

- 7 Tungsten-184 ( $^{184}_{74}\text{W}$ ) and tungsten-185 ( $^{185}_{74}\text{W}$ ) are two isotopes of tungsten.

Tungsten-184 is stable but tungsten-185 undergoes  $\beta$ -decay to form rhenium (Re).

- (a) Explain what is meant by *isotopes*.

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.....  
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[2]

- (b) The  $\beta$ -decay of nuclei of tungsten-185 is spontaneous and random.

State what is meant by

- (i) *spontaneous* decay,

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.....

[1]

- (ii) *random* decay.

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[1]

- (c) Complete the nuclear equation for the  $\beta$ -decay of a tungsten-185 nucleus.



[2]

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