Section A

Answer **all** questions in this section in the spaces provided.

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

……

……

…… [2]

(b) A trailer is attached to the towbar of a stationary car as shown in Fig. 1.1.
The weight of the trailer is 1900 N.

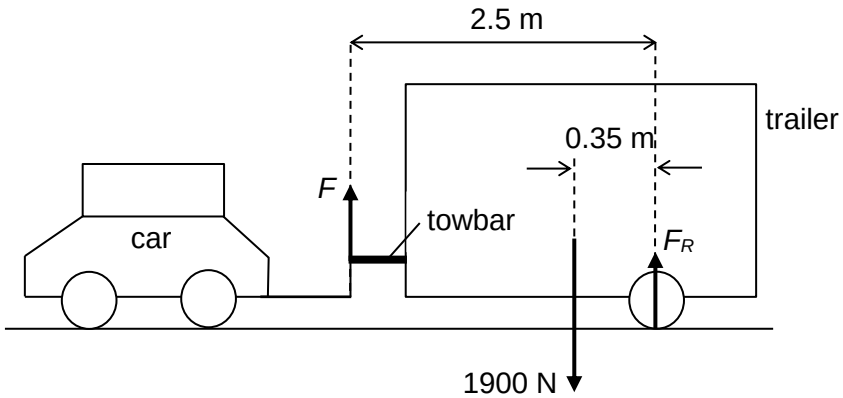

Fig. 1.1 (not to scale)

(i) Calculate the vertical force *F* exerted by the towbar on the trailer.

F = …… N [2]

(ii) F_R is the total normal reaction force of the road on the trailer.
Calculate the force F_R.

F_R = …… N [2]

(c) The car and the trailer move to the left at a constant acceleration of 3.0 m s^{-2}.
The resistive force on the trailer is 200 N.
Calculate the horizontal force exerted by the towbar on the trailer.

horizontal force = …… N [2]