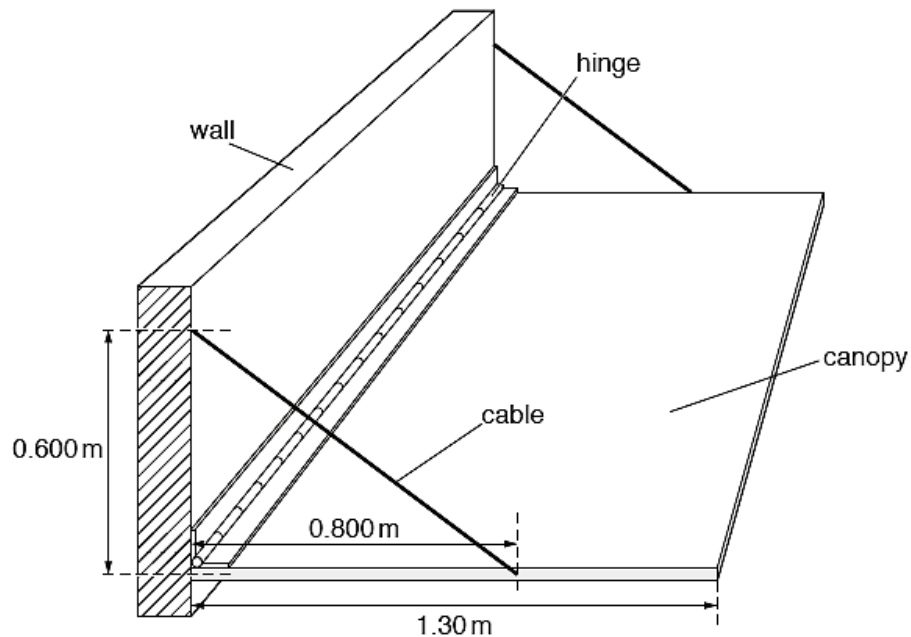**3** A uniform, rectangular canopy is 1.30 m wide. It is kept horizontal and in equilibrium by two steel cables. Fig. 3.1 shows the canopy fixed to the wall by a hinge.

Fig. 3.1 (not to scale)

One end of each cable is attached to the canopy at a distance of 0.800 m from the wall. The other ends are attached to the wall at a distance of 0.600 m above the canopy.

The tension in each cable is 47.5 N.

(a) State the two conditions for an object to be in equilibrium.

1. …………………………………………………………………………………………..

…………………………………………………………………………………………..

2. …………………………………………………………………………………………..

……………………………………………………………………………..…………. [2]

(b) Determine the mass of the canopy.

mass = …………..……… kg [3]

[Turn over

(c) Suggest and explain the direction of the force the hinge must exert on the canopy.

……………………………………………………………………………………..

……………………………………………………………………………………..

……………………………………………………………………………………..

……………………………………………………………………...….. [2]

[Total: 7]