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.

.....

.....

.....

.....[2]

[Total: 6]

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