

12 (a) (i) Define nuclear *binding energy*.

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..... [2]

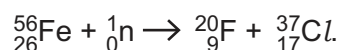
(ii) Explain what is meant by a *nuclear fission* reaction.

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..... [2]

(b) A student suggests that one possible nuclear reaction is



The binding energy per nucleon of a nucleus varies with the nucleon number.  
Use this variation to explain why the reaction would **not** result in an overall release of energy.

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..... [3]

[Total: 7]

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