

10 (a) Radioactive decay is both random and spontaneous.

- (i) State what is meant by random.

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[1]

- (ii) State what is meant by spontaneous.

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[1]

- (iii) State **one** piece of evidence for the random nature of decay.

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[1]

- (b) (i) Describe the differences between nuclear fission and nuclear fusion.

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[3]

- (ii) Explain, with reference to the variation of binding energy per nucleon with nucleon number, why the processes of nuclear fission and nuclear fusion both result in a release of energy.

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[2]