Shah & Anchor Kutchhi Engineering College Chembur Mumbai

Term- Test- II Subject: Engineering Mechanics

Class: F.E Date: 30/10/2015 Maximum Marks: 20 Duration: 1 hr.

Note: 1) Attempt all the questions. 2) Assume suitable data if necessary.

Q.1) Attempt any five from the following questions. (10)

a) Write down conditions of equilibrium of forces in plane.

b) Write down condition for a perfect truss.

c) Define limiting friction and coefficient of friction.

d) Write down work-energy equation.

e) A ball thrown horizontally from top of 50 m high building hits the ground 20 m from the base of the building. What is the initial velocity of the ball.

f) Explain angle of friction with sketch.

2a) Two blocks A & B of weights 1 KN & 2 KN are in equilibrium. If coefficient of sliding friction at all sliding surfaces 0.3, find force P required to move the block B. Fig. 2a (5)

OR

2b) Two smooth spheres A & B of weight 200 N & 100 N are resting against two smooth vertical walls and smooth horizontal floor as shown in figure. The radius of A is 100 mm & B is 50 mm. Find reactions from vertical walls & horizontal floor. Fig. 2b (5)

3a) A bar AB 2 m long slides down the plane as shown in Fig 3a. The end A slides on horizontal floor with velocity of 3 m/s. Determine the velocity of end B for the position shown. (5)

OR

3b) Two particles of masses M_A = 5 Kg and M_B = 10 Kg are supported as shown. Find acceleration of the blocks. Coefficient of friction = 0.4. Fig. 3b (5)

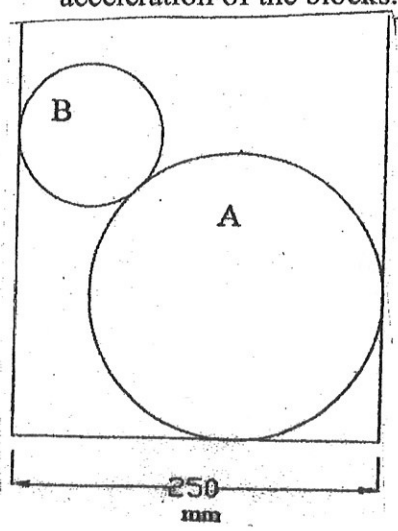

Fig. 2b

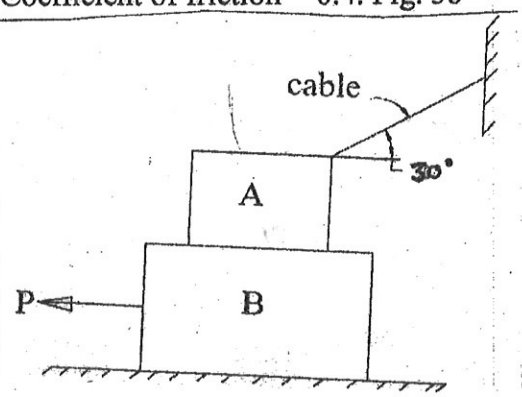

Fig. 2a

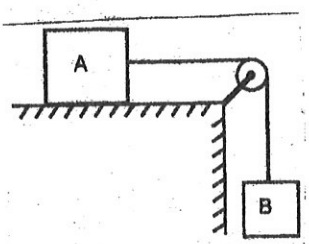

Fig. 3b

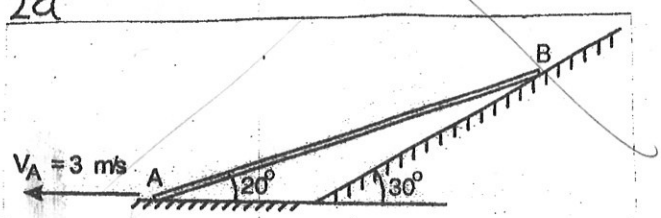

Fig. 3a