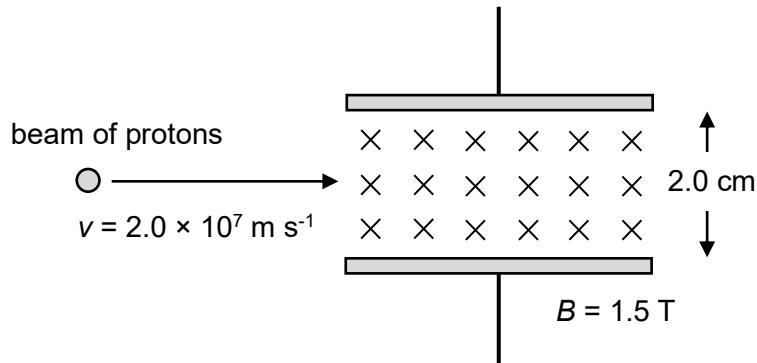


- 21** A beam of protons passes through a velocity selector, set up by an electric field and a magnetic field that are perpendicular to each other. The electric field is set up by a pair of charged plates with a plate separation of 2.0 cm as shown in the diagram below. The magnetic flux density, B is 1.5 T and directed into the plane of the paper.



If protons travelling at $2.0 \times 10^7 \text{ m s}^{-1}$ pass through undeflected, what would be the direction and magnitude of the electric field?

	direction	magnitude
A	downwards	$6.0 \times 10^5 \text{ N C}^{-1}$
B	upwards	$6.0 \times 10^5 \text{ N C}^{-1}$
C	downwards	$3.0 \times 10^7 \text{ N C}^{-1}$
D	upwards	$3.0 \times 10^7 \text{ N C}^{-1}$