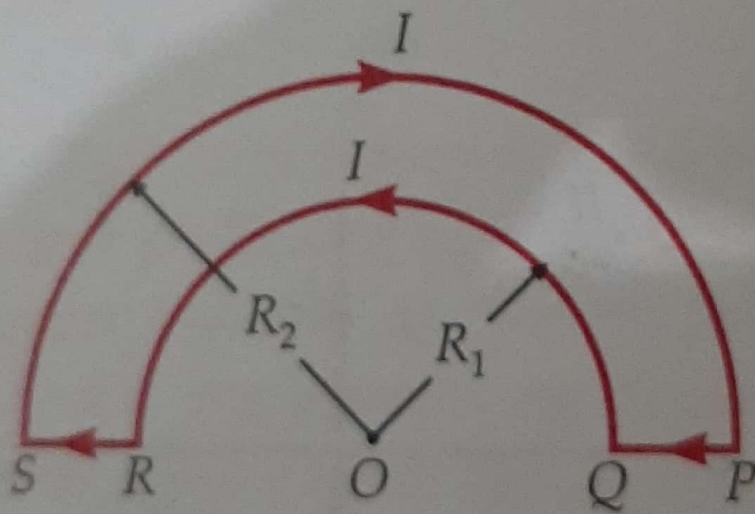
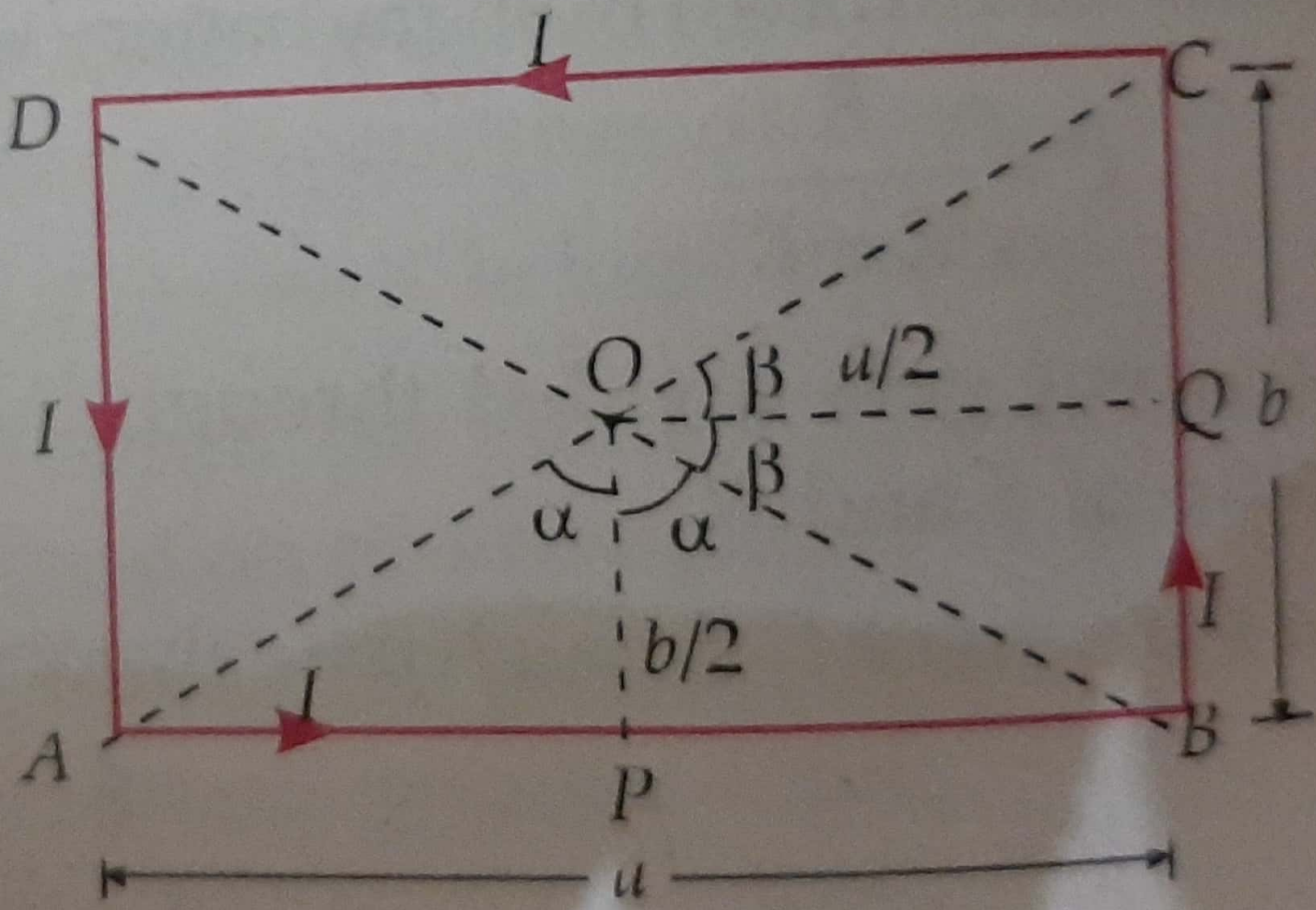


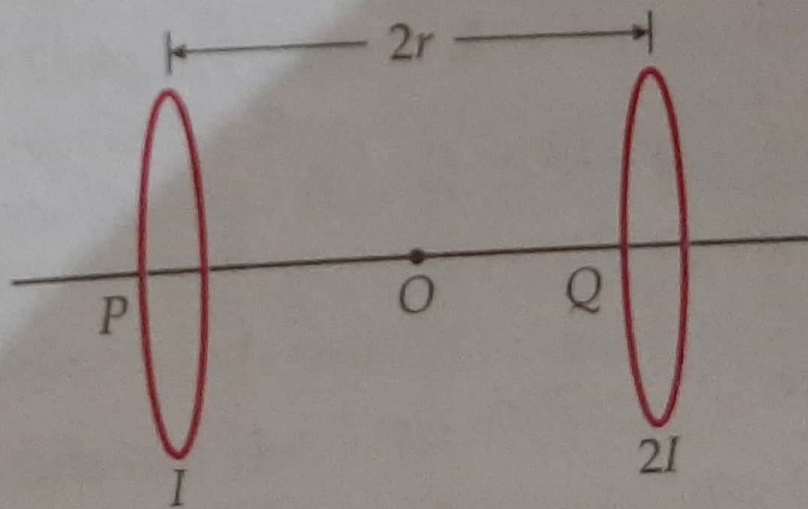
Problem 10. The wire loop $PQRSP$ formed by joining two semicircular wires of radii R_1 and R_2 carries a current I , as shown in Fig. 4.142. Find the magnitude and direction of the magnetic field at the centre O . [IIT 88]



Problem 5. *A rectangular loop of metallic wire is of length a and breadth b and carries current I . Find the magnitude of the magnetic field at the centre O of the loop.*



Problem 4. 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 the both loops. Find the magnitude of the net magnetic field at point O . [CBSE D 12]



Example 1. A wire placed along the north-south direction carries a current of 8 A from south to north. Find the magnetic field due to a 1 cm piece of wire at a point 200 cm north-east from the piece.

Example 40. A long straight wire AB carries a current of 4 A . A proton P travels at $4 \times 10^6\text{ m/s}$, parallel to the wire, 0.2 m from it and in a direction opposite to the current as shown in Fig. 4.61. Calculate the force which the magnetic field of current exerts on the proton. Also specify the direction of the force.

[CBSE OD 02]

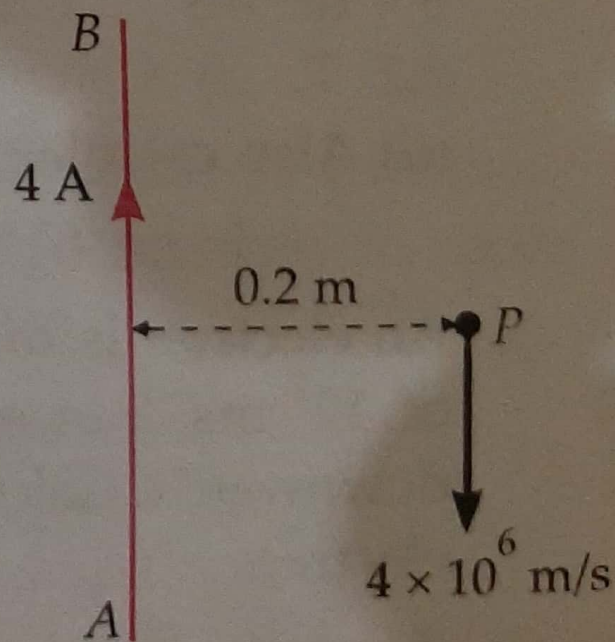


Fig. 4.61