

- 40** Nuclei of atoms can exist in excited states. When an excited nucleus returns to its state of lowest energy (the ground state), a  $\gamma$ -ray photon may be emitted.

The mass of a nucleus in its ground state is  $59.9308\text{ u}$ . The energy of the photon emitted when this nucleus returns from an excited state to the ground state is  $2.13 \times 10^{-13}\text{ J}$ .

What is the mass of the nucleus in the excited state?

- A**  $59.9280\text{ u}$
- B**  $59.9294\text{ u}$
- C**  $59.9322\text{ u}$
- D**  $59.9337\text{ u}$

