12 The incomplete nuclear equation for one possible reaction that takes place in the core of a nuclear reactor is

$$^{235}_{92}U \; + \; ^{1}_{0}n \; \longrightarrow \; ^{139}_{57}La + ^{95}_{42}Mo \; + \; 2^{1}_{0}n \; + \; ....$$

(a) (i) State the name given to this type of nuclear reaction.

.... [1]

(ii) Complete the nuclear equation. [2]

(b) The mass defect for the reaction is 0.223 u.

(i) Calculate the energy, in J, equivalent to 0.223 u.

energy = ... J [2]

(ii) Suggest **two** forms of the energy released in this reaction.

1. ....

....

2. ....

.... [2]

[Total: 7]

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