

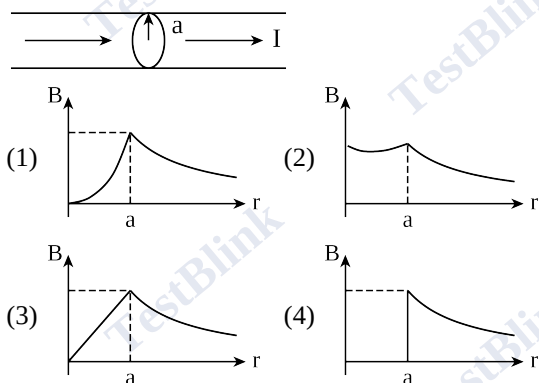
NEET MOVING CHARGES AND MAGNETISM — AMPERE'S CIRCUITAL LAW AND ITS APPLICATIONS — PYQS

Max. Marks: 28

Questions: 7

Section A (MCQ) — 7 questions

- Q.1** The figure given below 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 in the region is : [NEET (UG) 2026]

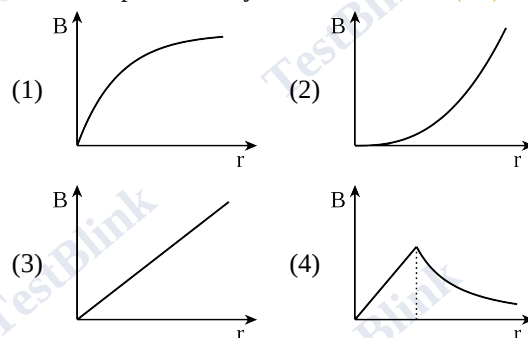

 Scan or tap for the full solution
 

- Q.2** From Ampere's circuital law for a long straight wire of circular cross-section carrying a steady current, the variation of magnetic field in the inside and outside region of the wire is [NEET (UG) 2022]

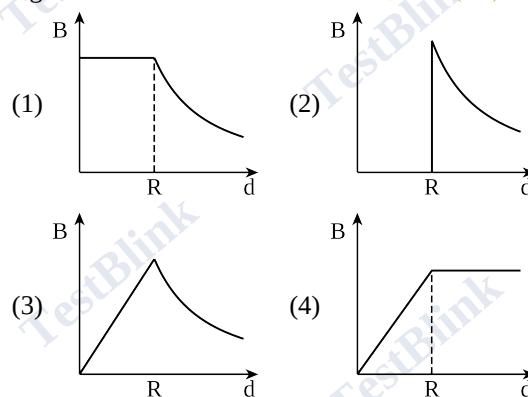
- (1) Uniform and remains constant for both the regions.
- (2) A linearly increasing function of distance upto the boundary of the wire and then linearly decreasing for the outside region.
- (3) A linearly increasing function of distance r upto the boundary of the wire and then decreasing one with $\frac{1}{r}$ dependence for the outside region.
- (4) A linearly decreasing function of distance upto the boundary of the wire and then a linearly increasing one of the outside region.

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- Q.3** A thick current carrying cable of radius 'R' carries current 'I' uniformly distributed across its cross section. The variation of magnetic field $B(r)$ due to the cable with the distance 'r' from the axis of the cable is represented by : [NEET (UG) 2021]


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- Q.4** A cylindrical conductor of radius R is carrying a constant current. The plot of the magnitude of the magnetic field B with the distance d from the centre of the conductor, is correctly represented by the figure : [NEET (UG) 2019]


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- Q.5** A long straight wire of radius a carries a steady current I . The current is uniformly distributed over its cross-section. The ratio of the magnetic fields B and B' , at radial distance $\frac{a}{2}$ and $2a$ respectively, from the axis of the wire is [NEET 2016 (Phase 1)]

- (1) 1
- (2) 4
- (3) $\frac{1}{4}$
- (4) $\frac{1}{2}$

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Q.6 Two identical long conducting wires AOB and COD are placed at right angle to each other, with one above other such that O is their common point for the two. The wires carry I_1 and I_2 currents, respectively. Point P is lying at distance d from O along a direction perpendicular to the plane containing the wires. The magnetic field at the point P will be

[AIPMT 2014]

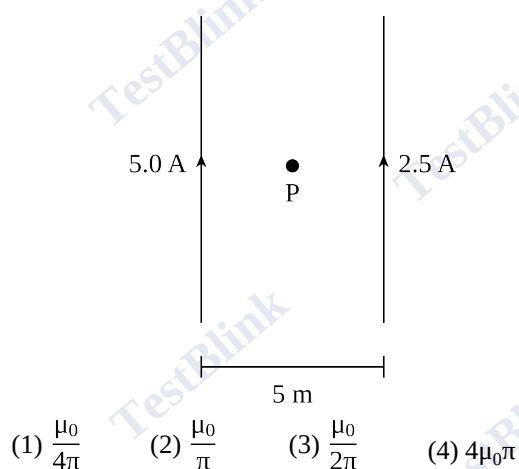
- (1) $\frac{\mu_0}{2\pi d} \left(\frac{I_1}{I_2} \right)$ (2) $\frac{\mu_0}{2\pi d} (I_1 + I_2)$
 (3) $\frac{\mu_0}{2\pi d} (I_1^2 - I_2^2)$ (4) $\frac{\mu_0}{2\pi d} (I_1^2 + I_2^2)^{1/2}$

Scan or tap for the full solution



Q.7 The magnetic field at centre, P will be

[AIPMT 2000]



Scan or tap for the full solution



ANSWER KEY

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