

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 $\text{kg m}^{-1} \text{s}^{-2}$.

[2]

(c) 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]