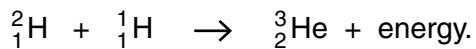


- 8 (a) State what is meant by a *nuclear fusion reaction*.

.....

 [2]

- (b) One nuclear reaction that takes place in the core of the Sun is represented by the equation



Data for the nuclei are given in Fig. 8.1.

	mass/u
proton ^1_1H	1.00728
deuterium ^2_1H	2.01410
helium ^3_2He	3.01605

Fig. 8.1

- (i) Calculate the energy, in joules, released in this reaction.

$$\text{energy} = \dots \text{J} [3]$$

- (ii) The temperature in the core of the Sun is approximately $1.6 \times 10^7\text{K}$. Suggest why such a high temperature is necessary for this reaction to take place.

.....

 [2]