9 This is a question about nuclear energy.

(a) Nuclear fusion can take place between different isotopes of hydrogen to produce an isotope of helium.

(i) Complete the nuclear equation for this process.

(2)

$$^{2}_{1}H + ^{3}_{1}H \longrightarrow \square\ ^{}_{2}He + ^{1}_{}n + \square$$

(ii) This process also results in the release of energy.

State where the fusion process takes place naturally.

(1)

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(iii) Explain why the isotopes of hydrogen must be heated to a very high temperature for fusion to take place.

(3)

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(b) Nuclear fission also results in a release of energy.

Explain how nuclear fission differs from nuclear fusion.

(2)

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(Total for Question 9 = 8 marks)