

4. (a) Define limiting angle of friction. 2

(b) The block 'A' as shown in Figure. 3 weighs 2000 N. The cord attached to 'A' passes over a frictionless pulley and supports a weight equal to 800 N. The value of the coefficient of friction between A and the horizontal plane is 0.35. Find the value of P, if motion is impending towards left. 5

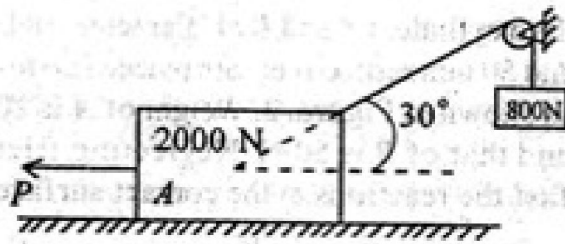


Fig. 3

(c) A 4m ladder weighing 250 N is placed against a smooth vertical wall with its lower end 1.5 m away from the wall. If the coefficient of friction between the ladder and the floor

is 0.3, show that the ladder will remain in equilibrium in this position. 7

5. (a) What do you mean by centroid? 2

(b) State and prove parallel axis theorem. 5

(c) Find the M.I. of a L-section as shown in figure 4 about the centroidal horizontal axis and vertical axis. 7

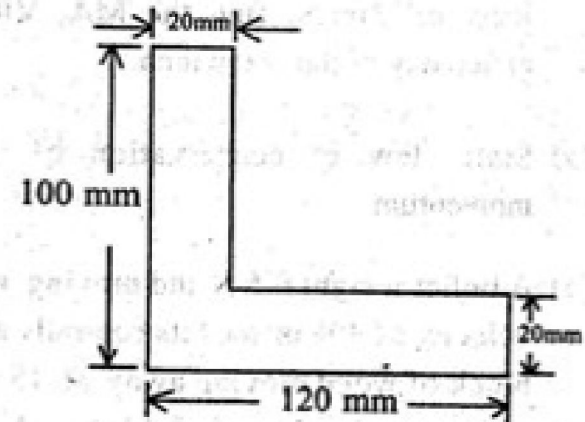


Fig. 4