**13*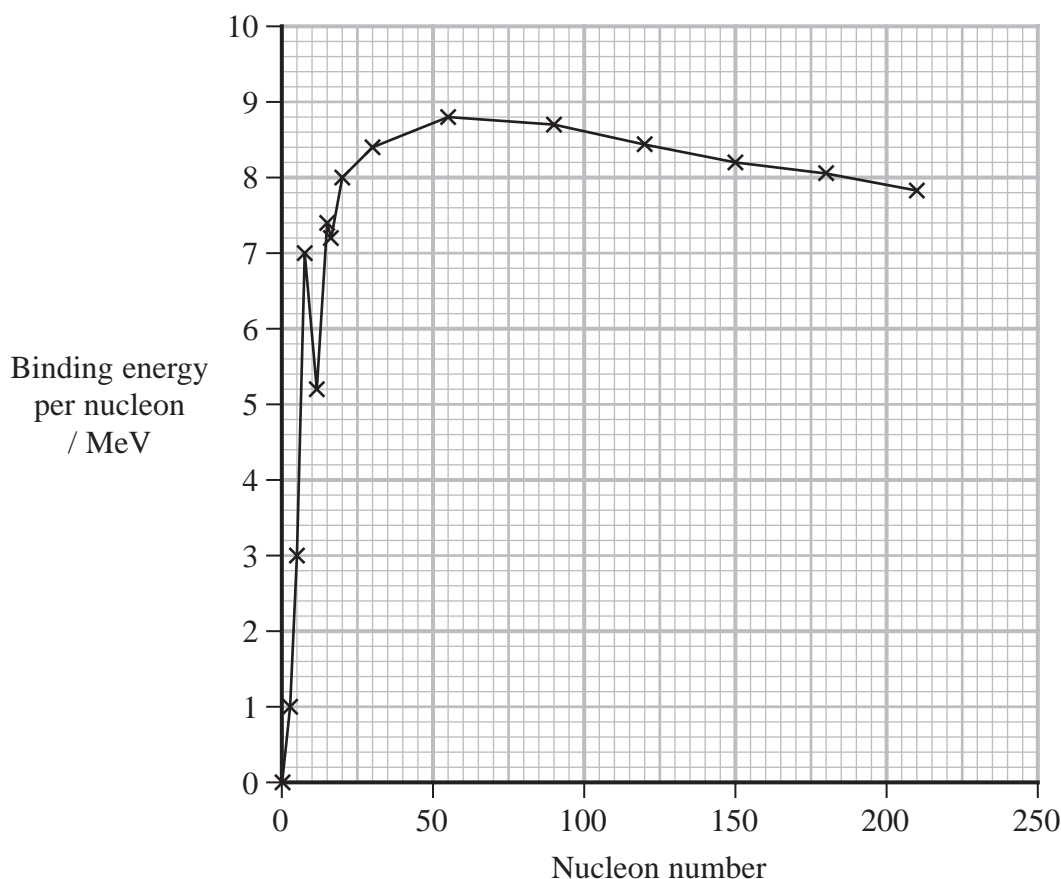* A fusion research centre was opened in Rotherham in 2021. The centre has a device which tests materials in the extreme conditions found inside a fusion reactor.

(a) Describe the extreme conditions inside a fusion reactor.

(3)

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(b) The graph shows how the binding energy per nucleon varies with nucleon number for a range of nuclides.

Explain why the fusion of nuclei can produce large amounts of energy. Your answer should refer to information from the graph.

(3)

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(Total for Question 13 = 6 marks)