

- 17** An escalator in an underground station has 25 people standing on it and is moving with a speed of  $4.3\text{ m s}^{-1}$ . The average mass of a person is  $78\text{ kg}$  and the angle of the escalator to the horizontal is  $40^\circ$ .

What is the minimum power required to lift these people?

- A**  $5.4\text{ kW}$                       **B**  $6.4\text{ kW}$                       **C**  $53\text{ kW}$                       **D**  $63\text{ kW}$

- 18** A rectangular block of material has a total length  $10.0\text{ cm}$  and a cross-sectional area  $0.010\text{ m}^2$ . It is held