

**40** A uranium-238 nucleus,  $^{238}_{92}\text{U}$ , undergoes nuclear decays to form uranium-234,  $^{234}_{92}\text{U}$ .

Which series of decays could give this result?

- A** emission of four  $\beta$ -particles
- B** emission of four  $\gamma$ -rays
- C** emission of one  $\alpha$ -particle and two  $\beta$ -particles
- D** emission of two  $\alpha$ -particles and eight  $\beta$ -particles

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.