

- 15 Caesium-137, ^{137}Cs , is a common product of uranium fission.
Very small samples of ^{137}Cs can be used to calibrate radiation detector equipment.

(a) ^{137}Cs decays to an isotope of barium by emitting a β^- particle.

Complete the nuclear equation for the decay of ^{137}Cs .

(2)



(b) A sample of pure ^{137}Cs has an activity of 7400 Bq.

Calculate the mass, in kg, of the sample.

half-life of $^{137}\text{Cs} = 30.2$ years

mass of ^{137}Cs atom = 137 u

1 year = 3.15×10^7 s

(4)

Mass of sample = kg

(Total for Question 15 = 6 marks)