

Ajay Kumar Garg Engineering College, Ghaziabad
Department of Mechanical Engineering
Sessional Test-2

Course: B.Tech	Semester: 1
Session: 2017-18	Section: ME1,2,3, EC1,2,3, CE1,2
Subject: Elements of Mechanical Engg	Sub. Code: RME-101
Max Marks: 50	Time: 2 hour

SECTION –A

Attempt all the questions.

(5X2=10)

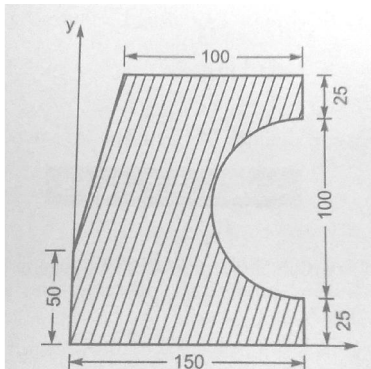
1. Write the assumptions made in the analysis of truss.
2. Explain E,G and K.
3. Write the relationship between load, shear force and bending moment.
4. State the parallel axis theorem and perpendicular axis theorem for moment of inertias of areas.
5. Draw stress-strain diagram for mild steel.

SECTION-B

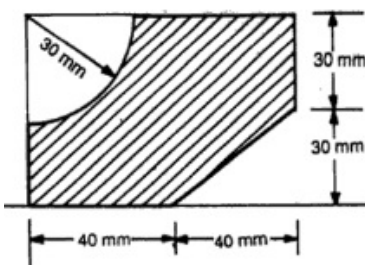
Attempt all the questions.

(5X5= 25)

6. Determine the centroid of the shaded plane area shown.

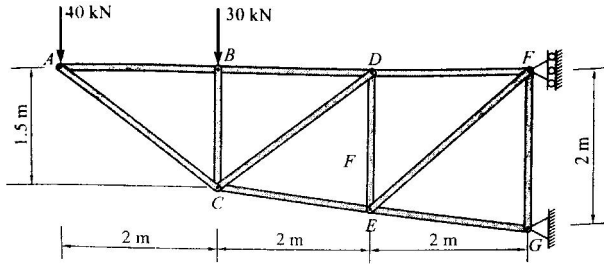


7. Find the moment of inertia of given figure about horizontal centroidal axis.

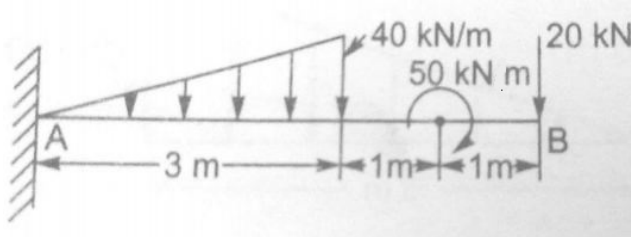


8. Derive the expression for elongation of rectangular tapered bar subjected to longitudinal load.

9. For the truss shown in figure, calculate the forces in members BD, CD and CE by the method of section.



10. Draw the shear force and bending moment diagram of the beam shown in figure with calculations.

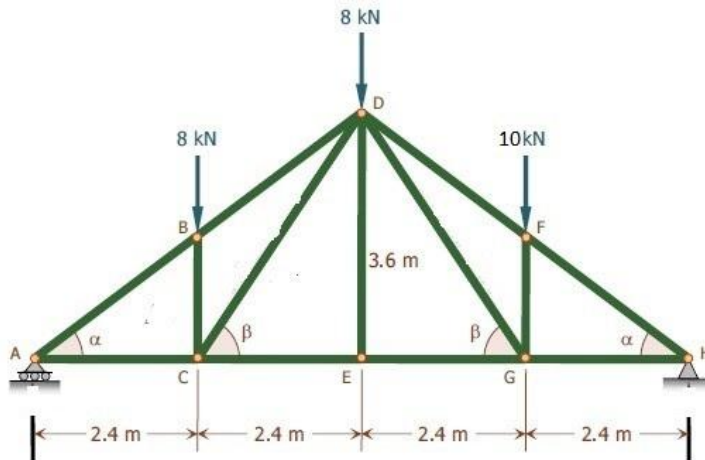


Section-C

Attempt all the questions.

(2X7.5=15)

11. Find the axial forces in all the members of the truss shown in figure.



12. Draw the shear force and bending moment diagram of the beam shown in figure with calculations. Also find the point of contraflexure if any?

