2 **(a)** State the two conditions that must be satisfied for a body to be in equilibrium.

1. .....

.....

2. .....

.....

[2]

(b) Three co-planar forces act on a body that is in equilibrium.

(i) Describe how to draw a vector triangle to represent these forces.

.....

.....

.....

.....

.....

.....

.....[3]

(ii) State how the triangle confirms that the forces are in equilibrium.

.....

.....[1]

(c) A weight of 7.0 N hangs vertically by two strings AB and AC, as shown in Fig. 2.1.

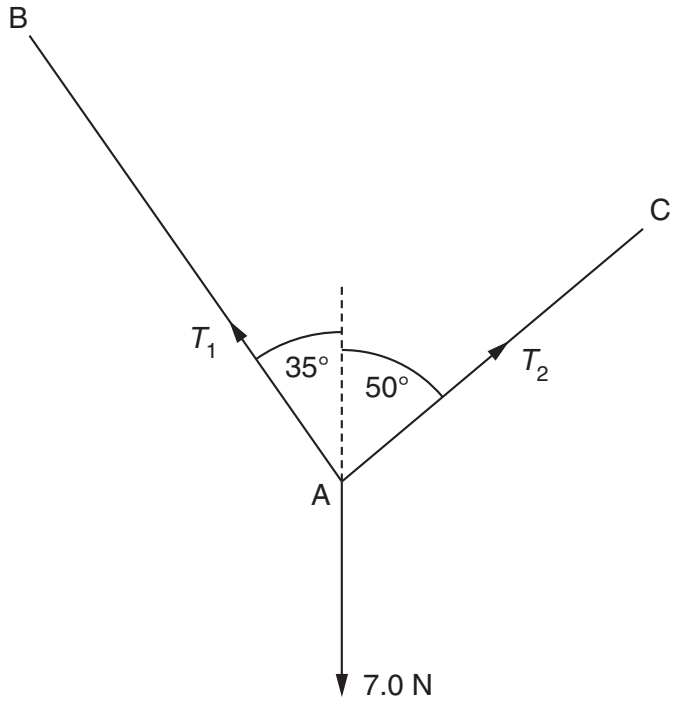

Fig. 2.1

the weight to be in equilibrium, the tension in string AB is T_1 and in string AC it is T_2.

On Fig. 2.1, draw a vector triangle to determine the magnitudes of T_1 and T_2.

T_1 = ... N

T_2 = ... N
[3]

(d) By reference to Fig. 2.1, suggest why the weight could not be supported with the strings AB and AC both horizontal.

.....

.....[2]