

1

(a)

Define *moment of a force*.

.....

.....

[1]

(b)

A person supports a load of 20 N in his hand as shown in Fig. 1.1. The system of the hand and load is represented by Fig. 1.2. The rod represents the forearm and T represents the tension exerted in the biceps. The forearm weighs 65 N.

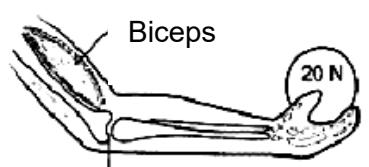


Fig. 1.1

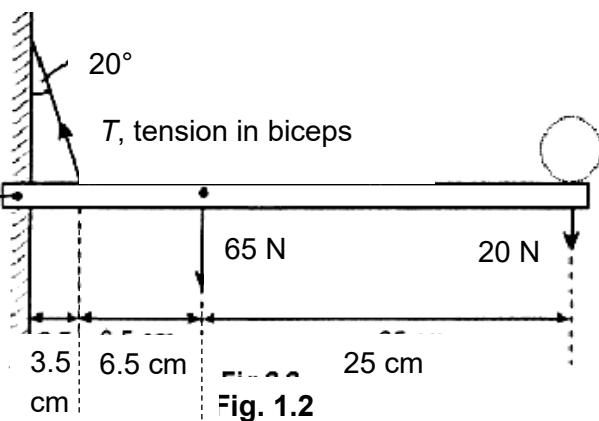


Fig. 1.2

(i)

Show that the tension T in the biceps is 410 N.

[3]

(ii)

Determine the magnitude and direction of the force acting at the elbow.

force acting at the elbow = N

direction of the force:

[4]