

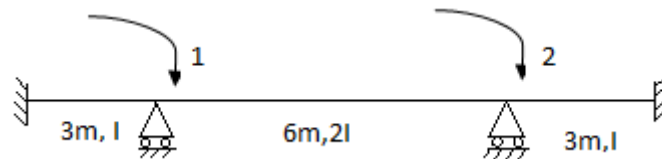
06CE6151

Reg. No _____

Name _____

A P J ABDUL KALAM TECHNOLOGICAL UNIVERSITY**M.TECH DEGREE EXAMINATION, DECEMBER 2016****FIRST SEMESTER****Branch: Civil****Advanced Analysis of Structures****Time: 3 Hours****Max. Marks: 60****PART A***Answer ALL questions*

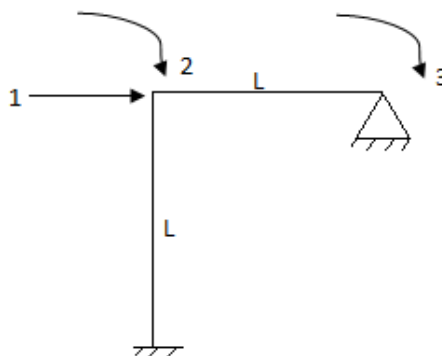
1. Generate the stiffness matrix for the beam shown in figure with respect to the coordinates shown.



2. Explain the steps involved in the analysis of beams subjected to temperature variation using stiffness method.
3. Derive the transformation matrix for a truss element.
4. Derive the flexibility matrix for beam element.

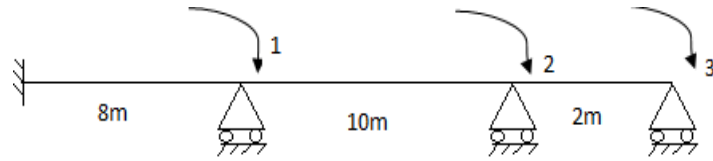
(4 x 5 marks =20 marks)**PART B**

5. Set up the stiffness matrix for the system shown in figure.

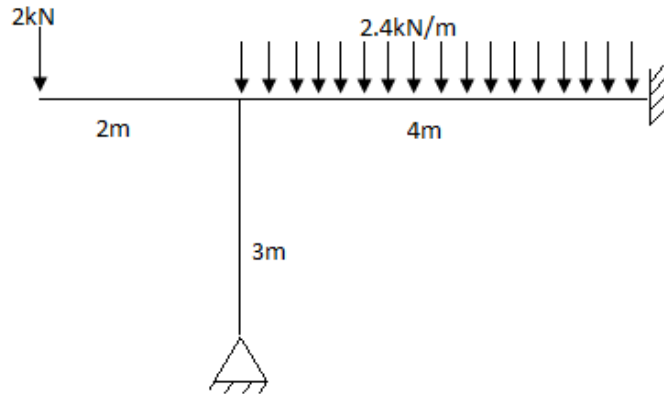


OR

6. Assemble the stiffness matrix for the beam shown in figure.

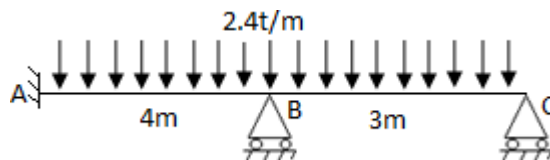


7. Analyze the frame shown in figure by stiffness method. EI is uniform.

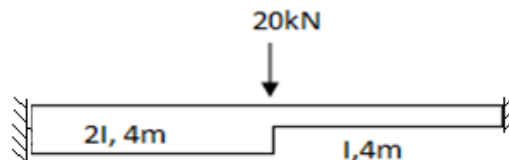


OR

8. Analyze the beam shown in figure by stiffness method if the support B and C settles by 1 cm and 0.5 cm respectively. Take $EI = 320 \text{ tm}^2$.

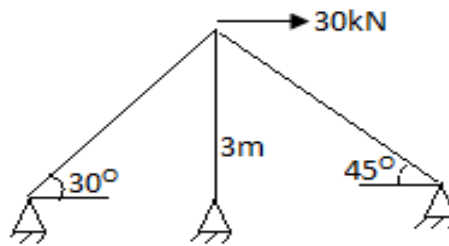


9. Analyze using direct stiffness method.

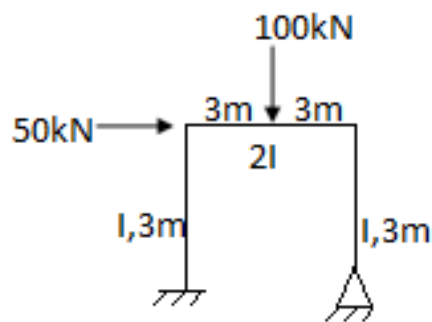


OR

10. Analyze the truss shown in figure by direct stiffness method.

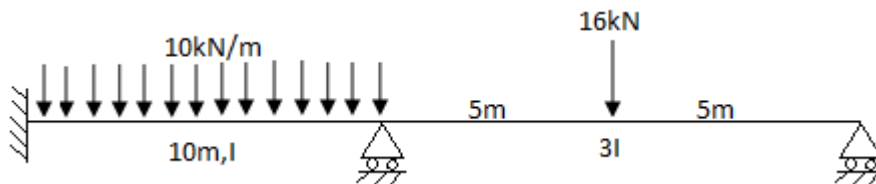


11. Analyze the frame shown in figure by matrix flexibility method.



OR

12. Analyze the continuous beam shown in figure by matrix flexibility method.



(4 x 10 marks =40 marks)