

38 What are isotopes?

- A** nuclei of different elements with the same number of neutrons
- B** nuclei of different elements with the same number of nucleons
- C** nuclei of the same element with different numbers of neutrons
- D** nuclei of the same element with different numbers of protons

39 A nucleus of ${}^1_0\text{n}$ is fired at a ${}^{235}_{92}\text{U}$ nucleus. The reaction is ${}^1_0\text{n} + {}^{235}_{92}\text{U} \rightarrow {}^{141}_{54}\text{Xe} + {}^{92}_{38}\text{Kr} + 3{}^1_0\text{n}$. The mass of the ${}^{141}_{54}\text{Xe}$ nucleus is 140.914411 u, the mass of the ${}^{92}_{38}\text{Kr}$ nucleus is 91.926156 u, the mass of the ${}^1_0\text{n}$ nucleus is 1.008665 u, and the mass of the ${}^{235}_{92}\text{U}$ nucleus is 235.043924 u. Calculate the energy released in this reaction.