

**39** Which statement concerning  $\alpha$ -particles is correct?

- A** An  $\alpha$ -particle has charge  $+4e$ .
- B** An  $\alpha$ -particle is a helium atom.
- C** When  $\alpha$ -particles travel through air, they cause ionisation.
- D** When  $\alpha$ -particles travel through a sheet of gold foil, they make the gold radioactive.

**40** A nucleus of the nuclide  $^{241}\text{Pu}$  decays by emission of a  $\beta$ -particle followed by the emission of an