GET BETTER AT PHYSICS · MARK SCHEME

Fission & Fusion: tiered multiple choice

Edexcel IAL Physics · Unit 5 (WPH15) · Specification points 135–136 · 4 questions · 4 marks

1 mark per correct letter | Worked reasoning for every question

How students did = from Pearson examiner reports, where available

Answer key

Q1	Q2	Q3	Q4
A	D	B	D

Easy

Questions 1–4

1 **A**

Conditions for fusion in stars · Edexcel IAL October 2023 · Unit 5 · Q1

Nuclei must get very close despite their electrostatic repulsion, which needs a very high temperature (high kinetic energy). A high density is also needed so that collisions happen often enough to sustain the reaction.

How students did: Examiners reported that at least 60% of students got this right in October 2023.

2 **D**

Conditions for sustained fusion in a star's core · Edexcel IAL June 2022 · Unit 5 · Q5

The temperature must be very high so nuclei move fast enough to overcome their electrostatic repulsion, and the density must be very high so that collisions are frequent enough to sustain the fusion.

3 **B**

What fission and fusion have in common · Edexcel IAL October 2022 · Unit 5 · Q1

In both, the products have a greater binding energy per nucleon than the original nuclei, and the extra binding energy is released. Fusion needs very high temperatures but fission does not; neither is free of harmful radiation.

4 **D**

Why fusion happens mainly in the Sun's core · Edexcel IAL June 2021 · Unit 5 · Q4

Fusion needs nuclei to approach closely despite their electrostatic repulsion, which requires a very high temperature (and density). The temperature is greatest in the core, so that is where fusion mainly occurs.

End of mark scheme. Answers from Pearson's published mark schemes; explanations written for this pack. Pearson Edexcel material is © Pearson Education Ltd. More free packs and 1-to-1 tuition: **www.getbetteratphysics.co.uk**

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