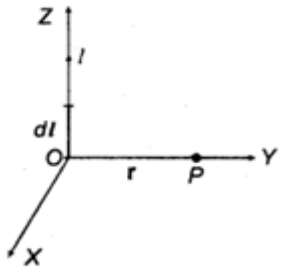
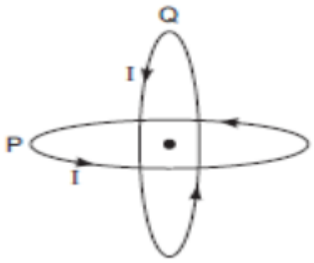
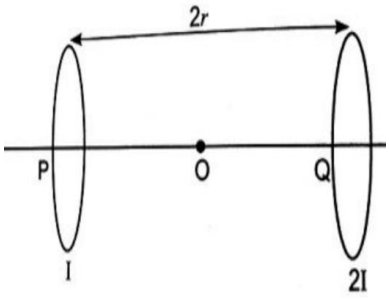
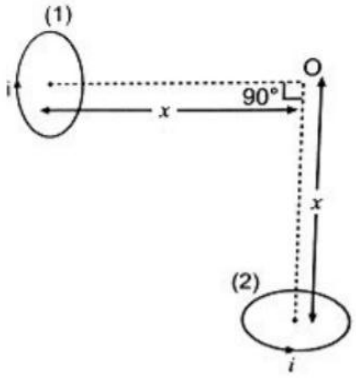
INDIAN SCHOOL DARSAIT
DEPARTMENT OF PHYSICS

Subject: PHYSICS	Topic: MOVING CHARGES & MAGNETISM	Date of Worksheet: 24.5.18
Resource Person: SUSAN ANIL		Worksheet # 4
Name of the Student: _____	Class &Division: _____	Roll Number: __

1.	Draw the magnetic field lines due to a current carrying (i)straight conductor (ii) circular loop (iii) solenoid (iv) toroid (**2013**)
2.	Write any two important points of similarities and differences each between Coulomb's law for the electrostatic field and Biot-Savart's law for the magnetic field. (**2015**)
3.	Show through an example; how Ampere's circuital law enables an easy evaluation of the magnetic field when there is symmetry in the system? (**2010)**
4.	A current I flows in a conductor placed perpendicular to the plane of the paper. Indicate the direction of the magnetic field due to a small element dl at a point P situated at a distance r from the element as shown in the figure: 
5.	A long straight wire of a circular cross section of radius 'a' carries a steady current I. The current is uniformly distributed across the cross-section of the wire. Use Ampere's circuital law to show that the magnetic field due to this wire in the region inside increases with distance. Write the value of this field on the surface of the wire. (**2008**)
6.	A coil of N turns, and radius R carries a current I. It is unwound and rewound to make a square coil of side **a** having same number of turns N. Keeping the current I same, find the ratio of magnetic moments of the square coil and the circular coil (**2013**)
7.	Two identical circular wires P and Q each of radius R and carrying current 'I' are kept in perpendicular planes such that they have a common center as shown in the figure. Find the magnitude and direction of the net magnetic field at the common center of the two coils. (**2012**)

	
8.	Two identical circular loops, P and Q, each of radius r and carrying currents I and 2I respectively are lying in parallel planes such that they have a common axis. The direction of current in both the loops is clockwise as seen from 'O' which is equidistant from both the loops. Find the magnitude of the net magnetic field at point 'O'. (**2012**) 
9.	Two small identical circular loops, marked (1) and (2), carrying equal currents, are placed with the geometrical axes perpendicular to each other as shown in the figure. Find the magnitude and direction of the net magnetic field produced at the point 'O'. 
10.	A solenoid of length1m has a radius of 1cm and has a total of 1000turns wound on it. It carries a current of 5A. Calculate the magnitude of the axial magnetic field inside the solenoid. If an electron was to move with a speed of 10^4m/s along the axis of this current carrying solenoid, what would be the force experienced by this electron? (**2008**)