2 **(a)** State what is meant by the *centre of gravity* of a body.

.....

.....

..... [2]

(b) A uniform wooden post AB of weight 45 N stands in equilibrium on hard ground, as shown in Fig. 2.1.

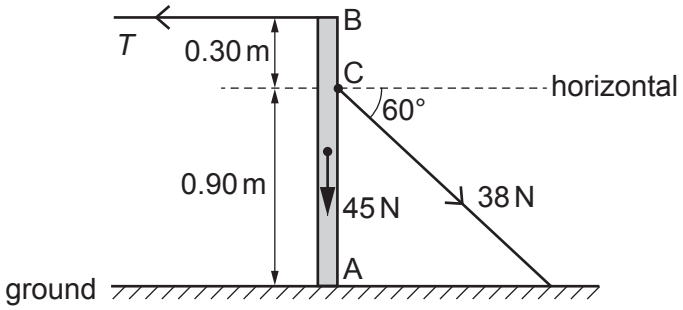

Fig. 2.1 (not to scale)

End A of the vertical post is supported by the ground. A horizontal wire with tension *T* is attached to end B of the post. Another wire, attached to the post at point C, is at an angle of 60° to the horizontal and has tension 38 N. The distances along the post of points A, B and C are shown in Fig. 2.1.

(i) Calculate the horizontal component of the force exerted on the post by the wire connected to point C.

horizontal component of force = ... N [1]

(ii) By considering moments about end A, determine the tension *T*.

T = ... N [2]

(iii) Calculate the vertical component of the force exerted on the post at end A.

force = ... N [1]

[Total: 6]