PYQSide PYQSide.com — free PYQs with solutions Powered by PrepBlink

NEET MOVING CHARGES AND MAGNETISM — MAGNETIC FIELD ON THE AXIS OF A CIRCULAR CURRENT LOOP — PYQS

Max. Marks: 32 **Questions:** 8

Section A (MCQ) — 8 questions

Q.1 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) [NEET (UG) 2026]
(1) 2.5 A, 20 A m^2 (2) 2 A, 4 A m^2
(3) 2.5 A, 2 A m^2 (4) 2 A, 10 A m^2

Scan or tap for the full solution

Q.2 A closely packed coil having 1000 turns has an average radius of 62.8 cm. If current carried by the wire of the coil is 1 A, the value of magnetic field produced at the centre of the coil will be (permeability of free space = $4\pi \times 10^{-7}$ H/m) nearly
[NEET (UG) 2022 (Phase 2)]
(1) 10^{-3} T (2) 10^{-1} T (3) 10^{-2} T (4) 10^{2} T

Scan or tap for the full solution

Q.3 The magnetic field on the axis of a circular loop of radius 100 cm carrying current $I = \sqrt{2}$ A, at point 1 m away from the centre of the loop is given by :
[NEET (UG) 2022 (Phase 2)]
(1) 6.28×10^{-4} T (2) 3.14×10^{-7} T
(3) 6.28×10^{-7} T (4) 3.14×10^{-4} T

Scan or tap for the full solution

Q.4 Two similar coils of radius R are lying concentrically with their planes at right angles to each other. The currents flowing in them are I and 2I, respectively. The resultant magnetic field induction at the centre will be
[AIPMT 2012 (Prelims)]
(1) $\frac{\sqrt{5}\mu_0 I}{2R}$ (2) $\frac{\sqrt{5}\mu_0 I}{R}$
(3) $\frac{\mu_0 I}{2R}$ (4) $\frac{\mu_0 I}{R}$

Scan or tap for the full solution

Q.5 Charge q is uniformly spread on a thin ring of radius R. The ring rotates about its axis with a uniform frequency f Hz. The magnitude of magnetic induction at the centre of the ring is
[AIPMT 2011 (Mains)]
(1) $\frac{\mu_0 qf}{2\pi R}$ (2) $\frac{\mu_0 qf}{2R}$ (3) $\frac{\mu_0 q}{2fR}$ (4) $\frac{\mu_0 q}{2\pi fR}$

Scan or tap for the full solution

Q.6 Charge q is uniformly spread on a thin ring of radius R. The ring rotates about its axis with a uniform frequency f Hz. The magnitude of magnetic induction at the center of the ring is
[AIPMT 2010 (Prelims)]
(1) $\frac{\mu_0 qf}{2\pi R}$ (2) $\frac{\mu_0 qf}{2R}$ (3) $\frac{\mu_0 q}{2fR}$ (4) $\frac{\mu_0 q}{2\pi fR}$

Scan or tap for the full solution

Q.7 Two circular coils 1 and 2 are made from the same wire but the radius of the 1st coil is twice that of the 2nd coil. What ratio of potential difference in volts should be applied across them so that the magnetic field at their centres is the same? [AIPMT 2006]
(1) 2 (2) 3 (3) 4 (4) 6

Scan or tap for the full solution

Q.8 The magnetic field of given length of wire for single turn coil at its centre is B then its value for two turns coil for the same wire is [AIPMT 2002]
(1) B/4 (2) B/2 (3) 4B (4) 2B

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	3	1	2	1	2	2	3	3			