

- 7 (a) In the following list, underline **all** the particles that are **not** fundamental.

antineutrino baryon nucleon positron [1]

- (b) A nucleus of thorium-230 ($^{230}_{90}\text{Th}$) decays in stages, by emitting α -particles and β^- particles, to form a nucleus of lead-206 ($^{206}_{82}\text{Pb}$).

Determine the total number of α -particles and the total number of β^- particles that are emitted during the sequence of decays that form the nucleus of lead-206 from the nucleus of thorium-230.

number of α -particles =

number of β^- particles =

[2]

- (c) A meson has a charge of $-1e$, where e is the elementary charge. The quark composition of the meson includes a charm antiquark.

State and explain a possible flavour (type) of the other quark in the meson.

.....

..... [2]

[Total: 5]