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

Roll No..

MVSE-103

M.E./M.Tech., I Semester

Examination, May 2018

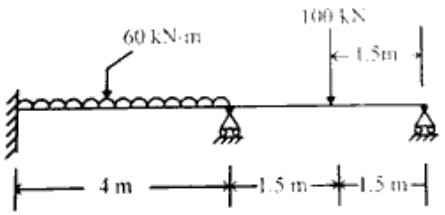
Advance Structural Analysis

Time : Three Hours *Maximum Marks : 70*

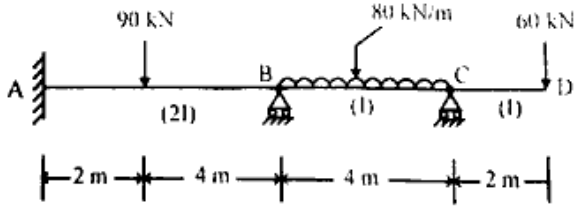
Note: i) Answer any five questions.
ii) All questions carry equal marks.
iii) Assume suitable data if required.

1. a) Define and explain in brief Flexibility and Flexibility matrix. 4

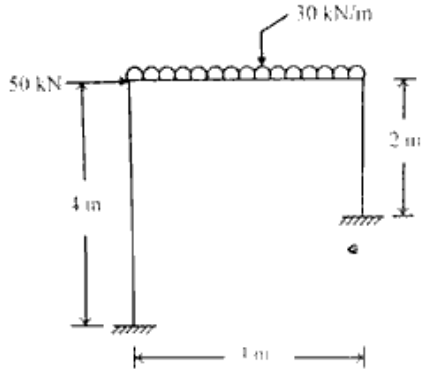
   b) Analysis the continuous beam by flexibility matrix method. Take EI constant throughout. 10



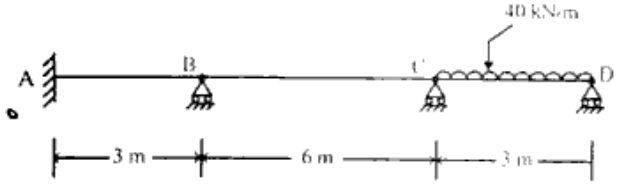
2. Analyse the continuous beam by stiffness matrix method. E is constant and relative I values are indicated on the beam. 14



3. Analyse the portal frame by flexibility matrix method. Take EI in constant. 14

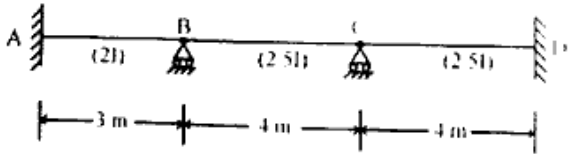


4. Support B of the continuous beam, has a downward settlement of 30mm. Calculate the support reaction at D by the flexibility matrix method. Take EI = 5600 kN-m^2. 14



5. a) What do you understand by the transformation in the flexibility analysis of a member? Explain in brief. 4

   b) Analyse the continuous beam if the support B sinks by 10 mm. Use displacement method. Take EI = 6000 kN-m^2. http://www.rgpvonline.com 10



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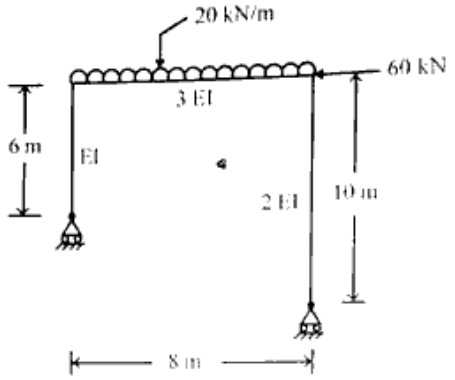
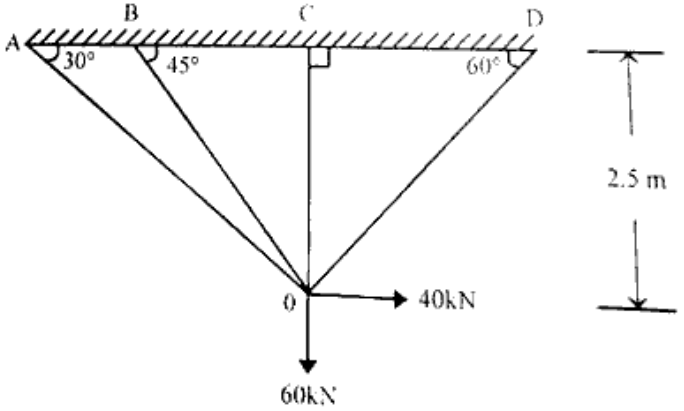
6. Analyze the portal frame by stiffness matrix method. Draw the deflected shape and Bending moment diagram. **14**



7. *Analyse the pin jointed* truss by stiffness matrix method. Take area of cross-section for all members = 1000 mm^2 and modulus of elasticity E = 200 kN/mm^2. **14**



8. Write short notes on (any four) **14**

a) Energy approach in Flexibility method.

b) Similarities and dissimilarities of the Force and displacement methods.

c) Relationship between flexibility matrix and stiffness matrix.

d) Code No. approach for global stiffness matrix.

e) Application of flexibility matrix method.

f) Effect of support displacement and temperature changes.

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