1 **(a)** State two SI base quantities other than mass, length and time.

1. .....

2. .....

[2]

(b) A beam is clamped at one end and an object X is attached to the other end of the beam, as shown in Fig. 1.1.

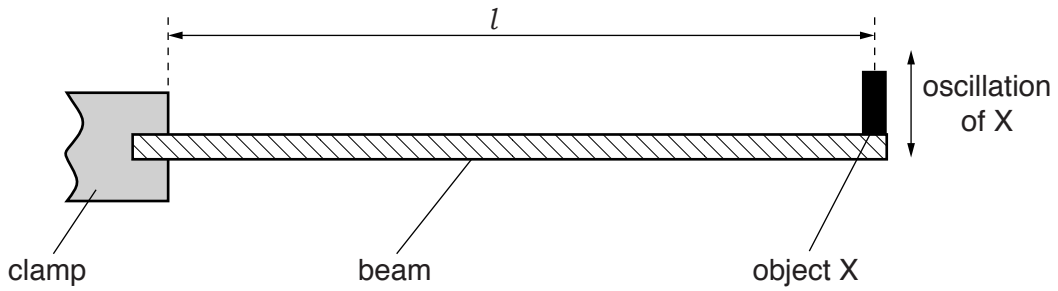

Fig. 1.1

The object X is made to oscillate vertically.

The time period T of the oscillations is given by

$$T = K\sqrt{\frac{Ml^3}{E}}$$

where M is the mass of X,
l is the length between the clamp and X,
E is the Young modulus of the material of the beam
and K is a constant.

(i) **1.** Show that the SI base units of the Young modulus are $kg\,m^{-1}\,s^{-2}$.

[1]