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NEET MOVING CHARGES AND MAGNETISM — FORCE BETWEEN TWO PARALLEL CURRENTS, DEFINITION OF AMPERE — PYQS

Max. Marks: 20 **Questions:** 5

Section A (MCQ) — 5 questions

Q.1 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.] [RE-NEET (UG) 2026]

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

Scan or tap for the full solution

Q.2 Two very long, straight, parallel conductors A and B carry current of 5 A and 10 A respectively and are at a distance of 10 cm from each other. The direction of current in two conductors is same. The force acting per unit length between two conductors is : ($\mu_0 = 4\pi \times 10^{-7}$ SI unit)
[NEET (UG) 2022 (Phase 2)]

(1) 1×10^{-4} N m^{-1} and is repulsive
(2) 2×10^{-4} N m^{-1} and is attractive
(3) 2×10^{-4} N m^{-1} and is repulsive
(4) 1×10^{-4} N m^{-1} and is attractive

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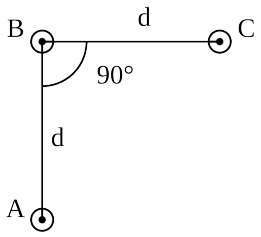
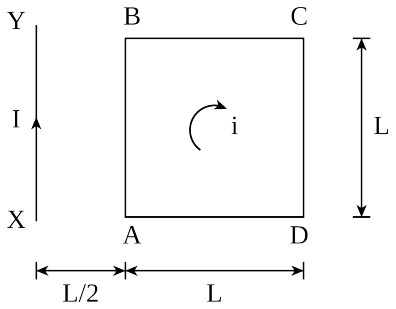
Q.3 An arrangement of three parallel straight wires placed perpendicular to plane of paper carrying same current 'I' along the same direction as shown in figure. Magnitude of force per unit length on the middle wire 'B' is given by [NEET 2017]



(1) $\frac{2\mu_0 I^2}{\pi d}$ (2) $\frac{\sqrt{2}\mu_0 I^2}{\pi d}$
(3) $\frac{\mu_0 I^2}{\sqrt{2}\pi d}$ (4) $\frac{\mu_0 I^2}{2\pi d}$

Scan or tap for the full solution

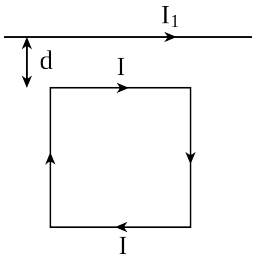
Q.4 A square loop ABCD carrying a current i, is placed near and coplanar with a long straight conductor XY carrying a current I, the net force on the loop will be
[NEET 2016 (Phase 1)]



(1) $\frac{2\mu_0 IiL}{3\pi}$ (2) $\frac{\mu_0 IiL}{2\pi}$ (3) $\frac{2\mu_0 Ii}{3\pi}$ (4) $\frac{\mu_0 Ii}{2\pi}$

Scan or tap for the full solution

Q.5 A square loop, carrying a steady current I, is placed in a horizontal plane near a long straight conductor carrying a steady current I_1 at a distance d from the conductor as shown in figure. The loop will experience [AIPMT 2011 (Mains)]



(1) a net attractive force towards the conductor
(2) a net repulsive force away from the conductor
(3) a net torque acting upward perpendicular to the horizontal plane
(4) a net torque acting downward normal to horizontal plane

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5						
Ans.	**3**	**4**	**3**	**3**	**1**						