

6 A sample of a radioactive isotope emits a beam of β^- radiation.

- (a)** State the change, if any, to the number of neutrons in a nucleus of the sample that emits a β^- particle.

.....[1]

- (b)** The number of β^- particles passing a fixed point in the beam in a time of 2.0 minutes is 9.8×10^{10} .

Calculate the current, in pA, produced by the beam of β^- particles.

current = pA [3]

- (c)** Suggest why the β^- particles are emitted with a range of kinetic energies.

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.....[2]

[Total: 6]