

2022 Ph H1 Q12

Section: Particles and Waves

Topic: The Standard Model

Brief summary of the question

Which of the following statements about a proton are correct?

Worked solution

- A proton is a baryon — made up of three quarks.
- A proton is also a hadron — baryons are a type of hadron.
- A proton is a fermion (spin $1/2$).
- All three statements (I, II, III) are correct.

Final answer

E — I, II and III.

Revision tips

Baryons (protons, neutrons) are hadrons made of three quarks.

Protons are stable and experience strong, weak, and electromagnetic forces.

Quark content of a proton: up, up, down (uud).