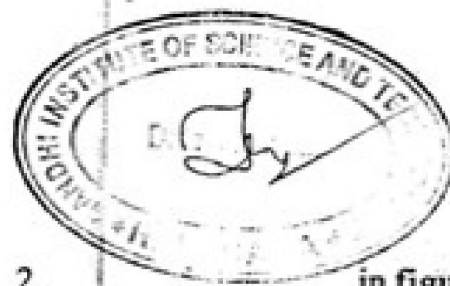


(6)

6. (a) What is a lifting machine? 2
- (b) What do you mean by reversibility of a lifting machine? Derive the condition of reversible machine. 5
- (c) A single purchase crabwinch has 300 mm long handle and 120 mm diameter drum. Number of teeth on the pinion are 25 and that on wheel 130. If an effort of 20 N lifts a load of 300 N, find the MA, VR and efficiency of the crabwinch. 7
7. (a) State law of conservation of linear momentum. 2
- (b) A bullet weighs 0.5 N and moving with a velocity of 400 m/sec hits centrally a 30 N block of wood moving away at 15 m/sec and gets embedded in it. Find the velocity of the bullet and block after impact. 5
- (c) A motorist travelling at a speed of 70 km per



(3)

in figure 1. Find the value of W so that CD remains horizontal. 5

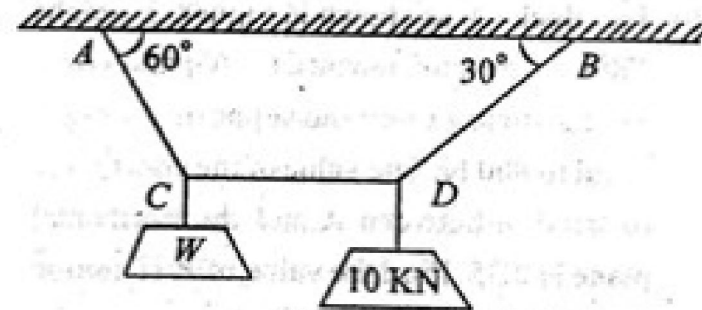


Fig. 1

- (c) Two cylinders A and B of diameter 100 mm and 50 mm respectively are placed in a trough as shown in Figure. 2. Weight of A is 200 N and that of B is 50 N. Neglecting friction find the reactions at the contact surfaces. 7

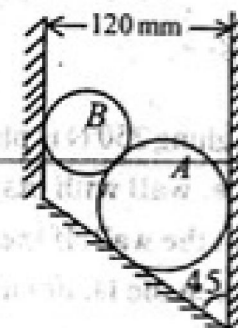


Fig. 2