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

For Examiner's Use

1 Energy is stored in a metal wire that is extended elastically.

(a) Explain what is meant by *extended elastically*.

.....

..... [2]

(b) Show that the SI units of energy per unit volume are $kg\,m^{-1}\,s^{-2}$.

[2]

(c) For a wire extended elastically, the elastic energy per unit volume X is given by

$$X = C\varepsilon^2 E$$

where C is a constant,
ε is the strain of the wire,
and E is the Young modulus of the wire.

Show that C has no units.

[3]