

- 1 (a) State two SI base units other than the kilogram, metre and second.

1. ....

2. ....

[2]

- (b) A metal wire has original length  $l_0$ . It is then suspended and hangs vertically as shown in Fig. 1.1.

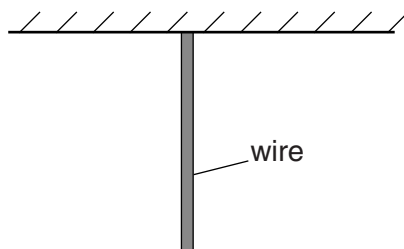


Fig. 1.1

The weight of the wire causes it to stretch. The elastic potential energy stored in the wire is  $E$ .

- (i) Show that the SI base units of  $E$  are  $\text{kg m}^2 \text{s}^{-2}$ .

[2]

(ii) The elastic potential energy  $E$  is given by

$$E = C\rho^2 g^2 A l_0^3$$

where  $\rho$  is the density of the metal,  
 $g$  is the acceleration of free fall,  
 $A$  is the cross-sectional area of the wire  
and  $C$  is a constant.

Determine the SI base units of  $C$ .

SI base units of  $C$  .....[3]