Point charge moving near a wire current conductor. A point charge Q is moving in the air with a velocity $\mathbf{v}$ near a straight wire conductor with a time-invariant current of intensity I. Referring to three cases with different directions of $\mathbf{v}$ shown in Fig. Q4.1, the magnetic force on Q is zero for

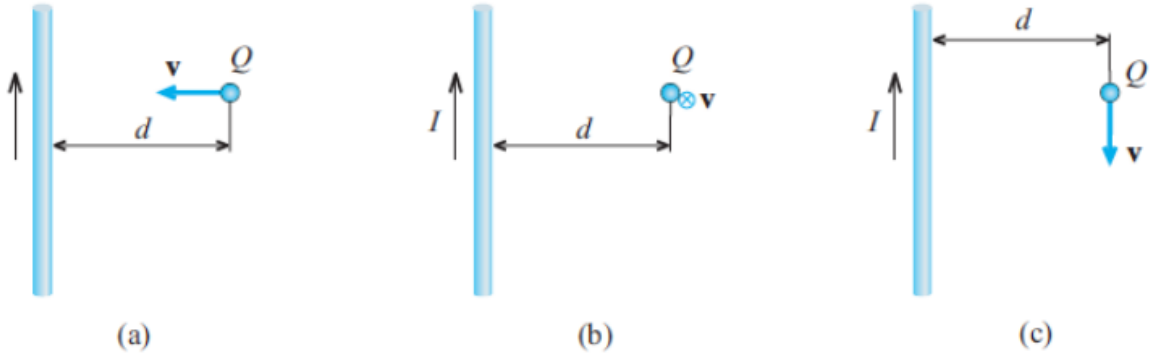

Figure Q4.1 Point charge moving with a velocity $\mathbf{v}$ near a wire conductor with a steady current – three cases with different directions of $\mathbf{v}$; for Question 4.1.

(A) case (a) only.
(B) case (b) only.
(C) case (c) only.
(D) at least two of the cases.
(E) none of the cases.

Solution: (B)
Answer: (B)