6 **(a)** Define the Young modulus.

.....

..... [1]

(b) A uniform wire is suspended from a fixed support. Masses are added to the other end of the wire, as shown in Fig. 6.1.

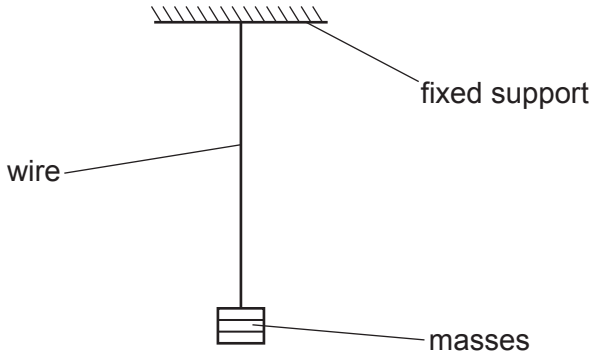

Fig. 6.1 (not to scale)

The variation of the length l of the wire with the force F applied to the wire by the masses is shown in Fig. 6.2.

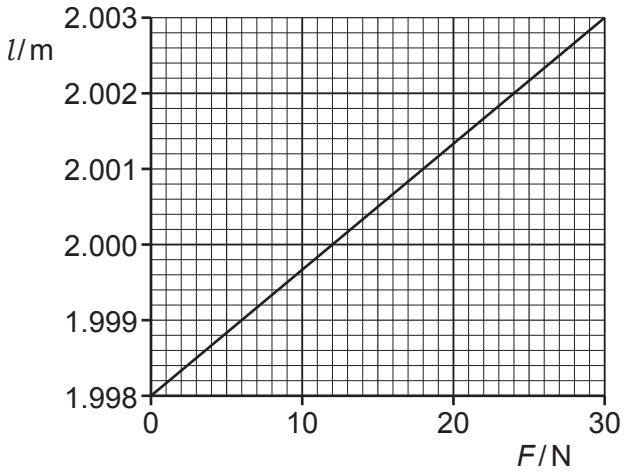

Fig. 6.2

The cross-sectional area of the wire is 0.95 mm^2.

(i) Determine the unstretched length of the wire.

unstretched length = ... m [1]

(ii) For an applied force F of 30 N, determine:

- the stress in the wire

stress = ... Pa

- the strain of the wire.

strain = ...

[3]

[Total: 5]