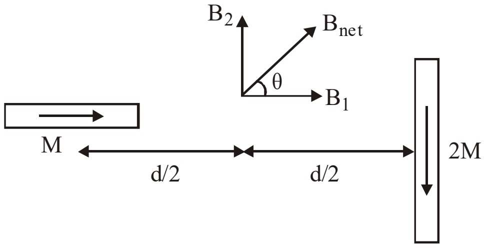
$Q = mc\,\Delta T + mL$

$P = \frac{V_{rms}^2}{R}$

$4200 \times 80 + 2260 \times 10^3 = \frac{(200)^2}{20} \times t$

$t = 1298$ sec ; $t = 22$ min

(76) **(4).**

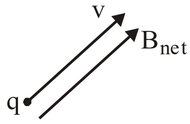


$B_1 = 2\left(\frac{\mu_0}{4\pi}\right)\frac{M}{(d/2)^3}$

$B_2 = \left(\frac{\mu_0}{4\pi}\right)\frac{2M}{(d/2)^3}$

$B_1 = B_2$

B_{net} is at 45° ($\theta = 45°$)



Velocity of charge and B_{net} are parallel so by $\vec{F} = q\,(\vec{v} \times \vec{B})$ force on charge particle is zero.

(77) **(1).** By conservation of Energy,

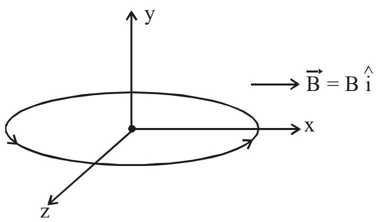
$-\frac{GMm}{R} + E = -\frac{GMm}{3R} + \frac{1}{2}mv_0^2$

$E = -\frac{GMm}{3R} + \frac{1}{2}m\left(\frac{GM}{3R}\right) + \frac{GMm}{R}$

$E = -\frac{GMm}{3R} + \frac{GMm}{6R} + \frac{GMm}{R}$

$\therefore \quad E = \frac{5GMm}{6R}$

(78) **(1).**



Magnetic moment of coil = NIA $\hat{j}$

$= NI\,(\pi r^2)\,\hat{j}$

Torque on loop (coil) = $\vec{M} \times \vec{B}$

$= NI\,(\pi r^2)\,B \sin 90°\,(-\hat{k}) = NI\pi r^2 B\,(-\hat{k})$

(79) **(2).** K.E. acquired by charge = K = qV

$\lambda = \frac{h}{p} = \frac{h}{\sqrt{2mK}} = \frac{h}{\sqrt{2mqV}}$

$\therefore \quad \frac{\lambda_A}{\lambda_B} = \frac{\sqrt{2m_B q_B V_B}}{\sqrt{2m_A q_A V_A}} = \sqrt{\frac{2mq \times 2500}{mq \times 50}}$

$= 2\sqrt{50} = 2 \times 7.07 = 14.14$

(80) **(4).** $\frac{P}{Q}=\frac{R}{S}$

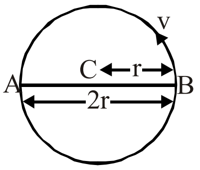
Since P and Q is constant $\frac{P}{Q}$ will be constant

$\therefore \frac{R}{S}=\text{Constant}$

$\frac{R}{S}=\frac{5}{S}=\frac{7}{S+3} \Rightarrow 5\,(S+3)=7S$

or $15=2S \quad \therefore\ S=7.5\,\Omega$

(81) **(2).** $\omega_A=\frac{v}{2r}, \omega_C=\frac{v}{r}$



$\therefore \frac{\omega_A}{\omega_C}=\frac{1}{2}$

(82) **(2).** $W=\frac{1}{2}kx^2 \Rightarrow W \propto k \Rightarrow \frac{W_2}{W_1}=\frac{k_2}{k_1}=2$

$\Rightarrow W_2=2W_1$

(83) **(1).** Mass should be conserved

$238=206+4x+0$

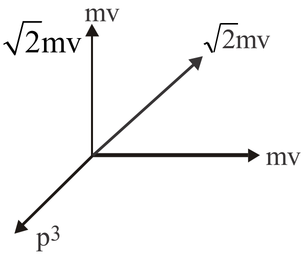
$x=32/4=8$

(84) **(2).** $v=g(\sin\theta-\mu\cos\theta)\,t$

$=10\left[\frac{1}{2}-(0.2)\frac{\sqrt{3}}{2}\right]5=16.34\text{ m/s}$

(85) **(1).** Angular spread of central maxima is $\theta=2\lambda/a$.

(86) **(3).** $p_3=\sqrt{p_1^2+p_2^2}=\sqrt{2}mv$



$2mv_3=\sqrt{2}mv$

$v_3=\frac{v}{\sqrt{2}}$

$KE_f=\frac{1}{2}mv^2+\frac{1}{2}mv^2+\frac{1}{2}(2m)\left(\frac{v}{\sqrt{2}}\right)^2$

$=\frac{3}{2}mv^2$

(87) **(3).** $n \propto \frac{1}{\ell} \Rightarrow \frac{\Delta n}{n}=-\frac{\Delta \ell}{\ell}$

If length is decreased by 2% then frequency increases by 2%, i.e., $\frac{n_2-n_1}{n_1}=\frac{2}{100}$

$n_2-n_1=\frac{2}{100}\times n_1=\frac{2}{100}\times 392=7.8\approx 8$

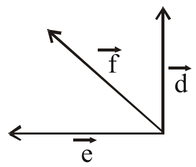
(88) **(3).** $\eta=25\%$

$\eta=\frac{T_1-T_2}{T_1}\times 100\%$

$\frac{80}{T_1}\times 100=25 \Rightarrow T_1=320\text{ K}$

$\therefore T_2=320-80=240\text{ K}=-33^\circ\text{C}$

(89) **(3).** From figure, $\vec{d}+\vec{e}=\vec{f}$



(90) **(4).** Induced emf,

$E=\frac{-d\phi}{dt}=\frac{-d}{dt}(BA)=-A\frac{dB}{dt}$

$=-\pi r^2 B_0\frac{d}{dt}(e^{-t})=-\pi r^2 B_0 e^{-t}$

At $t=0$, $E_0=B_0\pi r^2$

The electric power developed in the resistor R just at the instant of closing the key is :

$P=\frac{E_0^2}{R}=\frac{B_0^2\pi^2 r^4}{R}$

(91)	(1)	**(92)**	(2)	**(93)**	(4)
(94)	(4)	**(95)**	(3)	**(96)**	(2)
(97)	(1)	**(98)**	(4)	**(99)**	(1)
(100)	(3)	**(101)**	(1)	**(102)**	(2)
(103)	(1)	**(104)**	(2)	**(105)**	(3)
(106)	(3)	**(107)**	(1)	**(108)**	(2)
(109)	(4)	**(110)**	(2)	**(111)**	(4)
(112)	(2)	**(113)**	(2)		

(114) **(3).** ACTH act on adrenal cortex

Prolactin act on mammary glands

TSH act on Thyroid gland.

(115)	(1)	**(116)**	(2)	**(117)**	(3)
(118)	(2)	**(119)**	(4)	**(120)**	(2)
(121)	(2)	**(122)**	(2)	**(123)**	(2)

(124)	(4)	**(125)**	(4)	**(126)**	(4)
(127)	(4)	**(128)**	(4)	**(129)**	(2)
(130)	(2)	**(131)**	(1)	**(132)**	(1)
(133)	(3)	**(134)**	(1)	**(135)**	(3)
(136)	(1)	**(137)**	(2)	**(138)**	(4)
(139)	(2)	**(140)**	(4)	**(141)**	(1)
(142)	(3)	**(143)**	(3)	**(144)**	(1)
(145)	(3)	**(146)**	(2)	**(147)**	(2)
(148)	(4)	**(149)**	(3)	**(150)**	(2)
(151)	(3)	**(152)**	(1)	**(153)**	(4)
(154)	(3)	**(155)**	(1)	**(156)**	(1)
(157)	(2)	**(158)**	(3)	**(159)**	(1)
(160)	(3)	**(161)**	(3)	**(162)**	(3)
(163)	(3)	**(164)**	(1)	**(165)**	(2)
(166)	(2)	**(167)**	(3)	**(168)**	(2)
(169)	(3)	**(170)**	(4)	**(171)**	(3)
(172)	(3)	**(173)**	(2)	**(174)**	(3)
(175)	(2)	**(176)**	(1)	**(177)**	(1)
(178)	(4)	**(179)**	(1)	**(180)**	(3)