Center Code:033

Enrolment No._____ Student sign:-_____

GUJARAT TECHNOLOGICAL UNIVERSITY

Mahatma Gandhi Institute of Tech. Education & Research Center, Navsari

B. E. F. Y. (SEM – II) MID SEMESTER EXAMINATION - MARCH 2009

Subject: Mechanics of Solids **(Code: 110010)**

Date: 25/03/2009 **Time: 90 Minutes** **Max. Marks: 40**

Q-1 Do as directed. **(12)**

(a) State the Lami's theorm. **(01)**

(b) Define particle and rigid body **(01)**

(c) Give the equation with figure semi circular lamina and wire. **(01)**

(d) Define the point of contraflecture. **(01)**

(e) Give the definition of shear force and bending moment. **(01)**

(f) Using first principle calculate centroid of rectangular lamina. **(02)**

(g) Calculate the support reaction of beam (Figure No 1). **(05)**

Q-2 Using joint method, calculate the forces in all the member of truss. Put the result in tabular form**.** (Figure No 2) **(14)**

OR

Q-2 Draw the S.F.D. and B.M.D. of double overhanging beam. Locate the point of contraflecture if any. (Figure No 3) **(14)**

Q-3 **(a)** Find out magnitude and direction of force P if resultant of force system is 50 N vertically upward. (Figure No 4) **(07)**

(b) Locate centroid of shaded area. (Figure No 5) **(07)**

OR

Q-3 **(a)** Using Pappuls guide line theorm, find out the surface area of revolution about OY-axis. (Figure No 6) **(07)**

(b) Find out magnitude and direction of resultant force. Also locate position of resultant force with respect to point "O". (Figure No 7) **(07)**

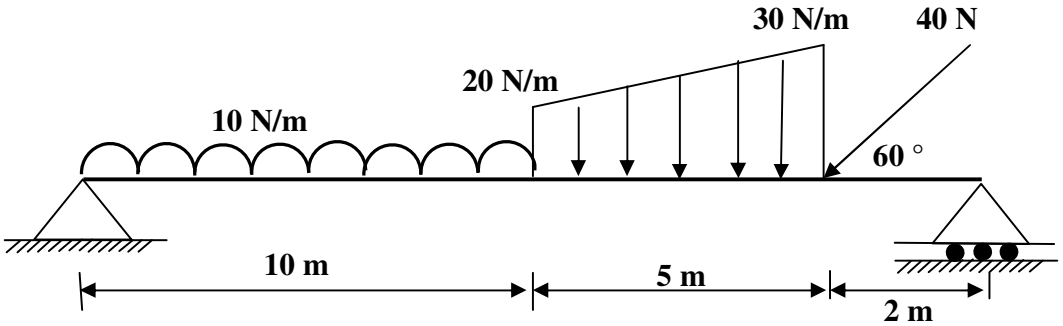

Figure No 1

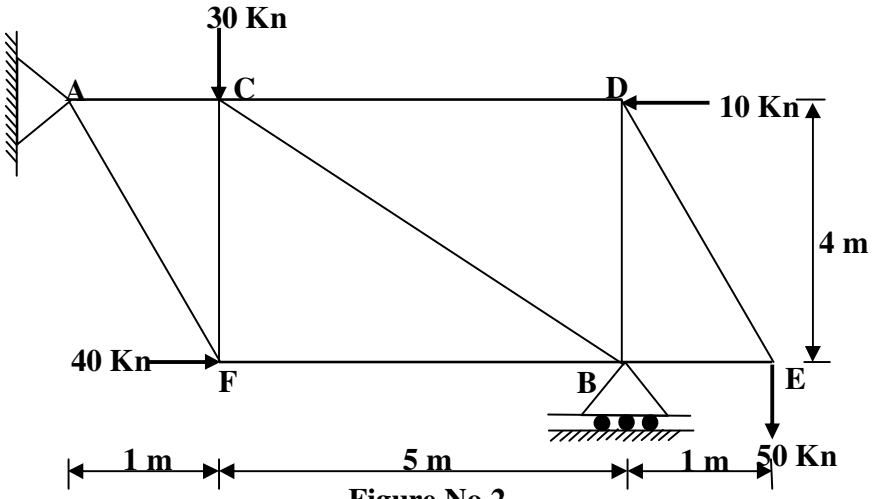

Figure No 2

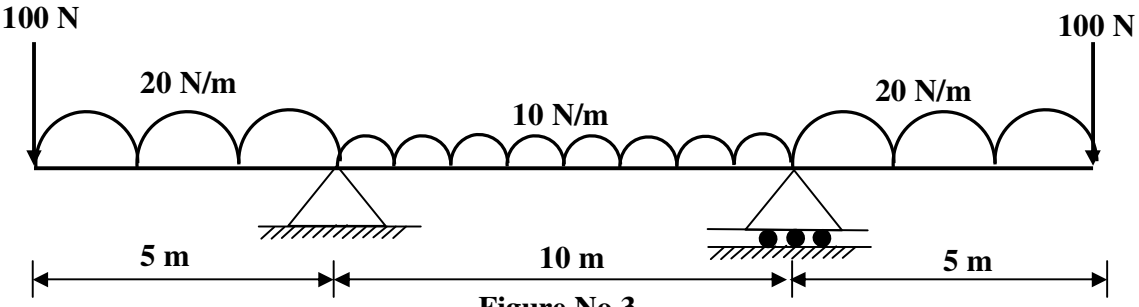

Figure No 3

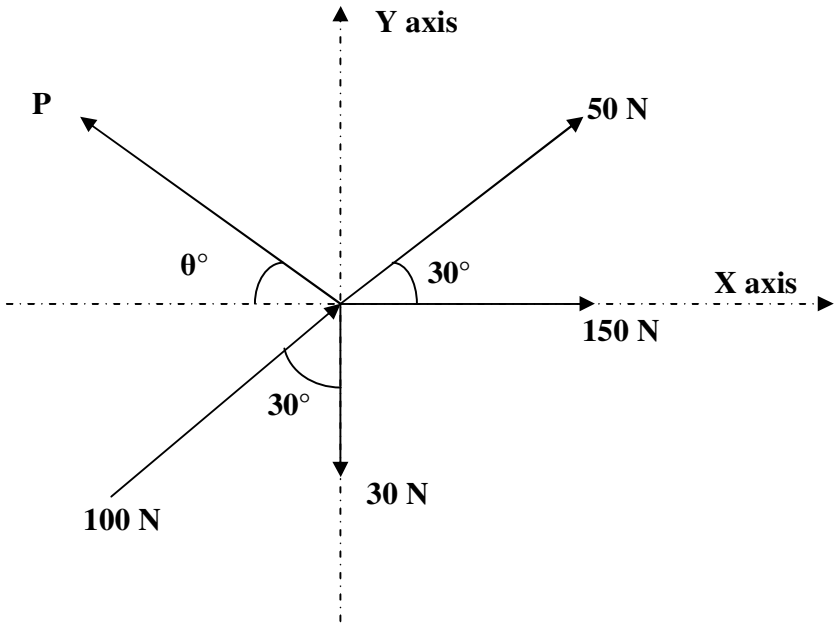

Figure No 4

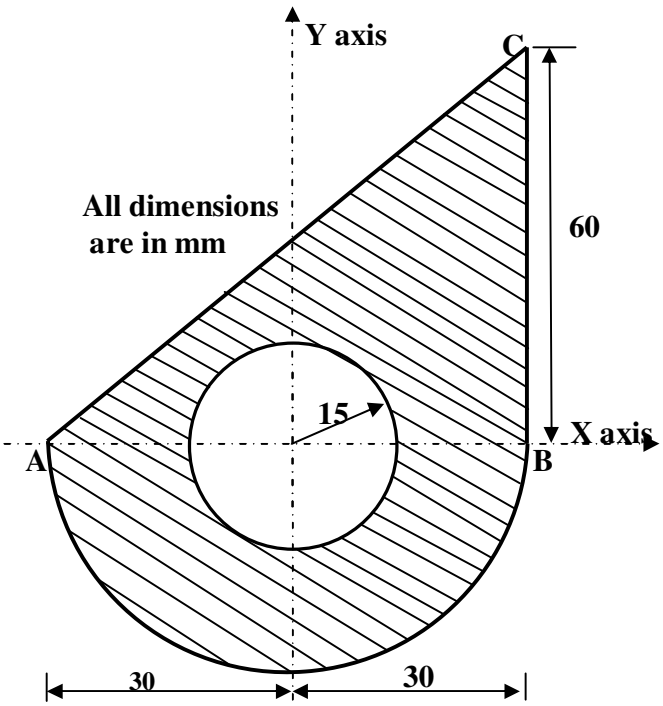

Figure No 5

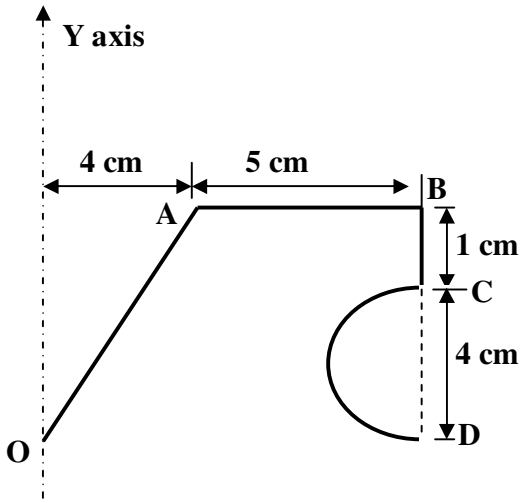

Figure No 6

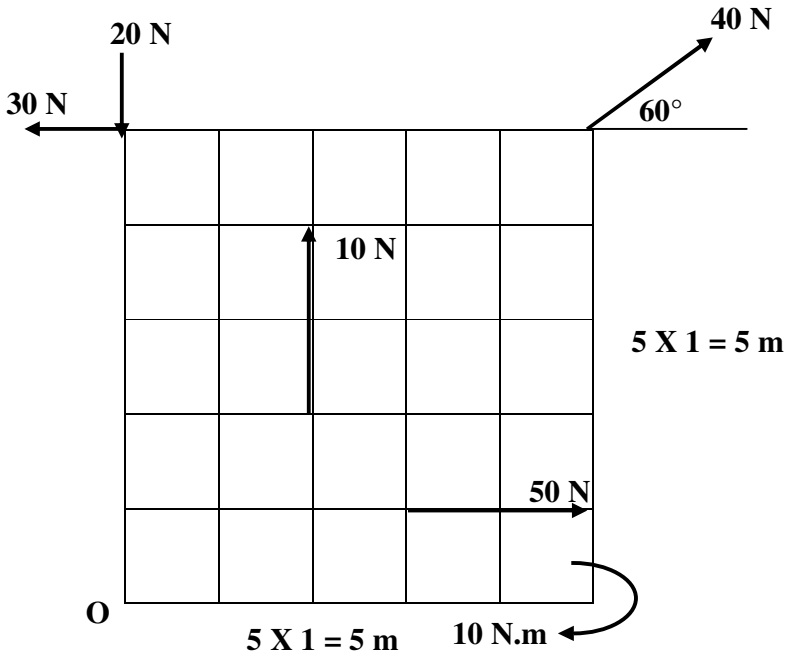

Figure No 7