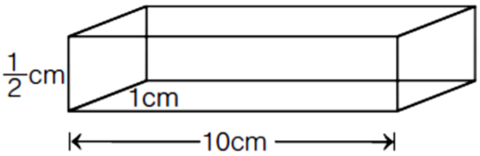
Class: NEET LONG TERM (REPEATERS)
Subject: PC **SOLUTIONS** **Date: 15-12-2025**

PHYSICS

1. We know that, $R = \frac{\rho l}{A}$

(a) When the battery is connected across 1 cm × 1/2 cm faces, then

$$l = 10\,\text{cm};\ A = 1 \times 1/2\,\text{cm}^2, R_1 = \frac{\rho \times 10}{1 \times 1/2} = 20\rho\Omega$$



(b) When the battery is connected across 10 cm × 1 cm faces, then $l = \frac{1}{2}\,\text{cm};\ A = 10 \times 1\,\text{cm}^2, R_2 = \frac{\rho \times 1/2}{10 \times 1} = \frac{\rho}{20}\Omega$

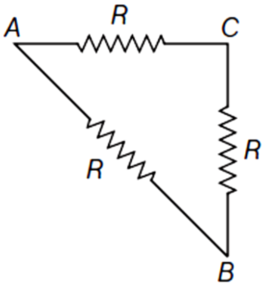
(c) When the battery is connected across $10\text{cm} \times \frac{1}{2}\text{cm}$ faces, then $l = 1$ cm;

$$A = 10 \times 1/2\,\text{cm}^2, R_3 = \frac{\rho \times 1}{(10 \times 1/2)} = \frac{\rho}{5}\Omega$$

2. Here, points B and D are common. So, $2R$ in arm DC and $2R$ in arm CB are in parallel between C and B.

Their effective resistance $= \frac{2R \times 2R}{2R + 2R} = R$

The modified and simpler circuit will be as shown in figure. The effective resistance between A and B is



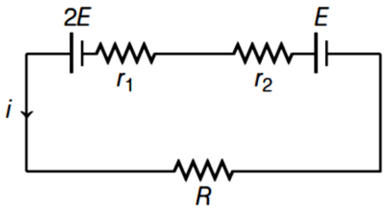
$$R_{\text{eff}} = \frac{R \times (R + R)}{R + (R + R)} = \frac{2}{3}R$$

3. When one cell is wrongly connected in series, the emf of cells decreases by 2ε, but internal resistances of cells remains the same for all the cells.

Current in the circuit is $i = \frac{(n-2)\varepsilon}{nr} \times r$

Potential difference across each cell is

$$V = \varepsilon - ir = \varepsilon - \frac{(n-2)\varepsilon}{nr} \times r = \frac{2\varepsilon}{n}$$

4. 

$$i = \frac{3E}{R + r_1 + r_2}$$

Total potential difference $= 2E - ir_1 = 0$

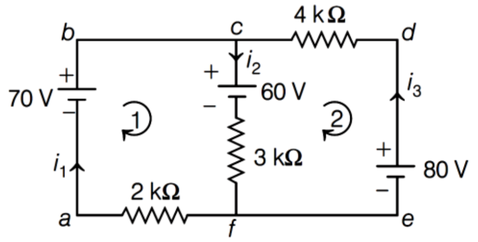
$$2E = ir_1$$

$$2E = \frac{3E \times r_1}{R + r_1 + r_2}$$

$$2R + 2r_1 + 2r_2 = 3r_1$$

$$R = \frac{r_1}{2} - r_2$$

5. Let currents in branches are i_1, i_2 and i_3.



Then, from loops 1 and 2, we have

$$70 - 60 - i_2 \times 3 - i_1 \times 2 = 0 \quad \text{...(i)}$$

$$80 - i_3 \times 4 - 60 - i_2 \times 3 = 0 \quad \text{...(ii)}$$

and $$i_2 = i_1 + i_3 \quad \text{...(iii)}$$

On solving Eqs. (i), (ii) and (iii), we get

$$i_1 = 0.385 \text{ mA}$$

$$i_2 = 3.08 \text{ mA}$$

$$i_3 = 2.69 \text{ mA}$$

and $$V_{cf} = -60 - 3.08 \times 3$$

i.e. $$V_c - V_f = -69.2 \text{ V}$$

Point c is at higher potential.

6. Resistance of a bulb of power P and with a voltage source V is given by

$$R = \frac{V^2}{P}$$

Resistance of the given two bulbs are

$$R_1 = \frac{V^2}{P_1} = \frac{(220)^2}{25} \text{ and } R_2 = \frac{V^2}{P_2} = \frac{(220)^2}{100}$$

Since, bulbs are connected in series. This means same amount of current flows through them.

$\therefore$ Current in circuit is

$$i = \frac{V}{R_{\text{total}}} = \frac{220}{\frac{(220)^2}{25} + \frac{(220)^2}{100}} = \frac{1}{11} \text{ A}$$

Power drawn by bulbs are respectively,

$$P_1 = i^2 R_1 = \left(\frac{1}{11}\right)^2 \times \frac{220 \times 220}{25} = 16 \text{ W}$$

and $$P_2 = i^2 R_2 = \left(\frac{1}{11}\right)^2 \times \frac{220 \times 220}{100} = 4 \text{ W}$$

7. As, we know Cu is a conductor, so when there is increase in temperature, resistance will increase linearly. Then, Si is semiconductor, so with increase in temperature, resistance will decrease linearly.

8. Given, $l' = l + 100\% \, l = 2l$

Initial volume = Final volume

i.e. $\pi r^2 l = \pi r'^2 l'$

or $r'^2 = \dfrac{r^2 l}{l'} = r^2 \times \dfrac{l}{2l}$

or $r'^2 = \dfrac{r^2}{2}$

$\therefore$ $R' = \rho \dfrac{l'}{A'} = \rho \dfrac{2l}{\pi r'^2}$ $\left(\because R = \dfrac{\rho l}{A}\right)$

$= \dfrac{\rho \cdot 4l}{\pi r^2} = 4R$

Thus, $\Delta R = R' - R = 4R - R = 3R$

$\therefore$ $\% \, \Delta R = \dfrac{3R}{R} \times 100\% = 300\%$

9. Given, $i = 10 \text{ A}, \, A = 5 \text{ mm}^2 = 5 \times 10^{-6} \text{ m}^2$

and $v_d = 2 \times 10^{-3}$ m/s

We know that, $i = neAv_d$

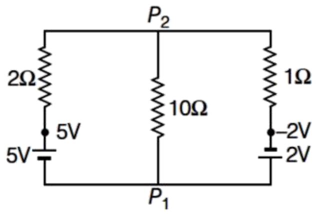
$\therefore$ $10 = n \times 1.6 \times 10^{-19} \times 5 \times 10^{-6} \times 2 \times 10^{-3}$

$\Rightarrow$ $n = 0.625 \times 10^{28} = 625 \times 10^{25}$

10. Let potential at P_1 be 0 V and potential at P_2 be V_0.

Now, apply KCL at P_2,

$\Sigma i = 0$

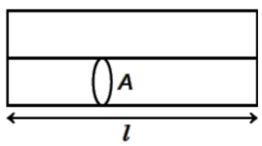


$$\frac{V_0 - 5}{2} + \frac{V_0 - 0}{10} + \frac{V_0 - (-2)}{1} = 0$$

or $V_0 = \dfrac{5}{16}$

So, current through 10 Ω resistor is $\dfrac{V_0}{10}$ ($\simeq$ 0.03 A) from P_2 to P_1.

11. $\because$ **In parallel,** $R_{net} = \dfrac{R_1 R_2}{R_1 + R_2}$

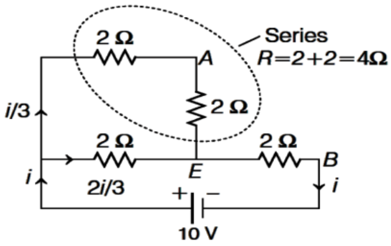


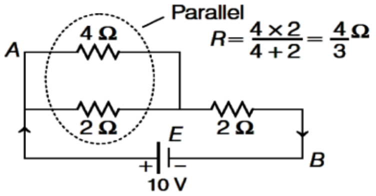
$$\frac{\rho l}{2A} = \frac{\rho_1 \frac{l}{A} \times \rho_2 \frac{l}{A}}{\rho_1 \frac{l}{A} + \rho_2 \frac{l}{A}}$$

$$\frac{\rho}{2} = \frac{6 \times 3}{6 + 3} = 2$$

$\rho = 4$

12. **When capacitor is fully charged, circuit is reduced to as shown below**





So, total resistance, $R_{eq}=\frac{4}{3}+2=\frac{10}{3}\Omega$

Current in circuit, $i=\frac{V}{R_{eq}}=\frac{10}{10/3}=3\text{ A}$

Hence, potential difference across capacitor

$$= \text{potential difference across } AEB$$

$$=2\,i/3+2\times i=2\times\frac{3}{3}+2\times 3=8\text{ V}$$

13. According to Biot Savart's law, the magnetic field **B** at a point distance r from a charge q moving with a velocity **v** is given by

$$\mathbf{B}=\frac{\mu_0}{4\pi}\frac{q\,(\mathbf{v}\times\mathbf{r})}{r^3}$$

or $$B=\frac{\mu_0}{4\pi}\frac{qv\sin\theta}{r^2}$$

The direction of **B** is along $(\mathbf{v}\times\mathbf{r})$, *i.e.* perpendicular to the plane containing **v** and **r**. **B** at a point obeys inverse square law and not inverse cube law.

14. Magnetic field induction at O due to current through ACB is $B_1=\frac{\mu_0 i\theta}{4\pi r}$

It is acting perpendicular to the paper downwards.
Magnetic field induction at O due to current through ABD is

$$B_2=\frac{\mu_0}{4\pi}\frac{i(2\pi-\theta)}{r}$$

It is acting perpendicular to paper upwards.

∴ Total magnetic field at O due to current loop is

$$B=B_2-B_1=\frac{\mu_0}{4\pi}\frac{i}{r}(2\pi-\theta)-\frac{\mu_0}{4\pi}\frac{i}{r}\theta$$

$$=\frac{\mu_0}{2\pi}\frac{i}{r}(\pi-\theta)$$

15. Magnetic field at centre of the circular loop,

$$B=\frac{\mu_0 Ni}{2R}$$

Magnetic field due to an arc of a circle at the centre,

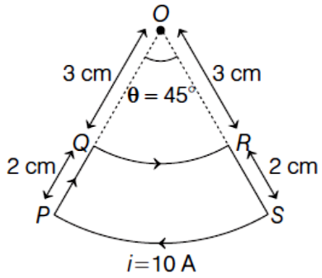
$$B=\left(\frac{\theta}{2\pi}\right)\frac{\mu_0 i}{2R}=\left(\frac{\mu_0}{4\pi}\right)\left(\frac{i}{R}\right)\theta$$

Here, $\theta=30^\circ$ and $i=3\text{ A}, R=0.6\text{ m}$

$$B=\left(\frac{\mu_0}{4\pi}\right)\left(\frac{3}{0.6}\right)\left(\frac{\pi}{6}\right)$$

$$=\frac{10^{-7}\times 3\times\pi}{0.6\times 6}=2.6\times 10^{-7}\text{ T}$$

16. From the given figure as shown below



The magnetic field at point O due to wires PQ and RS will be zero.

Magnetic field due to arc QR at point O will be

$$B_1 = \frac{\theta}{2\pi}\left(\frac{\mu_0 i}{2a}\right)$$

Here, $\theta = 45^\circ = \frac{\pi}{4}$ rad, $i = 10$ A

and $a = 3$ cm $= 3 \times 10^{-2}$ m

$$\Rightarrow \quad B_1 = \frac{\pi}{2\pi \times 4}\left(\frac{\mu_0 \times 10}{2 \times 3 \times 10^{-2}}\right)$$

$$= \frac{\mu_0 \times 5}{2 \times 12 \times 10^{-2}} = \frac{5 \times \mu_0 \times 10^2}{24}$$

Direction of field B_1 will be coming out of the plane of figure.

Similarly, field at point O due to arc SP will be

$$B_2 = \frac{\pi}{4}\left(\frac{1}{2\pi}\right)\left[\frac{\mu_0 \times 10}{2 \times (2+3) \times 10^{-2}}\right]$$

$$= \frac{\mu_0 \times 10^2}{8}$$

Direction of B_2 is going into the plane of the figure.

$\therefore$ The resultant field at O is

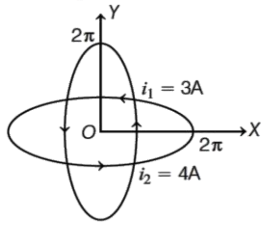
$$B = B_1 - B_2 = \frac{1}{2}\left(\frac{5 \times \mu_0}{12 \times 10^{-2}} - \frac{\mu_0}{4 \times 10^{-2}}\right)$$

$$= \frac{4\pi \times 10^{-7}}{12 \times 10^{-2}} \cong 1 \times 10^{-5} \text{ T}$$

17. Field at the centre of the loop is given by

$$B = \frac{\mu_0 i}{2R}$$

where, R is radius given, $R = 2\pi\text{cm} = 2\pi \times 10^{-2}$ m



$$B_x = \frac{\mu_0}{2}\,\frac{i_1}{2\pi \times 10^{-2}}$$

$i_1 = 3$ A

$$\therefore \quad B_x = \frac{\mu_0}{2} \cdot \frac{3 \times 10^2}{2\pi} = 3 \times 10^{-5} \text{ T}$$

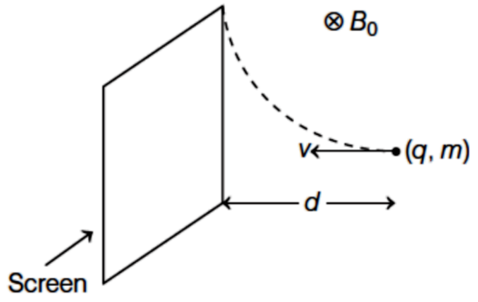
$$B_y = \frac{\mu_0}{2} \cdot \frac{i_2}{2\pi \times 10^{-2}}, \; i_2 = 4 \text{ A}$$

$$B_y = 4 \times 10^{-5} \text{ T}$$

$$\therefore \quad B_{net} = \sqrt{B_x^2 + B_y^2} = \sqrt{(3^2 + 4^2) \times 10^{-10}}$$

$$B_{net} = 5 \times 10^{-5} \text{ T}$$

18. **As we know that, if a charge particle moves in a uniform magnetic field, then its path is always circular. Considering the charge positive,the direction of magnetic force acting on it, has been shown by dotted line.**



As, charge particle should not hit the screen this means radius of circular path must be less than screen distance *d*.

i.e. $$R \le d$$

$\Rightarrow$ $$\frac{mv}{qB_0} \le d \qquad \left(\because R = \frac{mv}{qB_0}\right)$$

or $$v \le \frac{qB_0 d}{m}$$

Maximum value of $v = \dfrac{qB_0 d}{m}$

19. During the circular motion of accelerated electron in the presence of magnetic field, its radius is given by

$$r = \frac{mv}{Be} = \frac{\sqrt{2meV}}{eB}$$

where, v is velocity and V is voltage.

After substituting the given values, we get

$$= \frac{\sqrt{2 \times 9.1 \times 10^{-31} \times 1.6 \times 10^{-19} \times 500}}{1.6 \times 10^{-19} \times 100 \times 10^{-3}}$$

$$= 10\left[\frac{2 \times 9.1 \times 500}{1.6} \times 10^{-12}\right]^{1/2},$$

$$r = 7.5 \times 10^{-4}\ \text{m}$$

20. Radius of path of charged particle q in a uniform magnetic field B of mass m moving with velocity v is

$$r = \frac{mv}{Bq} = \frac{m\sqrt{(2qV/m)}}{Bq}$$

$\Rightarrow$ $$r \propto \frac{\sqrt{m}}{\sqrt{q}}$$

So, required ratio is

$$\frac{r_p}{r_\alpha} = \sqrt{\frac{m_p}{m_\alpha}} \times \sqrt{\frac{q_\alpha}{q_p}} = \sqrt{\frac{1}{4}} \times \sqrt{\frac{2}{1}} = \frac{\sqrt{2}}{2} = \frac{1}{\sqrt{2}}$$

21. As, $E = \frac{1}{2}mv^2$ or $v = \sqrt{\frac{2E}{m}}$

and $r = \frac{mv}{Bq} = \frac{m}{Bq}\sqrt{2E/m}$

or $r = \frac{\sqrt{2Em}}{Bq}$ or $r \propto \sqrt{m}$

Now, $m_e < m_p$, so $r_e < r_p$.

Therefore, trajectory of proton is less curved.

22. The force on a point charge Q in a magnetic field is

$$\mathbf{F} = Q(\mathbf{v} \times \mathbf{B})$$

Its direction is perpendicular to direction of motion of charge, so work done,

$$W = \mathbf{F} \cdot \mathbf{s} = Fs\cos 90° = 0$$

23. From $Bqv = \frac{mv^2}{r}$, we have

$$r = \frac{mv}{Bq} = \frac{\sqrt{2mK}}{Bq}$$

where, K is the kinetic energy.

As, kinetic energies of particles are same.

$$r \propto \frac{\sqrt{m}}{q}$$

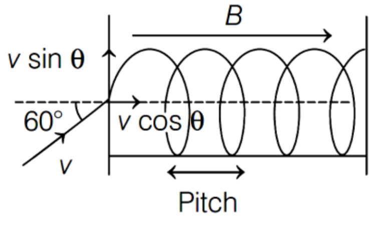
$$\Rightarrow \quad r_e : r_p : r_\alpha = \frac{\sqrt{m_e}}{e} : \frac{\sqrt{m_p}}{e} : \frac{\sqrt{4m_p}}{2e}$$

Clearly, $r_p = r_\alpha$ and r_e is least $(\because m_e < m_p)$

So, $r_p = r_\alpha > r_e$

24. Pitch of helical path shown below is given by

$$\text{Pitch} = T \cdot v\cos\theta = \frac{2\pi m}{Bq} \cdot v\cos\theta$$



$$\Rightarrow \text{Pitch} = \frac{2 \times 3.14 \times 1.67 \times 10^{-27} \times 4 \times 10^5 \times \cos 60°}{(0.3)(1.69 \times 10^{-19})}$$

$$= 0.04 \text{ m} = 4 \text{ cm}$$

25. Here,

$$\mathbf{E} = 2\hat{\mathbf{i}} + 3\hat{\mathbf{j}},\ \mathbf{B} = 4\hat{\mathbf{j}} + 6\hat{\mathbf{k}}, \text{ where}$$

q = charge on a particle.

Initial position, $r_1 = (0,0)$

Final position, $r_2 = (1,1)$

Net force experienced by charge particle inside electromagnetic field is

$$\mathbf{F}_{net} = q\mathbf{E} + q(\mathbf{v}\times\mathbf{B}) = q(2\hat{\mathbf{i}} + 3\hat{\mathbf{j}}) \text{ [here, } \mathbf{v}\times\mathbf{B} = 0]$$

$$= (2q\,\hat{\mathbf{i}} + 3q\,\hat{\mathbf{j}})$$

$\therefore \quad dW = \mathbf{F}_{net}\cdot d\mathbf{r}$

$\Rightarrow \quad \int dW = \int_{r_1}^{r_2} (2q\,\hat{\mathbf{i}} + 3q\,\hat{\mathbf{j}})\cdot(dx\,\hat{\mathbf{i}} + dy\,\hat{\mathbf{j}})$

[here $d\mathbf{r} = dx\,\hat{\mathbf{i}} + dy\,\hat{\mathbf{j}}$]

$\Rightarrow \quad W = 2q\int_0^1 dx + 3q\int_0^1 dy$

or $\quad W = 2q + 3q$ or $W = 5q$

26. Magnetic field at the centre, $B = \dfrac{\mu_0 i\theta}{4\pi a} = \dfrac{\mu_0 i}{4\pi a}\cdot\dfrac{3\pi}{2} = \dfrac{3\mu_0 i}{8a}$

27. Here, $2r = 0.1\text{ nm} = 0.1\times 10^{-9}\text{m} = 10^{-10}\text{m}$;

$i = \dfrac{e}{T} = \dfrac{e\omega}{2\pi}$ where, ω = angular speed.

Now, $\quad B = \dfrac{\mu_0}{4\pi}\dfrac{2\pi n i}{r} = \dfrac{\mu_0}{4\pi}\dfrac{ne\omega}{r}$

or $\quad \omega = B\cdot\dfrac{4\pi}{\mu_0}\cdot\dfrac{r}{ne}$

$$= 14\times\frac{1}{10^{-7}}\times\frac{(10^{-10})/2}{1.6\times 10^{-19}}$$

$$= 4.4\times 10^{16}\text{ rad/s}$$

28. Maximum value of force, $F_{max} = evB$

$$= (1.6\times 10^{-19})\times(0.9\times 3\times 10^{8})\times(10^{8})$$

$$= 4.32\times 10^{-3}\text{ N}$$

29. As, $eE = evB \Rightarrow v = \dfrac{E}{B}$

Here, $\quad E = 1\text{ Vcm}^{-1} = 100\text{ Vm}^{-1}, B = 2\text{T}$

$\therefore \quad v = \dfrac{100}{2} = 50\text{ ms}^{-1}$

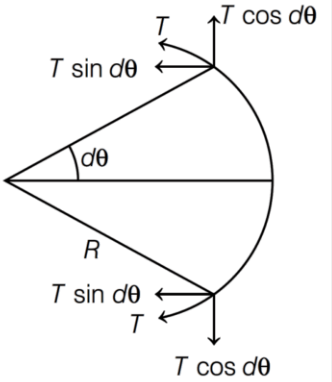
30. As, $E = \frac{B^2 q^2 r^2}{2m}$ or $r = \frac{\sqrt{2mE}}{Bq}$

So, $r \propto \sqrt{E} / B$

$\therefore$ $\frac{r_2}{r_1} = \sqrt{\frac{2E}{E} \cdot \frac{B}{3B}} = \sqrt{\frac{2}{9}}$

$\therefore$ $r_2 = \sqrt{\frac{2}{9}} = \sqrt{\frac{2}{9}} R$

31. For small element of wire,



$$2T \sin d\theta = 2R\, d\theta\, iB$$

$$2Td\theta = 2RiBd\theta$$

$$T = iRB$$

32. Applying Fleming's rule, we find that upward force F of magnitude IlB acts. For mid-air suspension, this must be balanced by the force due to gravity.

$\therefore$ $mg = i\, lB$

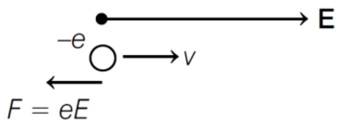
$\Rightarrow$ $B = \frac{mg}{i\, l}$

Given, $m = 200 \text{ g} = 0.2 \text{ kg},\ g = 9.8 \text{ m/s}^2$

$I = 2A,\ l = 1.5 \text{ m}$

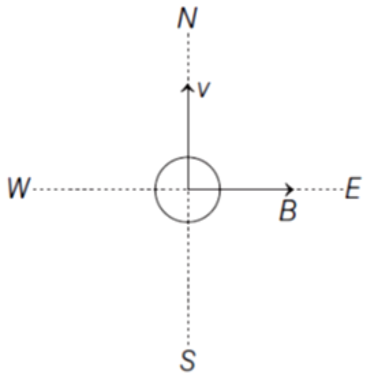
we have, $B = \frac{0.2 \times 9.8}{2 \times 1.5} = 0.65 \text{ T}$

33. Since election is moving parallel to the magnetic field, hence magnetic force on it. $F_m = 0$



So, the only force which is acting on electron in the direction, is electric force which reduces its speed.

34. Given, proton is moving from south to north and magnetic field is directed from west to east.



As $\mathbf{v} \perp \mathbf{B}$, force on the charged particle,

$$F = Bqv$$

If m = mass and a = acceleration of the particle, then

$$F = ma$$

So, $ma = Bqv$

or $$B = \frac{ma}{qv} \quad \ldots\text{(i)}$$

If K = kinetic energy of the particle,

then $$K = \frac{1}{2}mv^2$$

$\Rightarrow$ $$v = \sqrt{\frac{2K}{m}} \quad \ldots\text{(ii)}$$

From Eqs. (i) and (ii), we get

$$B = \frac{ma}{q\sqrt{\frac{2K}{m}}} = \frac{m^{3./2} \cdot a}{q \times \sqrt{2K}} \quad \ldots\text{(iii)}$$

Here, $m = 1.6 \times 10^{-27}$ kg,

$a = 10^{12}\ \text{ms}^{-2}$,

$q = 1.6 \times 10^{-19}$ C,

$K = 1$ MeV

$= 1 \times 10^6 \times 1.6 \times 10^{-19}$J

$= 1.6 \times 10^{-13}$ J

Substituting these given values in Eq. (iii), we get

$$B = \frac{(1.6 \times 10^{-27})^{3/2} \times 10^{12}}{1.6 \times 10^{-19} \times (2 \times 1.6 \times 10^{-13})^{1/2}}$$

$$= \frac{(1.6)^{3/2} \times 10^{-27 \times \frac{3}{2}} \times 10^{12}}{(1.6)^{3/2} \times 2^{1/2} \times 10^{-19} \times 10^{-13/2}}$$

$$= \frac{1}{\sqrt{2}} \times 10^{-3}$$

$$= 0.71 \text{ mT}$$

35. $K.E. = \frac{p^2}{2m} \Rightarrow p = \sqrt{2m\,K.E.}$

$p \propto \sqrt{m}$

Here, $m_A < m_B$

So, $p_A < p_B$

36. $v = eu$

$\sqrt{2gh} = e\sqrt{2gh_0}$

$e = \sqrt{\frac{h}{h_0}} = \sqrt{\frac{81}{100}} = \frac{9}{10} = 0.9$

37. $W = \int_0^1 (3x^2 + 2x - 10)\,dx$

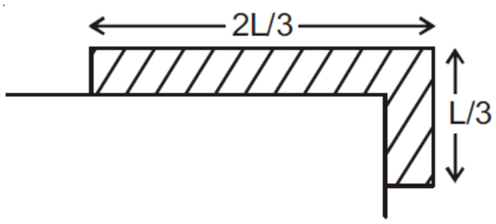
$= \left[x^3 + x^2 - 10x\right]_0^1 = -8J$

38. $W_{Total} = W_{friction} + W_{gravity}$

$-250 = W_f - 50(4)$

$W_f = -50J$

39. Mass of $\frac{L}{3}$ part will be $\frac{M}{3}$



Centre of mass of $\frac{L}{3}$ part is $\frac{L}{6}$ below the table

So total displacement of C.M. to bring it on the table

$W = \frac{M}{3} g \left(\frac{L}{6}\right) = \frac{MgL}{18}$

40. $1.44K = \frac{(P^1)^2}{2m}$

$P^1 = 1.2\ P$

$\frac{P^1 - P}{P} \times 100 = \frac{1.2P - P}{P} = 20\%$

41. Total work done = Area under $F - x$ curve

= ΔK.E.

$$\frac{1}{2}(4)(10)+\frac{1}{2}(4)10+40=\Delta K$$

$$80\ J = \frac{1}{2}(0.1)v^2$$

v = 40 m/s

42. $P = \vec{F}\,.\vec{V}$

= $(2i + 5j - 10k)\ .\ (5i + 2j - k)$

= 10 + 10 + 10 = 30 w

43. $T + mg = \frac{mv^2}{R}$ (at the highest point)

$$14 = \frac{1(v^2)}{R(1)} + 10$$

$v^2 = 4$ $\Rightarrow$ v = 2 m/s

Using mechanical energy conservation

$$\frac{1}{2}(1)u^2 = \frac{1}{2}(1)(2^2) + 1(10)(2)$$

$u^2 = 64$ $\Rightarrow u$ = 8 m/s

44. $\Delta k = \frac{1}{2}\frac{m_1 M_2}{(m_1 + M_2)}(u_1 - u_2)^2$

$$= \frac{mMx^2}{2(m+M)}$$

45. **At the centre**

$$B_1 = \frac{\mu_0 i}{2R}$$

At the axis

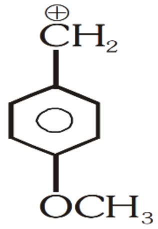
$$B_2 = \frac{\mu_0 i R^2}{2(R^2 + x^2)^{3/2}}$$

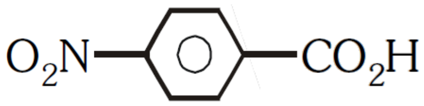
$$= \frac{\mu_0 i R^2}{2(R^2 + 8R^2)^{3/2}}$$

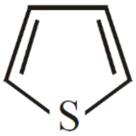
$$\Rightarrow B_2 = \frac{1}{27}\,\frac{\mu_0 i}{2R}$$

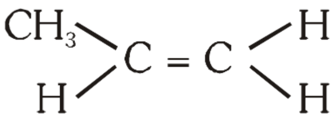
$$\frac{B_1}{B_2} = \frac{27}{1}$$

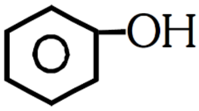
<u>CHEMSTRY</u>

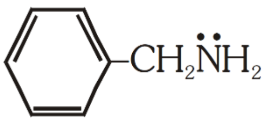
46. 2.67×10^{21}
47. 1 g of C_2H_6 (g)
48. 1.5×10^{22}
49. Same
50. X_2Y
51. 24
52. 0.94 g
53. Basic, N/20
54. $4N_A$, $2N_A$
55. 1.66 M
56. 9×10^{-3} moles
57. 1 m
58. 0.005 M
59. A-(P,Q,S); B-(P,R,S); C-(P,R,S); D-(P,S)
60. A-(S); B-(Q); C-(P); D-(R)
61. A-(Q); B-(R); C-(P); D-(T); E-(S)
62. O_2 is a limiting reagent
63. Formula mass of the compound is 176
64. 18 moles of water
65. CH_3COOH
66. $CH_3CH_2CCl_2COOH$
67. 

68. 

69. $CH_2 = CH–Cl$
70. d < b < c < a
71. IV > I > III >
72. HCOOH
73. II > I > III
74. 

75. 

76. (a) > (b) > (c)
77. 

78. 

79. II > I > IV > III
80. B > C > A > D
81. III only
82. I, II and III
83. ii > i > iv > iii
84. Arylamines are generally less basic than alkylamines because the nitrogen lone-pair electrons are delocalized by interaction with the aromatic ring p electron system.
85. II > III > I
86. $CH_3 - \dot{C}H_2 < CH_3 - \dot{C}H - CH_3 < (CH_3)_2\dot{C} - CH_2 - CH_3 < (CH_3)_3\dot{C}$
87. If both Assertion' & Reason are true and the reason is the correct explanation of the assertion
88. Electrophilic addition reaction
89. Distillation
90. Distillation under reduced pressure