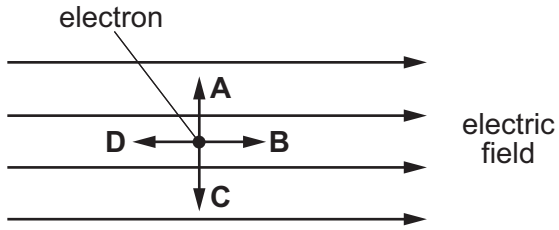
27 The diagram shows an electron in a uniform electric field.

In which direction will the field accelerate the electron?



28 The electric field strength at a certain distance from an isolated alpha particle is $3.0 \times 10^{7}\,\text{N C}^{-1}$.

What is the force on an electron when at that distance from the alpha particle?

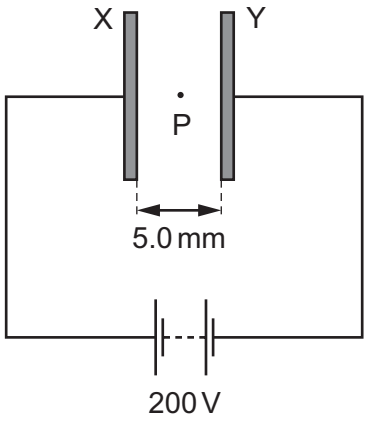
A $4.8 \times 10^{-12}\,\text{N}$

B $9.6 \times 10^{-12}\,\text{N}$

C $3.0 \times 10^{7}\,\text{N}$

D $6.0 \times 10^{7}\,\text{N}$

29 Two large parallel plates X and Y are placed a distance of 5.0 mm apart and connected to the terminals of a 200 V d.c. supply, as shown.



A small oil drop at P carries one excess electron.

What is the magnitude of the electrostatic force acting on the oil drop due to the electric field between the plates?

A $6.4 \times 10^{-15}\,\text{N}$

B $6.4 \times 10^{-18}\,\text{N}$

C $1.6 \times 10^{-19}\,\text{N}$

D $4.0 \times 10^{-24}\,\text{N}$