

Worksheet

GRADE 12

Concept: Biot-Savart law & Ampere Circuital Law

Level-A

1. The line integral ofaround anycircuit is equal to μ_0 times the total passing through the circuit.
2. The SI unit of magnetic field is.....
3. Direction of magnetic field due to a current carrying straight conductor can be determined by.....
4. Clockwise current in a loop produces..... magnetic field.
5. The magnetic field due to a bar magnet is equivalent to the magnetic field due to a current carrying

Drag Answers : Magnetic field closed current tesla Right hand rule Inward Solenoid

Level-B

1. State whether the following statements are true & false.
 - a) The magnetic field due a current carrying solenoid is independent over the nature of the material inside it.
 - b) Anticlockwise current in a loop produces an outward magnetic field.
 - c) $1 \text{ T} = 10^4 \text{ G}$
 - d) Gauss law is used to find the magnetic field due a current carrying conductor.
 - e) The ratio of magnetic field due to a current carrying straight conductor at a distance from the ends of conductor to its field at the same distance from the mid-point is $\frac{1}{2}$.

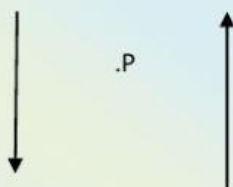
2. Match the following.

Section A	Section B
i) Magnetic field due to a infinite long current carrying straight conductor	i) 0
ii) Magnetic field due to a current carrying circular loop at its centre	ii) $\frac{\mu_0 I}{2\pi a}$
iii) Magnetic field due to a current carrying solenoid inside it	iii) $\frac{\mu_0 I}{2a}$
iv) Magnetic field due to a current carrying toroid outside it	iv) $\mu_0 I n$

Level-C

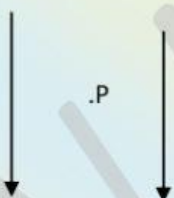
1. Find the magnetic field at point P in the following cases when current I is flowing.

i)



SAY YOUR ANSWER:

ii)



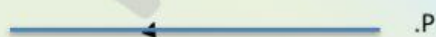
SAY YOUR ANSWER:

iii)



SAY YOUR ANSWER:

iv)



SAY YOUR ANSWER:

iv)



SAY YOUR ANSWER: