FIITJEE

ALL INDIA TEST SERIES

FULL TEST – X

JEE (Main)-2025

TEST DATE: 28-03-2025

ANSWERS, HINTS & SOLUTIONS

Physics

PART – A

SECTION – A

1. B

Sol. Applying energy conservation:

mgh = mL_f

$$h = \frac{L_f}{g} = \frac{80\ \text{cal/gm}}{10\ \text{m/s}^2}$$

$$= \frac{80 \times 42 \times 1000\ \text{J/kg}}{10\ \text{m/s}^2} = \left(\frac{336 \times 10^3}{10}\right)\frac{N - s^2}{kg} = 33.6\ \text{km}$$

2. D

Sol. $\frac{2}{3}v\rho_1 g = v\rho g$

$\frac{3}{4}v\rho_2 g = v\rho g$

$v\rho_1 + v\rho_2 = 2v\rho_m$

$\frac{\rho_1 + \rho_2}{2} = \rho_m$

$v'\left(\frac{\rho_1 + \rho_2}{2}\right)g = v\rho g$

$\frac{v'}{2}\left(\frac{3\rho g}{2} + \frac{4\rho g}{3}\right) = v\rho g$

$v' = \frac{12}{17}v$

3. B

Sol. As $P = nR\frac{T}{V}$ so $P_A = nR\frac{T_0}{2V_0}$

and $P_B = nR\frac{4T_0}{3V_0}$

$\Rightarrow \frac{P_B}{P_A} = \frac{8}{3}$

4. C

Sol. Resonant frequency of an L-C-R circuit is given by

$$\omega_r = \frac{1}{\sqrt{LC}}$$

So, resonance frequency does not depend on resistance of circuit and frequency of supply. To increase resonance frequency, we have to reduce inductance or capacitance of circuit. As capacitance reduces when capacitors are connected in series

(i.e. $\frac{1}{C_{series}} = \frac{1}{C_1} + \frac{1}{C_2}$), another capacitor in series to increase resonant frequency.

5. A

Sol. As, refractive index,

$$\mu = \frac{\text{speed of light in air}}{\text{speed of light in medium}}$$

So, speed of light in a medium

$$v = \frac{c}{\mu}$$

Hence, for medium A and B,

$$v_A = \frac{c}{\mu_A} \text{ and } v_B = \frac{c}{\mu_B}$$

Time taken by light to cross some thickness x is $\left(\text{speed} = \frac{\text{distance}}{\text{time}}\right)$

$$t_1 = \frac{x}{(c/\mu_A)} \text{ and } t_2 = \frac{x}{(c/\mu_B)}$$

Hence, $t_2 - t_1 = \frac{\mu_B \cdot x}{c} - \frac{\mu_A \cdot x}{c}$

$$\Rightarrow t_2 - t_1 = \frac{x}{c}(\mu_B - \mu_A)$$

Now, given, $\frac{\mu_A}{\mu_B} = \frac{1}{2}$

$\Rightarrow \mu_B = 2\mu_A$

and $t_2 - t_1 = 5 \times 10^{-10}$ s

substituting these values, we get

$$5 \times 10^{-10} = \frac{x}{c}(2\mu_A - \mu_A)$$

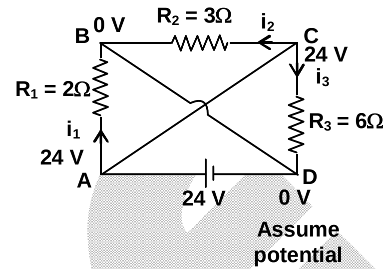
$$\Rightarrow x = 5 \times 10^{-10} \times \frac{c}{\mu_A}$$

But $\frac{c}{\mu_A} = v_A$

$\therefore\ x = (5 \times 10^{-10} \times v_A)\text{m}$

6. D

Sol. Assume potential at point D is equal to zero. As we know potential of all points on a plane wire are equal, so potential at B will also be equal to 0 V. Also potential difference across cell is 24 V, so potential at A will be 24 V. Similarly, potential at C is also 24V.



Using Ohm's law for branch AB,

$$i_1 = \frac{V_A - V_B}{R_1} = \frac{24-0}{2} = 12\text{ A}$$

For branch CB,

$$i_2 = \frac{V_C - V_B}{R_2} = \frac{24-0}{3} = 8\text{A}$$

For branch CD,

$$i_3 = \frac{V_C - V_D}{R_3} = \frac{24-0}{6} = 4\text{A}$$

By KCL for junction C,

$$i = i_2 + i_3 = 8 + 4 = 12\text{ A}$$

7. C

Sol. As per Einstein's photoelectric equation

$$V_S = \frac{hf}{e} - \frac{\phi}{e} \qquad \text{...(i)}$$

If f is doubled, new stopping potential,

$$V_S' = \frac{2hf}{e} - \frac{\phi}{e}$$

$$= 2\left(\frac{hf}{e} - \frac{\phi}{e}\right) + \frac{\phi}{e} = 2V_S + \frac{\phi}{e} \qquad \text{[from equation (i)]}$$

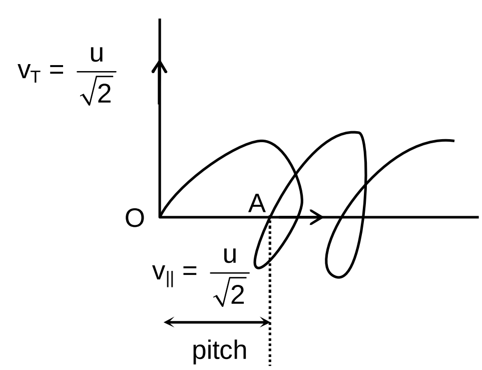
Which is more than double or an increase of more than 100%

8. B

Sol. When a charged particle enters a region of a uniform magnetic field, such that the angle it makes with the direction of B ≠ 90°, then it follows a helical path as shown below

Radius of helix,

$$R = \frac{mv_\perp}{qB} = \frac{mu}{\sqrt{2}qB} \qquad \text{...(i)}$$



Where, $v_\perp$ = Component of velocity perpendicular to field.

Also, pitch, P = Displacement along field in one revolution (OA)

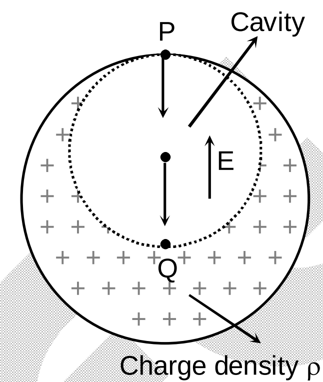
$= v_{||} \times T = \frac{u}{\sqrt{2}} \times \frac{2\pi m}{qB}$ (ii)

Dividing equation (ii) by equation (i), $\frac{P}{R} = 2\pi$

9. A

Sol. Field inside spherical cavity in a sphere = $\frac{\rho a}{3\varepsilon_0}$

Where a = distance between centres of sphere and cavity. Direction of field is along line joining centres as shown in figure.



So, field inside cavity will be E = $\frac{\rho\left(\frac{R}{2}\right)}{3\varepsilon_0} = \frac{\rho R}{6\varepsilon_0}$ (as shown)

Under influence of field, electron will accelerate down with acceleration,

$a = \frac{eE}{m} = \frac{\rho Re}{6\varepsilon_0 m}$ ...(i)

As electrons move from P to Q, striking the cavity at Q, its displacement will be equal to PQ = R= s ...(ii)

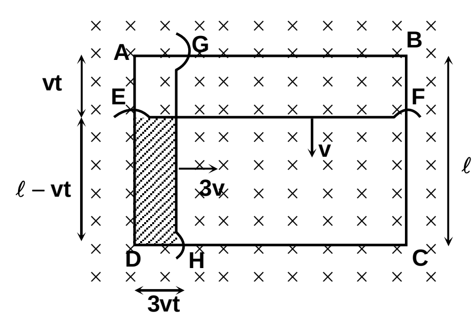
So, by using, $s = ut + \frac{1}{2}at^2$, we get

$R = 0 + \frac{1}{2}\frac{\rho Re}{6\varepsilon_0 m}t^2$ [using equation (i) and (ii)]

$\Rightarrow t = \sqrt{\frac{12\varepsilon_0 m}{\rho e}}$

10. B

Sol. At time t, distances moved by sliders GH and EF will be 3vt and vt respectively as shown.



Therefore, area of loop ETHD will be

A = 3vt(ℓ– vt) =3 vℓt -3v^{2}t^2

$\Rightarrow \frac{dA}{dt} = 3v\ell - 6v^2 t$ ...(i)

At the instant, the loop is square, its two sides will be equal. Therefore,

$3vt = \ell - vt \Rightarrow t = \frac{\ell}{4v}$ ...(ii)

By Faraday's law, emf induced in the loop

$\varepsilon = \frac{d\phi}{dt} = \frac{d(B_0 \cdot A)}{dt} = B_0\frac{dA}{dt}$

$= B_0(3v\ell - 6v^2 t)$ using equation (i)

$= B_0\left[3v\ell - 6v^2\left(\frac{\ell}{4v}\right)\right]$ using equation (ii)

$= \frac{3B_0 v\ell}{2} = 1.5\ B_0 v\ell$

11. D

Sol. $[\vec{F}] = [Ar^2\hat{r}] = [Ar^2]$

$$[A] = \frac{[\vec{F}]}{[r^2]} = \frac{MLT^{-2}}{L^2} = [ML^{-1}T^{-2}]$$

12. B

Sol. Between t = 0 and t = 2, acceleration has same sign which increases speed. At t = 2 sec. Direction of acceleration is reversed and speed starts decreasing.

13. B

Sol. $T = M_B \times a_B$ but T is also equal to $M_A a_A$

$\therefore M_B a_B = M_A a_A$

$\Rightarrow 6 \times 1.5 = 4 \times a_A$

$\Rightarrow a_A = 2.25$ m/s^2

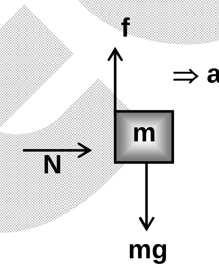
14. B

Sol. f = mg and N = mA

So, $\mu N = mg$

$\mu mA = mg$ (For A_{min}, f is max)

$\Rightarrow A = \frac{g}{\mu}$



15. B

Sol. At 45°, $a_t = a_r = 9$

$$\frac{v^2}{r} = \frac{v^2}{4} = 9$$

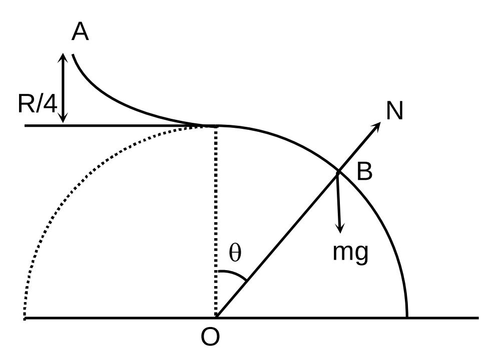
v = 6 m/s

Now, 6 = 0 + 9t

$t = \frac{2}{3}$ sec

16. C

Sol. Conserving energy between points A and B,



$$mg\left[\frac{R}{4} + R(1-\cos\theta)\right] = \frac{1}{2}mv^2$$

Also at point B, N = 0

$$\text{So, } mg\cos\theta = \frac{mv^2}{R}$$

$$\frac{1}{4} + (1-\cos\theta) = \frac{1}{2}\cos\theta$$

$$\frac{5}{4} = \frac{3}{2}\cos\theta$$

$$\cos\theta = \frac{5}{6}$$

17. B

Sol. Kapil and the boat can be considered as one body of mass m_b = (65 + 100) = 165 kg. Note that the centre of mass of the system remains unchanged since no external force acts on the system. Let m_S be the mass of Sachin and Δx_b and Δx_S be the displacements of the combined body of mass m_b and Sachin respectively with reference to the centre of mass. Then use the equation $m_S \Delta x_S + m_b \Delta x_b = 0$, to get the answer.

18. A

Sol. $T = (2m)\ell\omega^2 = mg$

$$\omega = \sqrt{\frac{g}{2}} = \sqrt{5} \text{ rad/s}$$

19. A

Sol. If friction acts backwards then ω will increase and v_{cm} will decrease hence violating pure rolling condition and if friction acts in forward direction the ω will decrease and v_{cm} will increase again violating pure rolling condition hence no friction acts.

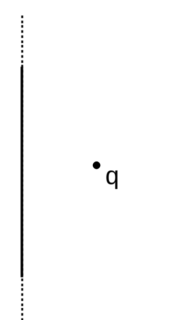
20. D

Sol. $$2\pi\sqrt{\frac{\frac{3}{2}MR^2}{MgR}} = 2\pi\sqrt{\frac{\ell}{g}}$$

SECTION – B

21. 9

Sol. To find through infinite plane-1, let us construct an infinite plane-2 at same distance from q on other side. If electric flux through plane-1 is ϕ, then flux through plane-2 will be also ϕ.



By Gauss's Law

$$\phi_{total} = 2\phi = \frac{q}{\varepsilon_0}$$

$$\phi = \frac{q}{2\varepsilon_0} = \frac{1}{8\pi\varepsilon_0} = \frac{9\times10^9}{2} = 4.5\times10^9$$

b = 9

22. 2

Sol. Magnification of the object

$$m = \frac{f}{f-u} = \frac{f}{f-(-f)} = \frac{1}{2}$$

As velocity component of image along axis is given by

$$v_i = -m^2 v_0$$

$$\Rightarrow v_i = -\left(\frac{1}{2}\right)^2 4\cos 30° = -\frac{\sqrt{3}}{2} \text{ cm/s}$$

Also velocity component of image perpendicular to axis is given by

$$v_i' = mv_0 = \frac{1}{2}\cdot 4\sin 30° = 1 \text{ cm/s}$$

Therefore, net velocity of image is

$$v_{net}' = \sqrt{v_i^2 + v_i'^2} = \sqrt{\frac{3}{4}+1} = \frac{\sqrt{7}}{2} \text{ cm/s}$$

23. 5

Sol. Consider FBD of blocks.

For mass m, using F = ma, we get

$T - mg = ma$ ...(i)

Similarly for mass 2m, we get

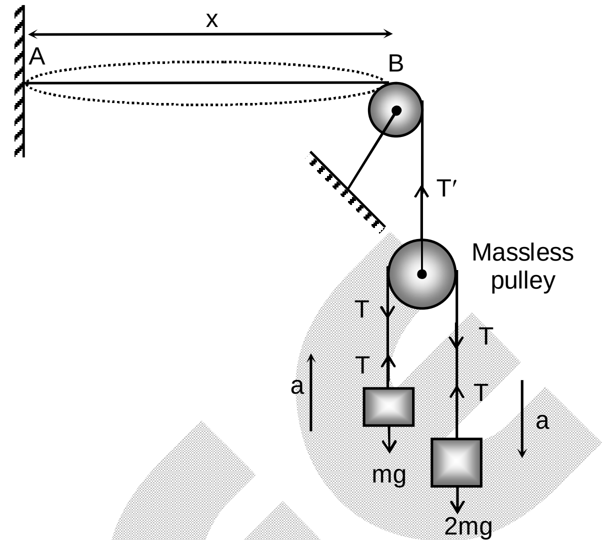
$2mg - T = 2ma$ ...(ii)

From Equation (i) and (ii),

$T = \frac{4mg}{3}$ ...(iii)

From FBD of pulley,

$T' = 2T = \frac{8mg}{3}$



Therefore, frequency of vibration of wire in fundamental mode,

$$f_1 = \frac{1}{2\ell}\sqrt{\frac{T'}{\mu}} = \frac{1}{2x}\sqrt{\frac{8mg}{3\mu}}$$

Also, frequency of vibration of air in 1[st] overtone (3[rd] harmonic)

$$f_2 = \frac{3v}{4\ell} = \frac{3v}{\frac{4x}{2}} = \frac{3v}{2x}$$

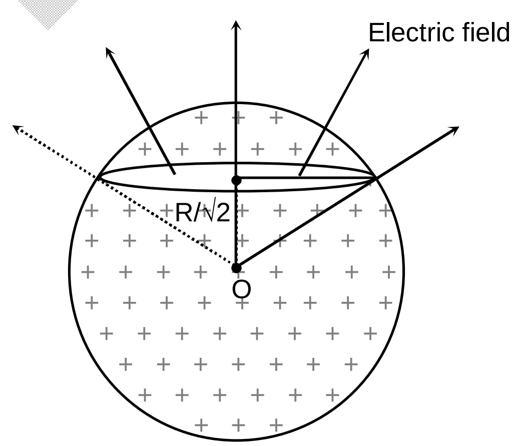
As, resonance implies frequencies are equal

i.e., $f_1 = f_2 \Rightarrow \frac{1}{2x}\sqrt{\frac{8mg}{3\mu}} = \frac{3v}{2x}$ [using Eq. (v) and (vi)]

$$\Rightarrow m = \frac{27\mu v^2}{8g} = \frac{27(0.2\times 10^{-3})(400)^2}{8\times 10} = \frac{54}{5}\text{ kg}$$

24. 8

Sol. Lets construct a cone as shown. By field picture, ϕ through lateral surface is zero.



$$\Rightarrow \phi_{\text{section}} = \phi_{\text{cone}} = \frac{q_{\text{inside}}}{\varepsilon_0}$$

$$= \frac{\rho\cdot\frac{1}{3}\pi\left(\frac{R}{\sqrt{2}}\right)^2\left(\frac{R}{\sqrt{2}}\right)}{\varepsilon_0}$$

$$= \frac{\left(\frac{Q}{\frac{4}{3}\pi R^3}\right)\cdot\left(\frac{1}{3}\pi\frac{R^3}{2\sqrt{2}}\right)}{\varepsilon_0} = \frac{Q}{8\sqrt{2}\varepsilon_0}$$

25. 6

Sol. Frequency of revolution of electron,

$$f = \frac{v}{2\pi r} = \frac{v_0 \frac{Z}{n}}{2\pi r_0 \frac{n^2}{z}} = \frac{v_0 z^2}{2\pi r_0 n^3}$$

Number of revolutions in time t will be

$$N = ft = \frac{v_0 z^2 t}{2\pi r_0 n^3}$$

As we know, Bohr's radius

r_0 = 0.53 Å = 0.53 × 10^{-10} m

v_0 = Bohr's speed = 2.2 × 10^6 m/s

Putting these values in Eq. (ii), we get

$$N = \frac{2.2 \times 10^6 \times 1^2 \times 10^{-8}}{2 \times 3.14 \times 0.53 \times 10^{-10} \times 2^3} \approx 8 \times 10^6$$

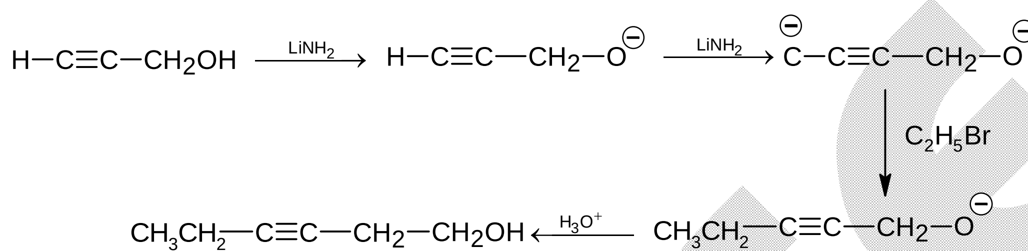
Comparing with given value, we get x = 6

Chemistry

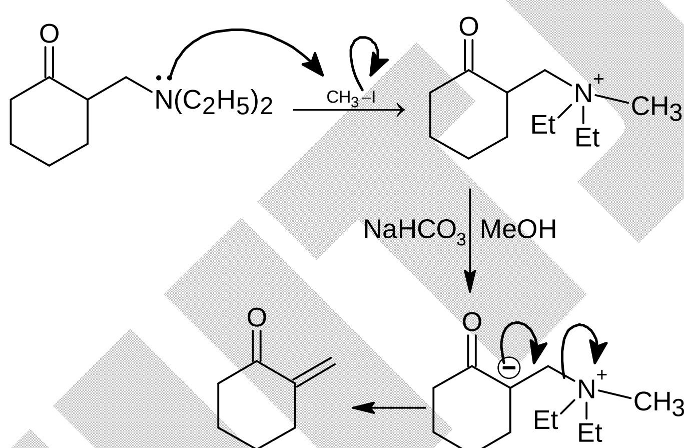
PART – B

SECTION – A

26. C
Sol. Carboxylic acids are more acidic than alcohol. Electronic effects also influence acidity.

27. A
Sol.


28. D
Sol. $P_2O_5 + 2HNO_3 \longrightarrow N_2O_5 + 2HPO_3$
$P_2O_5 + 2HClO_4 \longrightarrow Cl_2O_7 + 2HPO_3$

29. C
Sol.


30. D
Sol. Fact

31. A
Sol. $Gd = [Xe]4f^7 5d^1 6s^2$
$Gd^{3+} = [Xe]4f^7$
$\mu = \sqrt{n(n+2)} = \sqrt{7(7+2)} = 7.9$ BM

32. C
Sol. Highest the CFSE of compound, highest is the enthalpy of hydration.

33. B
Sol. Smaller the size of orbital extent of back bonding is more.

34. A
Sol. On increasing pressure CO_2 gas condeses to liquid.

35. D
Sol. $[XeF_5]^-$ is sp^3d^3 hybridized.

36. B
Sol. Viable particualte are minute living organisms that are dispersed in the atmosphere.

37. B
Sol. Molar mass of NaCl = 58.5 g

Moles of NaCl $\frac{117}{58.5} = 2$

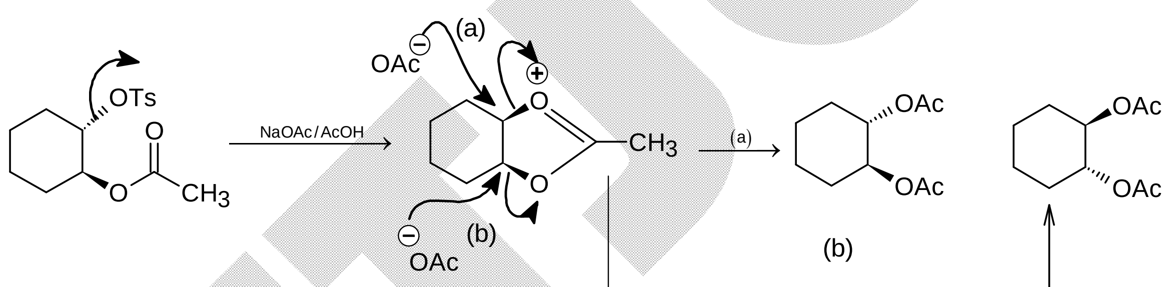
In a unit cell = 4 NaCl

Total number unit cell $= \frac{1}{4} \times \text{Number of NaCl}$

$= \frac{1}{4} \times 2 \times 6.02 \times 10^{23}$

$= 3 \times 10^{23}$

38. A
Sol.



39. B
Sol. From the question,

$\left[Cu(CN)_4^{3-}\right] = 0.1\text{ M and } \left[\left[CN^-\right]\right] = 0.2\text{ M}$

$\therefore \left[Cu^+\right] = \frac{K_{instab} \cdot \left[Cu(CN)_4^{3-}\right]}{\left[CN^-\right]^4} = \frac{6.4 \times 10^{-15} \times 0.1}{(0.2)^4}$

$= 4 \times 10^{-13}\text{ M}$

Now, $\left[S^{2-}\right] = \frac{K_{SP}(Cu_2S)}{\left[Cu^+\right]^2} = \frac{2.56 \times 10^{-27}}{\left(4 \times 10^{-13}\right)^2}$

$= 1.6 \times 10^{-2}\text{ M}$

$\therefore \left[H^+\right] = \sqrt{\frac{K_a \times [H_2S]}{\left[S^{2-}\right]}} = \sqrt{\frac{1.6 \times 10^{-21} \times 0.1}{1.6 \times 10^{-2}}} = 10^{-10}\text{ M}$

and pH = 10.0.

40. B

Sol. $Cl^- + H_2SO_4 \longrightarrow HCl\uparrow\,(\text{Colourless}) + HSO_4^-$

41. C

Sol. $R = \dfrac{2\pi^2 me^4}{(4\pi\varepsilon_0)^2 h^3 c}$

$\Rightarrow R \propto m$

Here, m becomes $\left(m - \dfrac{m}{4} = \dfrac{3m}{4}\right)$, then R becomes $\dfrac{3}{4}R$.

42. B

Sol. At Boyle's temperature, $\dfrac{dz}{dp} = 0 \Rightarrow T = \dfrac{168}{0.35} = 480\ K$.

43. A

Sol. $\dfrac{x}{m} = K.P^{\frac{1}{n}} \Rightarrow \log\dfrac{x}{m} = \log K + \dfrac{1}{n}.\log P$

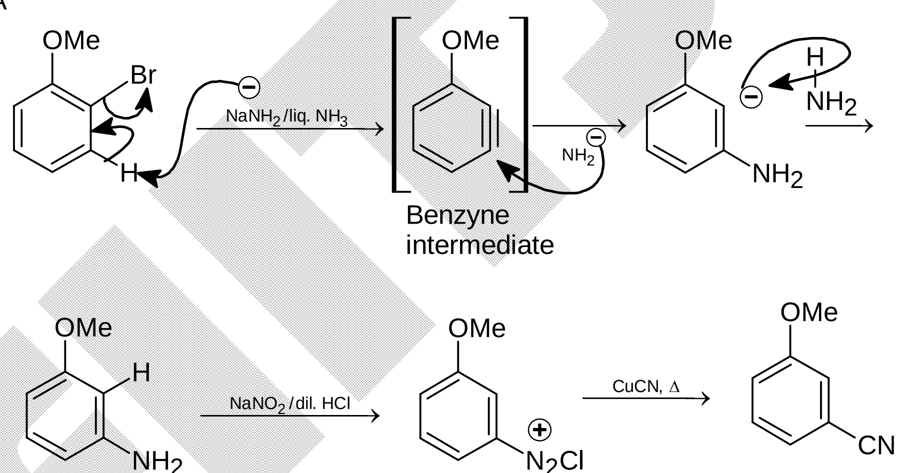
From question, $\log K = 0.3010 = \log 2 \Rightarrow K = 2$

And $\dfrac{1}{n} = \tan 45^o = 1 \Rightarrow n = 1$

$\therefore \dfrac{x}{m} = 2 \times P = 2 \times 0.2 = 0.4$

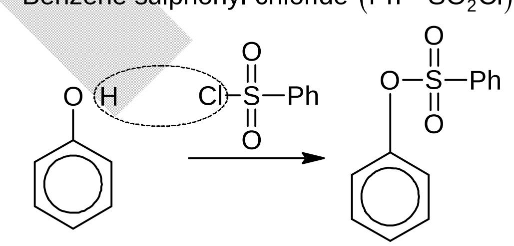
44. A

Sol.



45. C

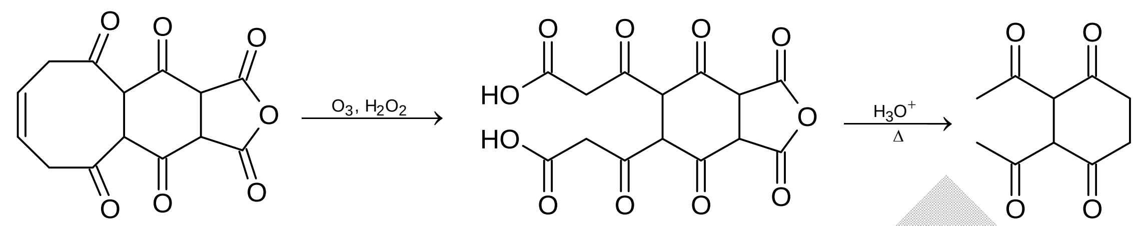
Sol. Benzene sulphonyl chloride $(Ph - SO_2Cl)$ is known as Hinsberg reagent.



Sulphonic ester

SECTION – B

46. 4

Sol. 

47. 289

Sol. $\log\frac{K_2}{K_1}=\frac{E_a}{2.303R}\left(\frac{1}{T_1}-\frac{1}{T_2}\right)$

$T_1=300$ K $\quad K_1=1.6\times10^{-3}$, $\quad T_2=350$ K

$t_{90\%}=\frac{2.303}{K_2}\log\frac{100}{10}$

= 289 s.

48. 123

Sol. $2H^+ + O_2 + 2e^- \longrightarrow H_2O_2 \qquad \Delta G_1^0$

$2e^- + 2H^+ + H_2O_2 \longrightarrow 2H_2O \qquad \Delta G_2^0$

$4H^+ + O_2 + 4e^- \longrightarrow 2H_2O \qquad \Delta G_3^0$

$\Delta G_1^0 + \Delta G_2^0 = \Delta G_3^0$

$(-2\times0.70)+(-2\times1.76)=-4\times x$

$E_3^0=1.23$

100x = 100 × 1.23 = 123

49. 5

Sol. $A.xH_2O \longrightarrow A + xH_2O$

$\frac{25}{250} \qquad \frac{16}{M}$

$\frac{25}{250}=\frac{16}{M}$

M = 160

x = 5.

50. 273

Sol. $\Delta S_{fusion}=\frac{\Delta H_{fusion}}{T}=\frac{80\times18\times x}{273}$

x = 5.46 mole

50x = 273

Mathematics

PART – C

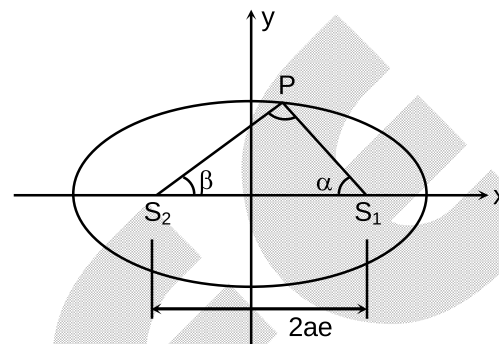
SECTION – A

51. A

Sol. $\frac{2ae}{\sin(\alpha+\beta)} = \frac{S_1P}{\sin\beta} = \frac{S_2P}{\sin\alpha} = \frac{2a}{\sin\alpha + \sin\beta}$

$e = \frac{\sin(\alpha+\beta)}{\sin\alpha+\sin\beta}$

$\frac{1-e}{1+e} = \tan\left(\frac{\alpha}{2}\right)\tan\left(\frac{\beta}{2}\right) = \frac{1-\frac{1}{2}}{1+\frac{1}{2}} = \frac{1}{3}$



Also $\cot\left(\frac{\alpha}{2}\right)+\cot\left(\frac{\beta}{2}\right)+\cot\left(\frac{\gamma}{2}\right)$

$= \cot\left(\frac{\alpha}{2}\right)\cot\left(\frac{\beta}{2}\right)\cot\left(\frac{\gamma}{2}\right) = 3\cot\left(\frac{\gamma}{2}\right)$

$\cot\left(\frac{\alpha}{2}\right)+\cot\left(\frac{\beta}{2}\right) = 2\cot\left(\frac{\gamma}{2}\right)$

52. A

Sol. $d_n = \left|\frac{n-\sqrt{n^2+1}}{\sqrt{2}}\right|$

$\lim_{n\to\infty}(n\cdot d_n) = \frac{n}{\sqrt{2}\left(n+\sqrt{n^2+1}\right)} = \frac{1}{2\sqrt{2}}$

53. C

Sol. $\frac{dy}{y}+\frac{dx}{x} = 0 \Rightarrow xy = c$

c = 16

xy = 16

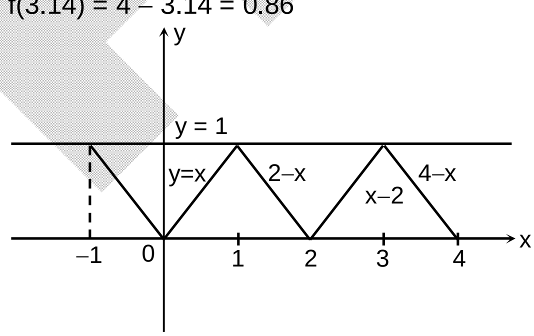
L.R. = $8\sqrt{2}$

54. C

Sol. f(x) + f(–x) = 8

55. B

Sol. f(3.14) = 4 – 3.14 = 0.86



56. B

Sol. $(x^2 + 1)\,e^x = y \Rightarrow (x + 1)^2\,e^x dx = dy$

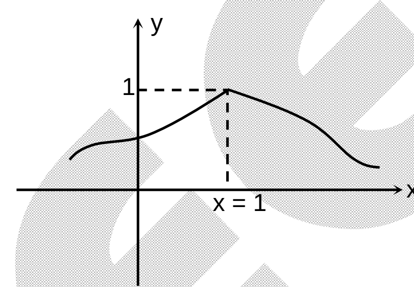
57. A

Sol. $x_i = 1 \Rightarrow \sum_{i=1}^{6} x_i = 6$

$y_i = -1 \Rightarrow \sum_{i=1}^{6} y_i = -6$

58. D

Sol. Req. area = $2\int_{1}^{\infty} \frac{dx}{(x-1)^2 + 1} = \pi$ sq. units



59. A

Sol. $\lim_{x \to -1} f(x) = \pi$

60. B

Sol. $x^2 - k \neq 0$

$k < 0$

$x^2 + x + 1 \geq 0$

61. B

Sol. Number of solutions 2

62. A

Sol. $A^n = \begin{bmatrix} 2^{n-1} & 2^{n-1} \\ 2^{n-1} & 2^{n-1} \end{bmatrix}$

$\det(A^n - I) = (2^{n-1} - 1)^2 - (2^{n-1})^2 = 1 - 2^n$

63. B

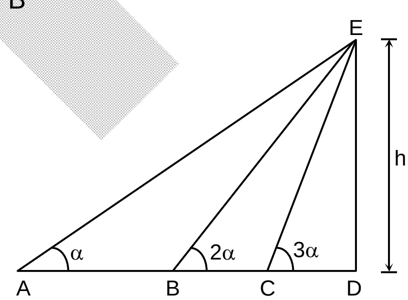
Sol. Trace $(A^3) = 123$

64. A

Sol. Reflexive, transitive but not symmetric

65. B

Sol.



66. A

Sol. $\sum(x_i - \bar{x})^2 = 250$

$\sigma^2 = \frac{250}{10} = 25$

Co-efficient of variation is = $\frac{6}{\bar{x}} \times 100 = \frac{5}{50} \times 100 = 10\%$

67. C

68. C

Sol. y = ($\tan^{-1}(5x) - \tan^{-1}(x)) + (\tan^{-1}x + \tan^{-1}(2/3))$

$\frac{dy}{dx} = \frac{5}{1+25x^2}$

69. C

Sol. I = $\int_{-\ln 2}^{0} \sin t dt = \cos(\ln 2) - 1$

70. C

Sol. y = mx

$\left|\frac{3m-3}{\sqrt{m^2+1}}\right| = \sqrt{6}$

m = $3 \pm 2\sqrt{2}$

SECTION – B

71. 44

Sol. $f(\theta) = \frac{(\sin\theta)^x}{(\sin\theta)^x + (\cos\theta)^x}$

$\sum_{\theta=1^\circ}^{89^\circ} f(\theta) = \frac{89}{2}$

72. 35

Sol. $\vec{v}_1 \cdot \vec{v}_2 = 3 \Rightarrow \cos^2\theta = \frac{9}{5+\sin 2\alpha} \le 1$

$\alpha = \frac{\pi}{4}$

$\theta = 0$

$\Rightarrow \vec{v}_1$ and $\vec{v}_2$ are collinear

$\therefore \frac{2(\sin\alpha + \cos\alpha)}{\sin\beta} = \frac{1}{\cos\beta}$

$\tan\beta = 2\sqrt{2}$

$3\tan^2\alpha + 4\tan^2\beta = 3 + 4(8) = 35$

73. 23

Sol. $(\lambda + 2, -(3\lambda + 2), 2\lambda + 5)$ lies on $2x - 3y + 4z = 16 \Rightarrow \lambda = 7$

P = (9, –23, 19)

For Q : x = 0

$\lambda + 2 = 0$

$\therefore$ Q = (0, 4, 1)

$PQ = 9\sqrt{14}$

74. 2

Sol. $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$0.8 = 0.5 + p - 0 \Rightarrow p = 0.3 = \frac{3}{10}$

$P(A \cap B) = P(A).P(B)$

$0.8 = 0.5 + 9 - 0.59$

$0.3 = 0.5q \Rightarrow q = \frac{3}{5}$

$\frac{q}{p} = 2$

75. 10

Sol. $3x + 4y = \frac{3x}{2} + \frac{3x}{2} + \frac{4y}{3} + \frac{4y}{3} + \frac{4y}{3}$

$AM \geq GM$

$\Rightarrow \frac{3x+4y}{5} \geq 2$