

Course Title : Applied Mechanics
 Course Code : ME1409

Roll No: _____
 Duration : 2 Hrs.
 Maximum Marks : 50

Note:

1. All questions are compulsory and carry equal marks.
2. Assume data as and when required

- 1 Write the moment of inertia of a rectangular section about centroidal axis. MM 4
- 2 Explain superposition law and law of transmissibility. MM 4
- 3 Define motion. Write different types of motion. MM 5
- 4 Define a Free Body Diagram. Give two examples. MM 5
- 5 Uniform lamina shown in fig 1 consists of rectangle, a semi circle and a triangle. Find the center of gravity. MM 8

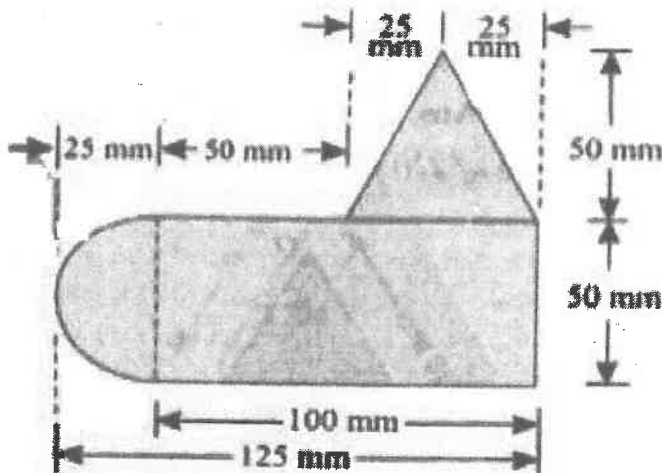


Figure 1

- 6 Find out the mass moment of inertia of a right circular cone of base radius R and mass M about the axis of the cone. MM 8

- 7 Two blocks of masses M_1 and M_2 are connected by a string as shown in Figure.2 below Assuming the coefficient of friction between block M_1 and the horizontal surface to be μ if the system is released from rest, find the velocity of the block A after it has moved a distance of 1 m Assume $M_1=100\text{kg}$.and $M_2=150\text{kg}$ and $\mu =0.20$.

MM 8

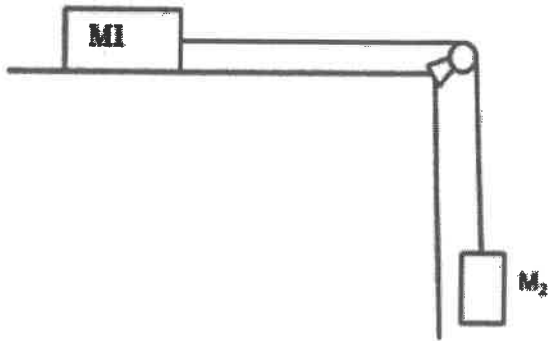


Figure. 2

- 8 A body moving with uniform acceleration observed to travel 33m in 8th second and 53m in 13 second of its travel. Calculate the velocity at start and uniform acceleration.

MM 8