Answer ALL questions in the spaces provided.

11 A nucleus of rhenium-187 decays to a nucleus of osmium by emitting a β^- particle.

(a) Complete the nuclear equation for the decay of rhenium-187.

(2)

$$^{187}_{75}\text{Re} \rightarrow \underline{}\text{Os} + \underline{}\beta^- + {}^{0}_{0}\bar{v}$$

(b) The energy released in the decay is 2.6 keV. You may assume that, in this case, the beta particle receives all the emitted energy.

Calculate the speed of a β^- particle emitted in this decay.

(3)

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Speed of β^- particle = ...

(Total for Question 11 = 5 marks)