

- 7 (a) Nuclei X and Y are different isotopes of the same element.

Nucleus X is unstable and emits a β^+ particle to form nucleus Z.

By comparing the number of protons in each nucleus, state and explain whether the charge of nucleus X is less than, the same as or greater than the charge of:

- (i) nucleus Y

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[1]

- (ii) nucleus Z.

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[2]

- (b) Hadrons can be divided into two groups (classes), P and Q. Group P is baryons.

- (i) State the name of group Q.

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[1]

- (ii) Describe, in general terms, the quark structure of hadrons that belong to group Q.

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[1]