

- 29** In this question, use the following values for the masses of the proton, the neutron and the electron.

$$\text{proton mass } m_p = 1.00728 \text{ u}$$

$$\text{neutron mass } m_n = 1.00867 \text{ u}$$

$$\text{electron mass } m_e = 0.00055 \text{ u}$$

The particles making up a zirconium atom of nucleon number 90 and proton number 40 are completely separated to infinity.

What is the total mass of the separated particles?

- A** 90.0000 u **B** 90.7247 u **C** 90.7328 u **D** 90.7467 u

- 30** Today, the activity of a sample of caesium 137 is $4.0 \times 10^5 \text{ Bq}$. The half-life of caesium 137 is 32