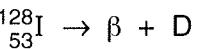


- 6 A nucleus of a radioactive nuclide, $^{128}_{53}\text{I}$, decays by the emission of a β -particle. The decay is represented by the equation



where D is the nucleus formed after the decay.

- (a) State the nuclear notation for D.

..... D

[1]

- (b) The count rate from a sample of the isotope $^{128}_{53}\text{I}$ at two different times is shown in Fig. 6.1.

| time/s | count rate/ s^{-1} |
|--------|-----------------------------|
| 2000 | 175 |
| 6000 | 28 |

Fig. 6.1

Use the information in Fig. 6.1 to calculate the half-life of $^{128}_{53}\text{I}$.

half-life = s [3]