

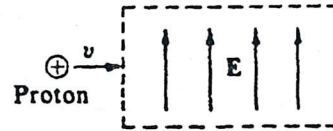
P

Wire \otimes

\otimes Wire

42. Two very long parallel wires carry equal currents in the same direction into the page, as shown above. At point P , which is 10 centimeters from each wire, the magnetic field is
- (A) zero
 - (B) directed into the page
 - (C) directed out of the page
 - (D) directed to the left
 - (E) directed to the right
43. When two identical parallel-plate capacitors are connected in series, which of the following is true of the equivalent capacitance?
- (A) It depends on the charge on each capacitor.
 - (B) It depends on the potential difference across both capacitors.
 - (C) It is larger than the capacitance of each capacitor.
 - (D) It is smaller than the capacitance of each capacitor.
 - (E) It is the same as the capacitance of each capacitor.

Questions 44-45



A proton traveling with speed v enters a uniform electric field of magnitude E , directed parallel to the plane of the page, as shown in the figure above. There is also a magnetic force on the proton that is in the direction opposite to that of the electric force.

44. Which of the following is a possible direction for the magnetic field?
- (A) \downarrow
 - (B) \uparrow
 - (C) \leftarrow
 - (D) \odot (directed out of the page)
 - (E) \otimes (directed into the page)
45. If e represents the magnitude of the proton charge, what minimum magnitude of the magnetic field could balance the electric force on the proton?
- (A) E/v
 - (B) eE/v
 - (C) vE
 - (D) eE
 - (E) evE