

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)]

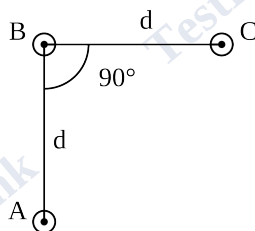
- (1) $1 \times 10^{-4} \text{ N m}^{-1}$ and is repulsive
 (2) $2 \times 10^{-4} \text{ N m}^{-1}$ and is attractive
 (3) $2 \times 10^{-4} \text{ N m}^{-1}$ and is repulsive
 (4) $1 \times 10^{-4} \text{ N m}^{-1}$ and is attractive

Scan or tap for the full solution



- 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]



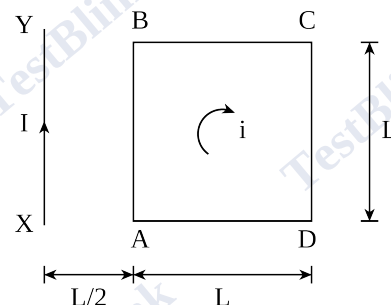
- (1) $\frac{2\mu_0 I^2}{\pi d}$ (2) $\frac{\sqrt{2}\mu_0 I^2}{\pi d}$
 (3) $\frac{\mu_0 I^2}{\sqrt{2}\pi d}$ (4) $\frac{\mu_0 I^2}{2\pi d}$

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)]



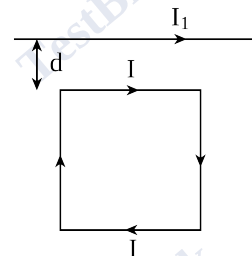
- (1) $\frac{2\mu_0 IiL}{3\pi}$ (2) $\frac{\mu_0 IiL}{2\pi}$ (3) $\frac{2\mu_0 Ii}{3\pi}$ (4) $\frac{\mu_0 Ii}{2\pi}$

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						