

- 29** When an isotope of boron,  $^{10}_{5}B$  captures a slow neutron, it splits into lithium  $^{7}_{3}Li$  and an alpha particle. An emission of  $\gamma$ -ray occurs during this reaction.

The nuclear binding energies of the reactants and products are

$$^{10}_{5}B : 64.94 \text{ MeV}$$

$$^{7}_{3}Li : 39.25 \text{ MeV}$$

$$^{4}_{2}He : 28.48 \text{ MeV}$$

If the total kinetic energies of the products produced is 2.31 MeV, what is the energy of the  $\gamma$ -ray emitted?

- A** 0.48 MeV
- B** 2.79 MeV
- C** 10.77 MeV
- D** 25.69 MeV