For Examiner's Use

5 An induced nuclear fission reaction may be represented by the equation

$$^{235}_{92}U + ^{1}_{0}n \rightarrow ^{141}_{56}Ba + ^{92}_{36}Kr + 3^{1}_{0}n + \text{energy}$$

The variation with nucleon number A of the binding energy per nucleon B_E is illustrated in Fig. 5.1.

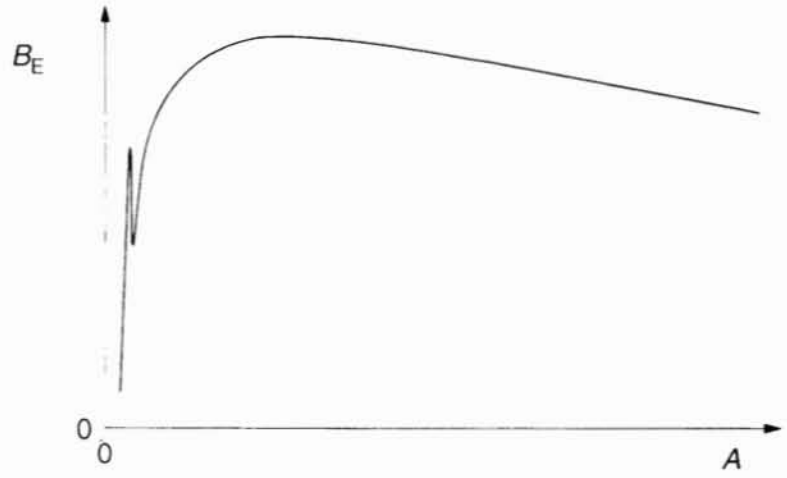

Fig. 5.1

(a) State an approximate value, in MeV, for the maximum binding energy per nucleon.

binding energy per nucleon = ... MeV [1]

(b) On Fig. 5.1, mark approximate positions for the nuclei of

(i) uranium–235 (label the position U), [1]

(ii) barium–141 (label the position Ba), [1]

(iii) krypton–92 (label the position Kr). [1]

(c) By reference to binding energy per nucleon, explain why energy is released in this fission reaction.

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.....[2]

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