

6 The nuclide  ${}^3_1\text{H}$  is an isotope of hydrogen that is called tritium.

(a) (i) Determine the numbers of protons, neutrons and electrons in a neutral atom of tritium.

number of protons = .....

number of neutrons = .....

number of electrons = .....

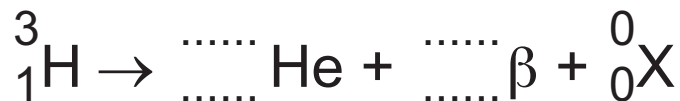
[2]

(ii) Draw a labelled diagram to represent a simple model of the arrangement of the protons, neutrons and electrons in a tritium atom.

[2]

(b) Tritium is radioactive and undergoes  $\beta^-$  decay to form an isotope of helium (He). Gamma radiation is not emitted during this decay.

(i) Complete the equation to represent the radioactive decay of tritium.



[2]

(ii) State the name of particle X.

..... [1]

(c) Determine the quark composition of a tritium nucleus.

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..... [2]

[Total: 9]