

- 23** Two very long, straight, parallel wires carry equal steady current  $I$  in opposite directions. The distance between the wires is  $d$ . At a certain instant of time, a point charge  $q$  is at a point equidistant from the two wires, in the plane of the wires. Its instantaneous velocity  $v$  is perpendicular to this plane. The magnitude of the force due to the magnetic field acting on the charge at this instant is

**A**  $0 \text{ N}$

**B**  $\frac{\mu_0 I q v}{2\pi d}$

**C**  $\frac{\mu_0 I q v}{\pi d}$

**D**  $\frac{2\mu_0 I q v}{\pi d}$

- 24** A current of  $0.3 \text{ A}$  flows in a conductor ABCDE that lies on the plane of the paper as shown in