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Total Number of Pages : 02

M.TECH

AR-19

M.TECH 1ST SEMESTER EXAMINATIONS NOV/DEC 2019

SE, MPCSE1030

MATRIX METHODS OF ANALYSIS OF STRUCTURES

Time: 3 Hours

Max Marks : 70

The figures in the right hand margin indicate marks.

PART-A

(10 X 2=20 MARKS)

1. Answer the following questions.

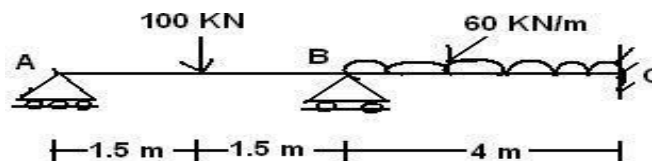
- (a) Differentiate pin-jointed plane frame and rigid jointed plane frame.
- (b) What is transformation Matrix?
- (c) Why flexibility method is also called as compatibility method or force method?
- (d) State reciprocal theorem?
- (e) Define equivalent joint load in matrix method of analysis?
- (f) List various assumptions made in Euler's formula.
- (g) List the properties of the Flexibility matrix.
- (h) List the properties of the stiffness matrix.
- (i) What is difference between plastic hinge and mechanical hinge?
- (j) What are the limitations of load factor concept?

PART-B

(5 X 10=50 MARKS)

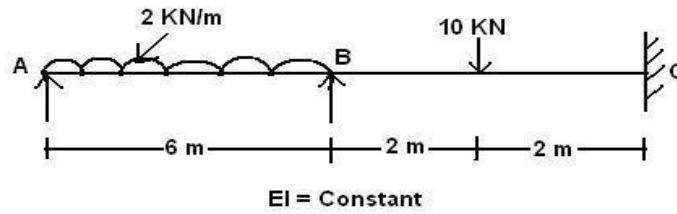
Answer any five questions from the following.

- 2. (a) Differentiate between equilibrium and compatibility
- (b) Discuss on Unit load method.
- 3. (a) List out the properties of rotation matrix.
- (b) What are the various assumptions made for plastic analysis.
- 4. (a) Analyze the continuous beam shown in figure using force method

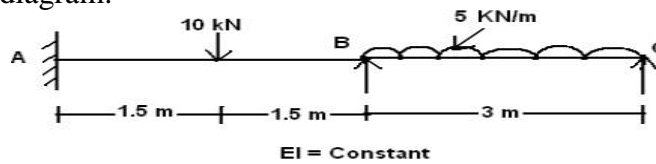


- (b) Draw shear force and bending moment diagram for above solution.

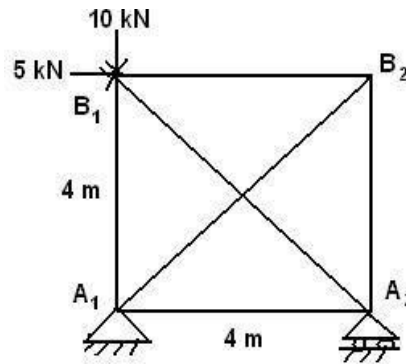
5. Analyze the continuous beam ABC shown in figure by flexibility matrix method and sketch the bending moment diagram.



6. Analyze the continuous beam ABC shown in figure by stiffness method and also sketch the bending moment diagram.



7. A Statically indeterminate frame shown in figure. Analyze the frame by matrix method. A and E are same for all members.



8. Write Short notes on
 (a) Flexibility coefficient
 (b) Mechanism condition

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