

- 7 (a) Two isotopes of uranium are uranium-235 ($^{235}_{92}\text{U}$) and uranium-238 ($^{238}_{92}\text{U}$).

(i) Describe in detail an atom of uranium-235.

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..... [4]

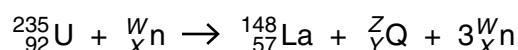
(ii) With reference to the two forms of uranium, explain the term *isotopes*.

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..... [2]

- (b) When a uranium-235 nucleus absorbs a neutron, the following reaction may occur:



(i) Determine the values of Y and Z.

Y =

Z =

[2]

(ii) Explain why the sum of the masses of the uranium nucleus and of the neutron does not equal the total mass of the products of the reaction.

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..... [2]

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