1. Write the nuclear reaction producing a proton and a beta particle from a neutron.

\[ ^{0}n \rightarrow ^{1}p + ^{0}_{-1}e \quad \text{or} \quad ^{0}n \rightarrow ^{1}H + ^{0}_{-1}e \]

2. In a medical diagnostic test, 160.0 mg of technicium-99 was administered to a person. How much of the radioisotope would remain after 3 half-lives?

You must show your calculation.

\[
\text{fraction remaining} = \frac{1}{2^n} = \frac{1}{2^3} = \frac{1}{8}
\]

\[
\frac{1}{8} \times 160.0 \text{ mg} = 20.00 \text{ mg}
\]