

**39** In an experiment to investigate the nature of the atom, a very thin gold film was bombarded with  $\alpha$ -particles.

What pattern of deflection of the  $\alpha$ -particles was observed?

- A** A few  $\alpha$ -particles were deflected through angles greater than a right angle.
- B** All  $\alpha$ -particles were deflected from their original path.
- C** Most  $\alpha$ -particles were deflected through angles greater than a right angle.
- D** No  $\alpha$ -particle was deflected through an angle greater than a right angle.

**40** When a nucleus of  $^{238}\text{U}$  absorbs a slow neutron it subsequently emits two  $\beta$ -particles.