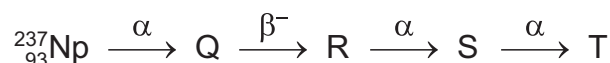


- 38** The diagram shows a sequence of radioactive decays involving three α -particles and a β^- particle.



What is nuclide T?

- A** ${}_{88}^{225}\text{Ra}$ **B** ${}_{88}^{231}\text{Ra}$ **C** ${}_{90}^{225}\text{Th}$ **D** ${}_{90}^{229}\text{Th}$

- 38** What is the correct equation for β^+ decay?

- A** neutron $\rightarrow$ proton + electron + electron antineutrino
B neutron $\rightarrow$ proton + electron + electron neutrino
C proton $\rightarrow$ neutron + positron + electron antineutrino
D proton $\rightarrow$ neutron + positron + electron neutrino

- 39** A nucleus of polonium, ${}_{84}^{214}\text{Po}$, decays by emitting an α -particle to become a nucleus of lead.

The nucleus of lead is also unstable and decays by emitting a β^- particle to form a nucleus of bismuth which then decays by emitting a β^- particle to produce a nucleus X.

What is the number of neutrons in nucleus X?

- A** 126 **B** 128 **C** 130 **D** 210

- 37** A uranium atom with a charge of $+2e$ has a nucleon number of 235 and a proton number of 92.

e is the elementary charge.

What is the total number of protons, neutrons and electrons in this charged atom?

- A** 235 **B** 325 **C** 327 **D** 329