

Moving Charges and Magnetism

NEET previous year questions · Physics

6 questions from the official papers: NEET 2026 (3), Re-NEET 2026 (2), NEET 2020 (1). Each is followed by its answer and a worked solution written by BrainIt. Generated on 23 October 2026.



BrainIt

The NEET practice app that learns how you practise and tells you what to do next.

PYQs · Mock tests · Revision · Interactive 3D concepts · Analytics

Get it on
Google Play

Download on the
App Store



brainit.pro/app

1. NEET 2026 · Q29

A 100-turn closely wound circular coil of radius 5 cm has a magnetic field of 3.14×10^{-3} T at its centre. The current flowing through the coil, and the magnitude of the magnetic moment of this coil are, respectively: (Take $\mu_0 = 4\pi \times 10^{-7}$ T m/A)

- (1) 2 A, 10 A m² (2) 2.5 A, 20 A m²
(3) 2 A, 4 A m² (4) 2.5 A, 2 A m²

Answer (4)

Sol. From $B = \frac{\mu_0 N i}{2R}$, the current is $i = \frac{2RB}{\mu_0 N} = \frac{2 \times 5 \times 10^{-2} \times 3.14 \times 10^{-3}}{4\pi \times 10^{-7} \times 100} = 2.5$ A. The magnetic moment $M = N i A = N i \pi R^2 = 100 \times 2.5 \times \pi \times (0.05)^2 \approx 2$ A m². Only option (4) gives both correct values.

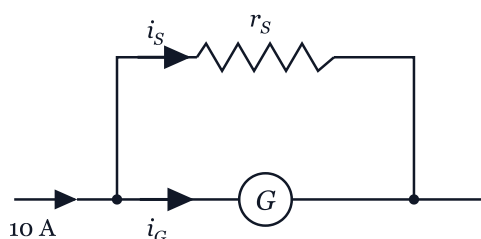
2. NEET 2026 · Q36

A galvanometer of resistance 100 Ω gives full scale deflection for a current of 1 mA. It is converted into an ammeter of range 0 - 10 A. The shunt required is:

- (1) 0.01 Ω (2) 0.10 Ω
(3) 1.0 Ω (4) 0.001 Ω

Answer (1)

Sol. The shunt is in parallel with the galvanometer, so $i_s r_s = i_G R_G$, where $i_s \approx 10$ A and $i_G = 1$ mA. Thus $10 \times r_s = 10^{-3} \times 100$, giving $r_s = 0.01$ Ω . The other values come from misplacing the factor of ten in the current ratio.

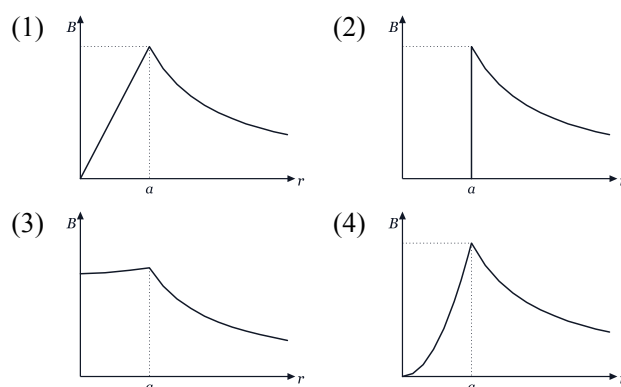
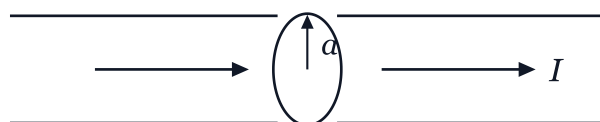


Why the other options are wrong:

- (2) Off by a factor of 10.
- (3) Off by a factor of 100.
- (4) Off by a factor of 10 (too small).

3. NEET 2026 · Q39

The figure shows a long straight solid wire of circular cross-section of radius a carrying steady current I . The current I is uniformly distributed across its cross-section. The plot which correctly represents the variation of magnetic field B with distance r from the axis of the conductor is:

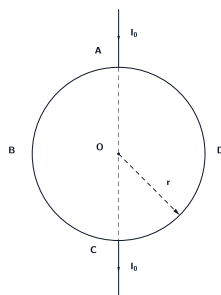


Answer (1)

Sol. By Ampere's law, inside the wire ($r < a$) only the enclosed fraction of current contributes, giving $B = \frac{\mu_0 I r}{2\pi a^2}$, so $B \propto r$ (a straight line rising to a maximum at $r = a$). Outside ($r > a$) the full current is enclosed, giving $B = \frac{\mu_0 I}{2\pi r}$, so $B \propto 1/r$. Only graph (1) shows this linear rise followed by a $1/r$ decay.

4. Re-NEET 2026 · Q11

A current I_0 flows through a metallic circular loop of radius r as shown in the figure. Resistance of the segment ABC is half that of ADC . Magnitude of magnetic field at the centre O of the loop is :



- (1) $\frac{\mu_0 I_0}{12r}$ (2) $\frac{\mu_0 I_0}{4r}$
 (3) $\frac{\mu_0 I_0}{2r}$ (4) $\frac{\mu_0 I_0}{2\pi r}$

Answer (1)

Sol. The current entering at A divides between the two arcs in INVERSE proportion to their resistances, so with $R_{ABC} = \frac{1}{2} R_{ADC}$ the currents are $\frac{2}{3} I_0$ and $\frac{1}{3} I_0$. Each arc is a semicircle (A at the top, C at the bottom), contributing $\frac{\mu_0 I}{4r}$ but in OPPOSITE directions at O . The net field is $\frac{\mu_0}{4r} \left(\frac{2}{3} I_0 - \frac{1}{3} I_0 \right) = \frac{\mu_0 I_0}{12r}$. NCERT Class 12, Moving Charges and Magnetism (Biot-Savart law).

Why the other options are wrong:

- (2) sends the whole current I_0 round one semicircle and ignores the opposing contribution from the other arc
- (3) uses the full-loop result $\frac{\mu_0 I}{2r}$ without splitting the current or accounting for cancellation
- (4) applies the formula for a long straight wire, $\frac{\mu_0 I}{2\pi r}$, instead of an arc

5. Re-NEET 2026 · Q15

Two infinitely long parallel conducting wires A and B carry currents I and $2I$, respectively, in the same direction. The wire A has uniform mass per unit length λ and lies on an insulated floor. The wire B is kept fixed at a height h above the floor. The minimum magnitude of h so that the wire A does not rise from the floor is: [g is the acceleration due to gravity and μ_0 is the permeability of free space.]

- (1) $\frac{\mu_0 I^2}{2\pi \lambda g}$ (2) $\frac{\mu_0 I^2}{\pi \lambda g}$
 (3) $\frac{2\mu_0 I^2}{\pi \lambda g}$ (4) $\frac{4\mu_0 I^2}{\pi \lambda g}$

Answer (2)

Sol. Parallel currents in the SAME direction attract, so wire B pulls wire A upwards with force per unit length $\frac{\mu_0 (I)(2I)}{2\pi h} = \frac{\mu_0 I^2}{\pi h}$. Wire A stays on the floor as long as this does not exceed its weight per unit length λg , so $\frac{\mu_0 I^2}{\pi h} \leq \lambda g$ and $h_{min} = \frac{\mu_0 I^2}{\pi \lambda g}$. NCERT Class 12,

Moving Charges and Magnetism (force between two parallel currents).

6. NEET 2020 · Q138

A long solenoid of 50 cm length having 100 turns carries a current of 2.5 A. The magnetic field at the centre of the solenoid is ($\mu_0 = 4\pi \times 10^{-7} \text{ T m A}^{-1}$)

- (1) $3.14 \times 10^{-4} \text{ T}$ (2) $6.28 \times 10^{-5} \text{ T}$
 (3) $3.14 \times 10^{-5} \text{ T}$ (4) $6.28 \times 10^{-4} \text{ T}$

Answer (4)

Sol. The magnetic field B inside a solenoid is given by $B = \mu_0 \frac{N}{L} I$. Substituting the values, $B = 4\pi \times 10^{-7} \times \frac{100}{0.5} \times 2.5 = 6.28 \times 10^{-4} \text{ T}$. Chapter: Moving Charges and Magnetism.

Questions: official NEET papers set by NTA. Solutions: BrainIt. BrainIt is independent and not affiliated with NTA. Online, with every chapter:
brainit.pro/neet/physics/moving-charges-and-magnetism/pyq/

AFTER THIS PAPER

Turn this paper into a plan.

BrainIt is a NEET practice app. It learns how you practise and tells you what to do next.

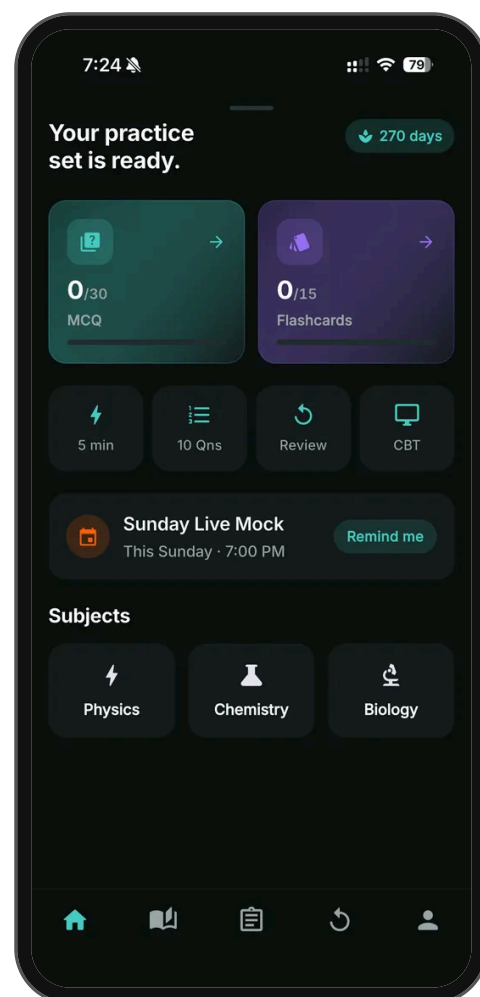
- **PYQs**
Previous-year questions, each with an explanation.
- **Mock tests**
Full and mini mocks on the CBT exam screen.
- **Revision**
Your mistakes come back for review, with flashcards.
- **Interactive concepts**
Learn by exploring 3D models, like the human body and the heart.
- **Analytics**
See your accuracy, speed and where you lose marks.
- **A daily plan**
It picks what to study next, every day.

Get it on
Google Play

Download on the
App Store



Scan with your phone camera,
or type **brainit.pro/app**



Take a free CBT mock

Real NEET questions on the exam screen, timed and marked for you.
No login.