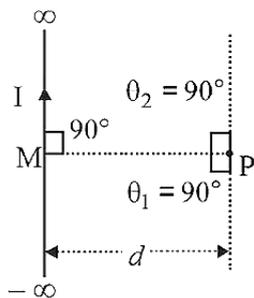


Prayas JEE (2025)

Physics Magnetism

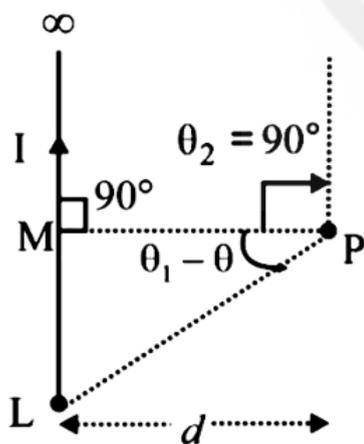
DPP: 1

Q1 Find magnetic field due to infinite length wire at point 'P'.



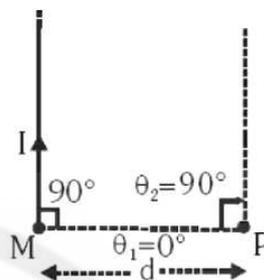
- (A) $\frac{\mu_0 I}{2\pi d}$
- (B) $\frac{\mu_0 2}{2\pi d}$
- (C) $\frac{2\pi d}{\mu_0 2}$
- (D) $\frac{\mu_0 2}{4\pi d}$

Q2 Find magnetic field due to given wire at point 'P'.



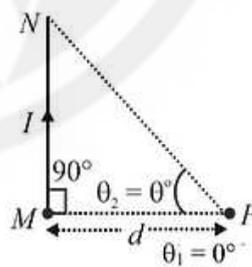
- (A) $\frac{\mu_0 I}{4\pi d} [\sin \theta + 3]$
- (B) $\frac{\mu_0 I}{4\pi d} [\sin \theta + 5]$
- (C) $\frac{\mu_0 I}{4\pi d} (\sin \theta + 1)$
- (D) None of these

Q3 Find magnetic field due to semi infinite length wire at point 'P'.



- (A) $\frac{\mu_0 I}{5\pi d}$
- (B) $\frac{\mu_0 I}{4\pi d}$
- (C) $\frac{\mu_0 I}{3\pi d}$
- (D) $\frac{\mu_0 I}{1 \cdot d}$

Q4 Find magnetic field due to finite length wire at point 'P'.



- (A) $\frac{\mu_0 I}{8\pi d} \sin \theta$
- (B) $\frac{\mu_0 I}{6\pi d} \sin \theta$
- (C) $\frac{\mu_0 I}{7\pi d} \sin \theta$
- (D) $\frac{\mu_0 I}{4\pi d} \sin \theta$

Q5 An equilateral triangle of side 'a' carries 'I' current. Magnetic field at point 'P' which is

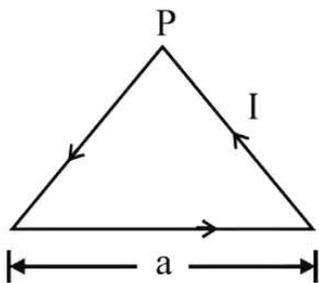


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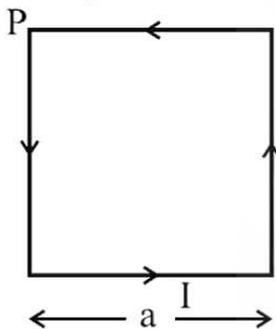
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vertex of triangle



- (A) $\frac{\mu_0 I}{2\sqrt{3}\pi a} \odot$
- (B) $\frac{\mu_0 I}{2\sqrt{3}\pi a} \otimes$
- (C) $\frac{9}{2} \left(\frac{\mu_0 I}{\pi a} \right) \odot$
- (D) $\frac{9}{2} \left(\frac{\mu_0 I}{2\sqrt{3}\pi a} \right) \otimes$

Q6 A square loop of side 'a' is made by a current carrying wire. Magnetic field at its vertex 'P' is



- (A) $\frac{\mu_0 I}{2\sqrt{2}\pi a} \odot$
- (B) $\frac{\mu_0 I}{2\sqrt{2}\pi a} \otimes$
- (C) $2\sqrt{3} \frac{\mu_0 I}{\pi a} \otimes$
- (D) $2\sqrt{2} \frac{\mu_0 I}{\pi a} \odot$

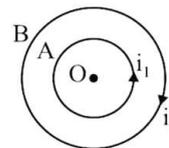
Q7 Radius of current carrying coil is 'R'. Then ratio of magnetic fields at the centre of the coil to the axial point, which is $R\sqrt{3}$ distance away from the centre of the coil :-

- (A) 1 : 1
- (B) 1 : 2
- (C) 1 : 4

(D) 8 : 1

Q8 A and B are two concentric circular loop carrying current i_1 and i_2 as shown in figure. If ratio of their radii is 1 : 2 and ratio of the flux densities at the centre O due to A and B is

1 : 3 then the value of $\frac{i_1}{i_2}$ will be



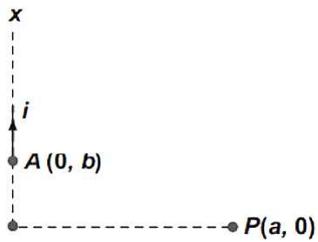
- (A) $\frac{1}{2}$
- (B) $\frac{1}{3}$
- (C) $\frac{1}{4}$
- (D) $\frac{1}{6}$

Q9 A circular coil of radius R carries an electric current. The magnetic field due the coil at a point on the axis of the coil located at a distance r from the center of the coil, such that $r \gg R$ varies as :-

- (A) $1/r$
- (B) $1/r^{3/2}$
- (C) $1/r^2$
- (D) $1/r^3$

Q10 An infinitely long wire carrying current i is along Y-axis such that its one end is at point $(0, b)$ while the wire extends upto ∞ . The magnitude of magnetic field strength at point $P(a, 0)$ is





(A) $\frac{\mu_0 i}{4\pi a} \left(1 + \frac{b}{\sqrt{a^2 + b^2}} \right)$

(B) $\frac{\mu_0 i}{4\pi a} \left(1 - \frac{b}{\sqrt{a^2 + b^2}} \right)$

(C) $\frac{\mu_0 i}{4\pi a} \left(1 - \frac{a}{\sqrt{a^2 + b^2}} \right)$

(D) $\frac{\mu_0 i}{4\pi a} \left(1 + \frac{a}{\sqrt{a^2 + b^2}} \right)$



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Answer Key

Q1 A
Q2 C
Q3 B
Q4 D
Q5 A

Q6 A
Q7 D
Q8 D
Q9 D
Q10 B



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