

**38** Which fundamental particles form a hadron?

- A** leptons
- B** nucleons
- C** photons
- D** quarks

**39** The unstable nuclide  ${}^{218}_{84}\text{X}$  decays through a sequence of emissions of  $\alpha$  and  $\beta^{-}$  particles to form the stable nuclide  ${}^{210}_{83}\text{Y}$ .

How many  $\alpha$  and  $\beta^{-}$  particles are emitted during this decay process?

	$\alpha$ -particles	$\beta^{-}$ particles
<b>A</b>	1	1
<b>B</b>	2	1
<b>C</b>	2	3
<b>D</b>	3	2

**40** Which statement about radioactive decay is correct?

- A** Neutrinos are always emitted during  $\alpha$ -decay.
- B** The  $\alpha$ -particles emitted from a radioactive sample have a continuous range of kinetic energies.
- C** The  $\beta^{-}$  particles emitted from a radioactive sample have a continuous range of kinetic energies.
- D** The proton number of a nucleus decreases by four when it undergoes  $\alpha$ -decay.