

B.Tech III Year I Semester (R13) Supplementary Examinations June 2016

STRUCTURAL ANALYSIS - II

(Civil Engineering)

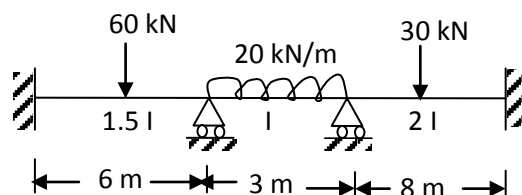
Time: 3 hours

Max. Marks: 70

PART - A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
 - (a) State Eddy's theorem.
 - (b) Explain rib shortening.
 - (c) Write the assumptions in slope deflection method.
 - (d) Define carry over moment and distribution factor.
 - (e) Write Advantages of Kani's method.
 - (f) Calculate the rotation factors for the beam shown in figure below.



- (g) Write concepts in flexibility method.
- (h) Define stiffness and write the basic equation of stiffness method.
- (i) Define plastic Hinge and plastic moment capacity.
- (j) Define collapse load and load factor.

PART - B

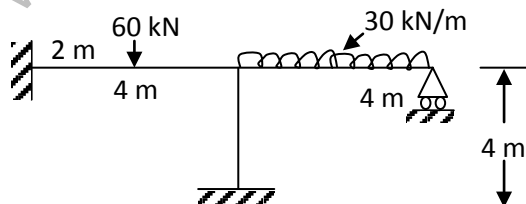
(Answer all five units, 5 X 10 = 50 Marks)

UNIT - I

- 2 A three-hinged circular arch hinged at the springing and crown point has a span of 40 m and a central rise of 8 m. It carries a uniformly distributed load of 20 kN/m over the left-half of the span together with a concentrated load of 100 kN at the right quarter span point. Find the reactions at the supports, normal thrust and shear at a section 10 m from left support.
- OR
- 3 A three hinged parabolic arch of 20 m span and 4 m central rise carries a point load of 4 kN at 4 m horizontally from the left hand hinge. Calculate the normal thrust and shear force at the section under the load. Also, calculate the maximum B.M positive and negative.

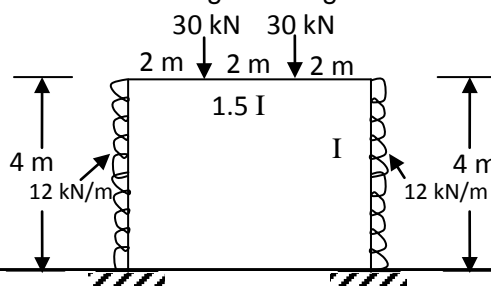
UNIT - II

- 4 Analyze the frame shown in figure by slope deflection method. Draw BMD flexural rigidity is same for all members.



OR

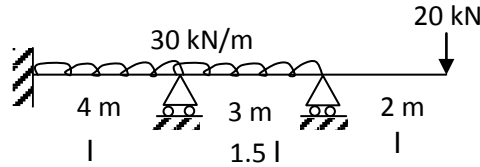
- 5 Analyze the portal frame shown in figure using moment distribution method.



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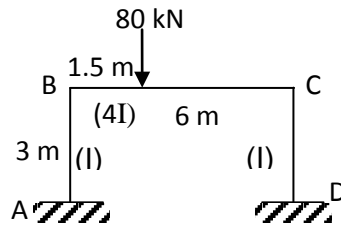
UNIT - III

- 6 Analyze the continuous beam shown in figure using Kani's method.



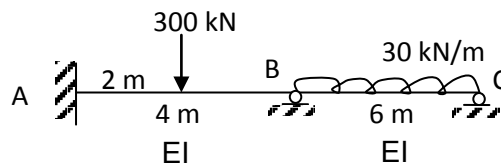
OR

- 7 Analyze the frame shown in figure using Kani's method.



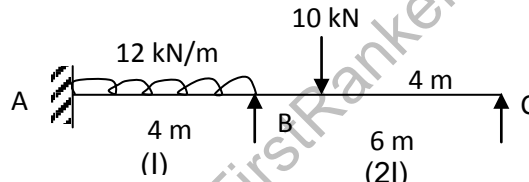
UNIT - IV

- 8 Analyze the continuous beam shown in figure by the flexibility method. Draw SFD and BMD.



OR

- 9 Analyze the continuous beam shown in figure by Stiffness method. Draw BMD.



UNIT - V

- 10 Write the assumptions for evaluating fully plastic moment. And also derive fully plastic moment M_p and shape factor S in general.

OR

- 11 Derive the shape factors for:

- Triangular section.
- Hollow circular section.
