

- 9 (a) Explain what is meant by *radioactive decay*.

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For  
Examiner's  
Use

[2]

- (b) (i) State how the random nature of radioactive decay may be inferred from observations of the count rate.

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- (ii) A radioactive source has a long half-life so that, over a period of several days, its rate of decay remains constant.

State the effect, if any, of a rise in temperature on this decay rate.

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[1]

- (iii) Suggest why some radioactive sources are found to contain traces of helium gas.

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