

- 1 (a) State the conditions for a rigid body to be in equilibrium.

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

- (b) A uniform rigid rod of mass 30 kg is attached to a vertical wall by a hinge as shown in Fig. 1.1. The other end of the rod is held to the ceiling by a cable.

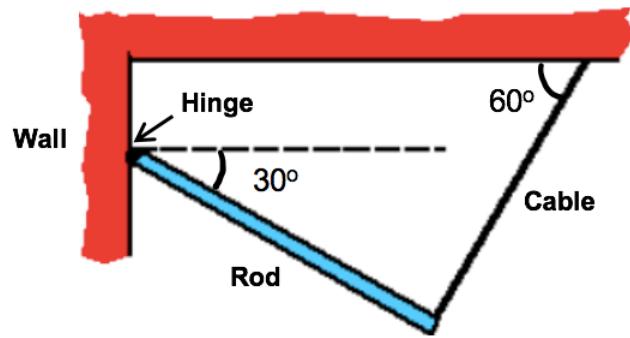


Fig. 1.1

- (i) Draw the free body diagram of the forces acting on the rod in Fig. 1.1. Label all the forces clearly. [2]

(ii) Show that the tension  $T$  in the cable is 127 N.

[2]

(iii) Determine the force acting on the rod by the hinge.

force = ..... N

direction = ..... [4]

[Total: 10]

