Code No: I8702/R16

M. Tech. I Semester Regular Examinations, December-2016

MATRIX ANALYSIS OF STRUCTURES

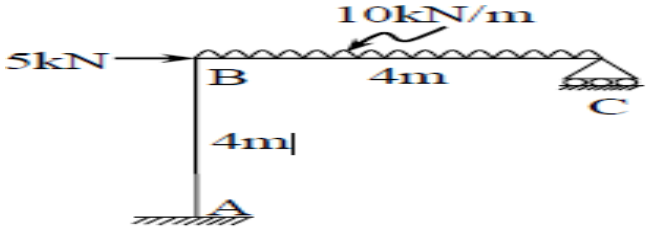
(Common to SE and SD)

Time: 3 hours **Max. Marks: 60**

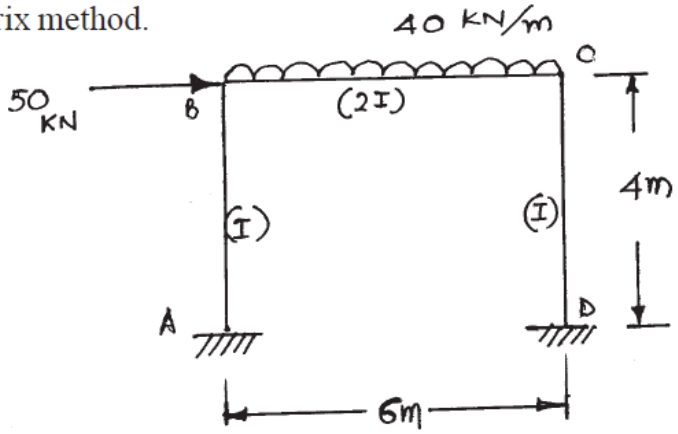
Answer any FIVE Questions
All Questions Carry Equal Marks

1. Explain principle of superposition.
   Define Degree of freedom.
   List out the steps involved in stiffness method and flexibility methods

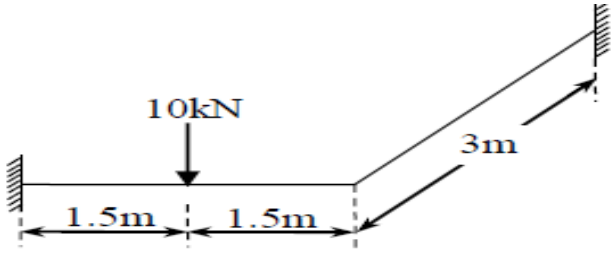
2. Develop stiffness matrix for a given frame?



3. Analyse and draw B.M. diagram for portal frame as shown in figure . Use stiffness matrix method. [16]



4. Formulate S_{FF} matrix for the grid shown in fig. 5. EI = constant & GJ =constant for both the member. Take GJ = 0.8 EI.



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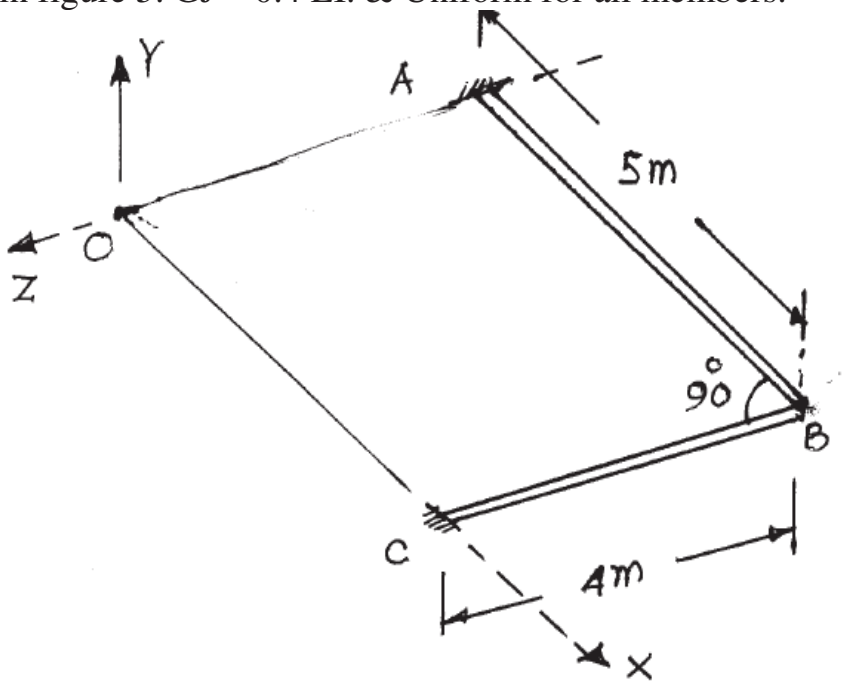
5. Using structure approach, develop only stiffness matrix of grid structure shown in figure 5. GJ = 0.4 EI. & Uniform for all members.



6. What is static condensation?
discussion on band width and semi band width how does it effects?

7. Derive rotation transformation matrix for a space truss member with example?

8. a Explain about inertial and thermal stresses-
b Explain about Beams on elastic foundation by stiffness method.

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