

- 7 (a) The names of four particles are listed below.

alpha beta-plus neutron proton

State the name(s) of the particle(s) in this list that:

- (i) are not fundamental

.....[1]

- (ii) do not experience an electric force when situated in an electric field

.....[1]

- (iii) has the largest ratio of charge to mass.

.....[1]

- (b) A hadron has a charge of $+e$ where e is the elementary charge. The hadron is composed of only two quarks. One of these quarks is an antidown (\bar{d}) quark. By considering charge, state and explain the name (flavour) of the other quark.

.....

.....[3]

[Total: 6]

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 Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

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