

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  $2.40 \times 10^{-8}$  g. The average activity of this sample during a period of 1 hour is found to be  $1.26 \times 10^5$  Bq.

- (i) Define *decay constant*.

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.....  
..... [2]

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

$$\text{decay constant} = \dots \text{ s}^{-1} [3]$$

- (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]