

Marks
2

- Scholars think that a parchment scroll recently found in the Middle East could have originated from the same group responsible for the Dead Sea Scrolls. If a modern piece of parchment has an activity of $4.0 \times 10^{-4} \text{ Ci g}^{-1}$, calculate the expected activity of the recently discovered scroll if it originated 2100 years ago.

Answer:

- ^{11}C is an unstable isotope of carbon. Which force within the ^{11}C nucleus is responsible for its instability? Explain.

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Which force is responsible for the greater stability of the ^{12}C isotope compared to the ^{11}C isotope? Explain.