

6 Strontium-90 is a radioactive nuclide.

(a) Explain what is meant by *radioactive*.

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.....[2]

(b) A sample of Strontium-90 has a mass of 2.40×10^{-8} g. The average activity of this sample during a period of 1 hour is found to be 1.26×10^5 Bq.

(i) Define *decay constant*.

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.....[2]

(ii) Calculate the decay constant of Strontium-90.

decay constant = s^{-1} [3]

(c) Suggest why the determination of decay constant by measuring the mass and activity of a sample can be used only for nuclides that have relatively small decay constants.

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.....[1]