

Anjuman-i-Islam's
M.H.Saboo Siddik College Of Engineering
IAE-II

SEM:I

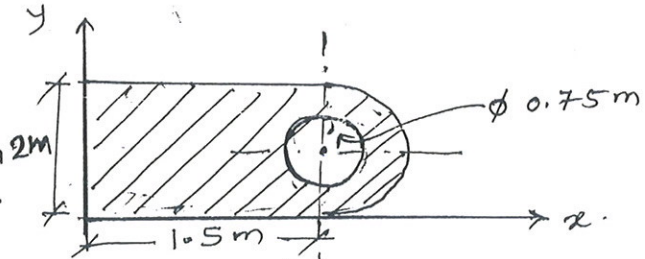
SUB: Engg. Mechanics

Marks: 20

TIM E: 1 Hr

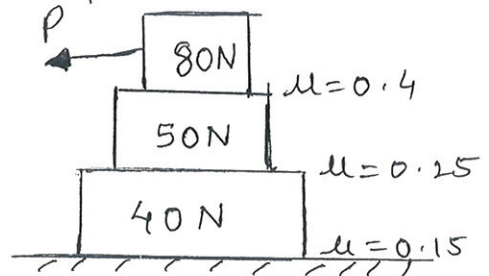
Q.1 is compulsory. [05]

Q.1 Locate the centroid of the shaded area with reference to the coordinate axes.



Q.2 Attempt any one:- [8]

a) Three blocks A, B and C are placed as shown. Determine the maximum value of P that can be applied before any slipping takes place.



OR

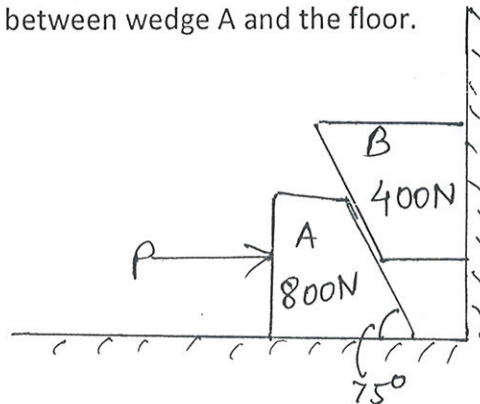
b) The acceleration of an oscillating particle is defined by the relation $a = -kx \text{ m/s}^2$. Determine
i) value of k such that $v = 12 \text{ m/s}$ at $x = 2 \text{ m}$ and $v = 0$ at $x = 6 \text{ m}$.
ii) velocity at $x = 4 \text{ m}$ and iii) maximum velocity.

Q.3 Attempt any one:- [07]

a) A stone is thrown vertically up from the top of the tower 40m high with a velocity of 20m/s. Three seconds later another stone is thrown vertically up from the ground with a Velocity of 30m/s. Calculate when and where the two stones will meet from the foot of tower.

OR

b) Wedges A and B are held in equilibrium by the application of horizontal force P as shown. Find the minimum force P required to do so. Take $\mu = 0.2$ between wedges, $\mu = 0.25$ between wedge B and wall $\mu = 0.3$ between wedge A and the floor.



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