

Answer **all** the questions in the spaces provided.

- 1 (a) Show that the SI base units of power are $\text{kg m}^2 \text{s}^{-3}$.

[3]

- (b) The rate of flow of thermal energy $\frac{Q}{t}$ in a material is given by

$$\frac{Q}{t} = \frac{CAT}{x}$$

where A is the cross-sectional area of the material,
 T is the temperature difference across the thickness of the material,
 x is the thickness of the material,
 C is a constant.

Determine the SI base units of C .

base units [4]