Question Number	Answer	Mark
14(a)	Use of $I = \frac{L}{4\pi d^2}$ (1) $L_{Sun} = 3.9 \times 10^{26}$ (W) (1) Example of calculation $L_{Sun} = 4\pi \times (1.50 \times 10^{11}\ \text{m})^2 \times 1.37 \times 10^3\ \text{W} = 3.87 \times 10^{26}\ \text{W}$	**2**
14(b)	Use of $\Delta E = c^2 \Delta m$ **and** use of $P = \frac{\Delta W}{\Delta t}$ (1) $\Delta m = 1.4 \times 10^{17}$ kg ecf from (a) (1) Example of calculation $\Delta m = \frac{3.87 \times 10^{26}\ \text{J s}^{-1} \times 3.15 \times 10^7\ \text{s}}{(3.0 \times 10^8\ \text{m s}^{-1})^2} = 1.35 \times 10^{17}\ \text{kg}$	**2**
	Total for question 14	**4**