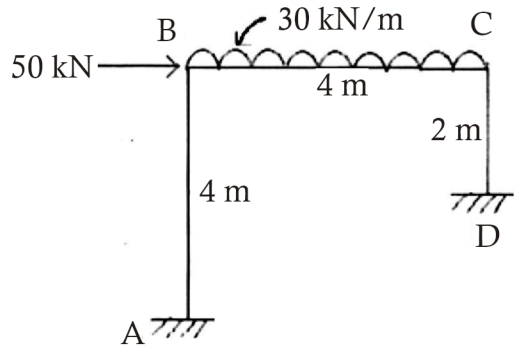

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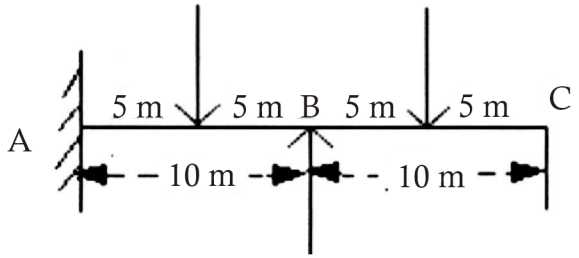
8. Using stiffness method analyse the two span continuous beam loaded as shown in figure :



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Roll No. : .....

Total No. of Questions : **8**] [Total No. of Pages : **4**

23377

M.Tech. (CE) 1st Semester
Examination, March–2021
(Specialisation in Structural Engg.)

ADVANCED STRUCTURAL ANALYSIS

Paper–CE-611/MTSD-102

Time : ***Three*** *Hours]* *[Maximum Marks :* ***100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

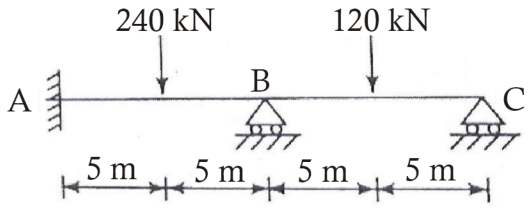
Note :– Attempt any *five* questions. All questions carry equal marks.

1. Differentiate between structure approach and member approach used in flexibility matrix method. Explain how support conditions are accounted in both approaches ? 20

2. (a) Define Primary Structure. What is the relationship between Flexibility and Stiffness Equations ?

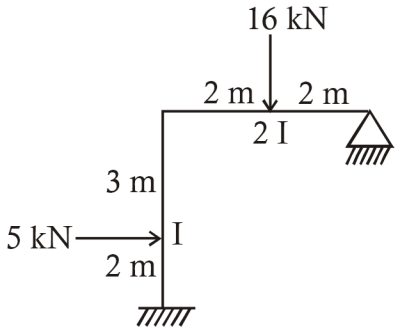
(b) Explain the assembly of global and local coordinates for formulation of transformation force and displacement matrices. 10,10

3. Analyze the continuous beam shown in figure using flexibility method :



EI Constant 20

4. Analyze and draw BMD for the portal frame. Use flexibility matrix method :



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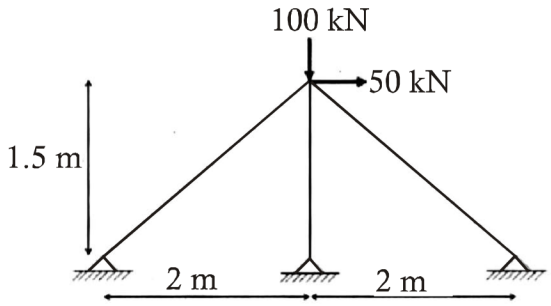
5. (a) Derive the expression for transformation of stiffness matrix from local to global coordinates.

(b) Explain the significance of proper-node numbering when analyzing by matrix methods. 10,10

6. Using stiffness method, analyze the plane truss shown in figure :



20

7. Analyse the portal frame by the stiffness method and find the moments at the joints A, B, C and D of figure (EI = Constant) :