



PHYSICS

CH: 4 MAGNETISM

Name: _____

Date: _____

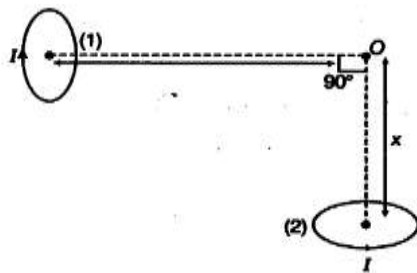
Class: XII Sec: A ____

I Answer in detail

1. Name the physical quantity whose SI unit is Wb/m^2 . Is it a scalar or vector quantity?
2. What is the magnitude of force on a charge q moving with velocity v in a magnetic field B ?
3. Under what condition, an electron moving through a magnetic field experiences maximum force?
4. An electron beam is moving vertically upwards. If it passes through a magnetic field which is directed from south to north in a horizontal plane, then in which direction will the beam get deflected?
5. In a certain arrangement a proton does not get deflected while passing through a magnetic field region. Under what condition is it possible?
6. An electron is projected in uniform magnetic field (i) parallel (ii) normal (iii) at same angle, to its direction. What will be the trajectory of electron in each case?
7. A thick copper wire, carrying a current of 10A is bent into a semi circular arc of radius 7cm as shown in the figure.
 - (i) State the direction and calculate the magnitude of magnetic field at the centre of arc.
 - (ii) How would the answer change if the same wire were bent into a semi circular arc of same radius but in the opposite way as shown?
8. A proton and a deuteron having equal momenta enter in a region of uniform magnetic field at right angles to the direction of the field. Find the ratio of the radii of curvature of the path followed by the particle.
9. Which of the following will describe the smallest circle when projected with the same velocity v perpendicular to the magnetic field B (i) alpha particle (ii) beta particle?
10. Two identical circular loops, marked (1) and (2), carrying equal currents are placed with the geometrical axes perpendicular to each other. Find the magnitude and direction of the net magnetic field produced at

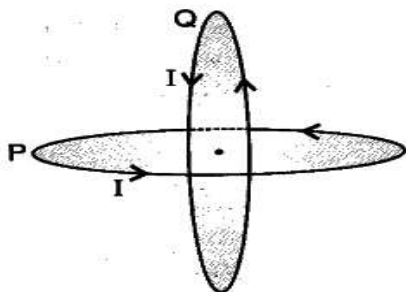


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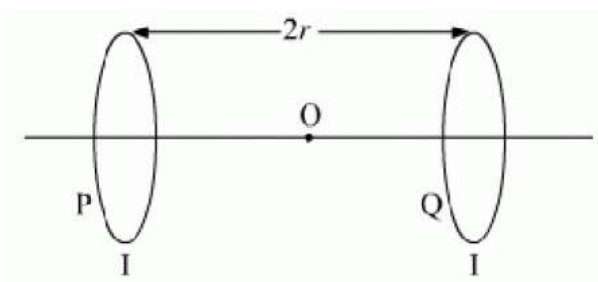


the point O.

11. A galvanometer has a resistance of 15Ω and a full scale deflection for a current of 14mA . How will you convert the meter into an ammeter of range 0 to 6A ?
12. Two identical circular wires P and Q each of radius R and carrying currents I are kept in perpendicular planes such that they have a common centre as shown. Find the magnitude and direction of the net magnetic field at the common centre of the two coils.



13. Two identical circular loops P and Q, each of radius r and carrying current I and $2I$ respectively are lying in parallel planes such that they have common axis. The direction of current in the loops are clockwise as seen from O which is equidistant from O. Find the magnitude of the net field at O.



14. Equal currents are flowing through two identical parallel wires. What will be the magnetic field at a point midway when the currents are flowing in the same direction?
15. An electron, passing through a region is not deflected. Are you sure that there is no magnetic field in that region?

