M.E. First Semester (Civil (Structural Engg.)) (New-CGS)

13086 : Matrix Methods of Structural Analysis : 1 SFSE 3

P. Pages : 2

Time : Three Hours

* 0 6 7 0 *

AW - 3615

Max. Marks : 80

Notes : 1. Answer **three** question from Section A and **three** question from Section B.
2. Assume suitable data wherever necessary.
3. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) Define : **4**

a) Flexibility coefficient.

b) Stiffness coefficient

c) Redundant structure

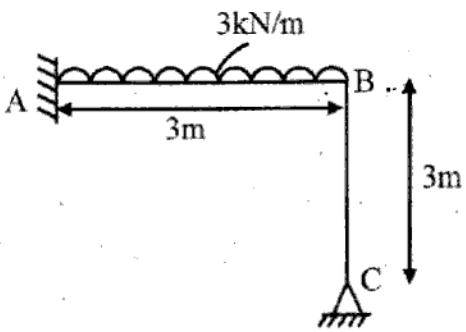
d) Degree of Kinematic Indeterminacy

b) Explain the concept of flexibility coefficient method using example of continuous beam? **9**

2. Derive element stiffness matrix of plane truss member? **13**

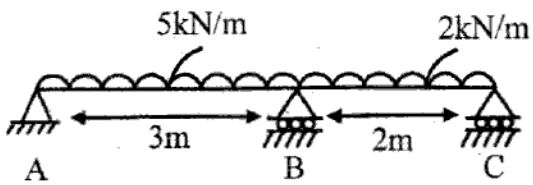
3. Derive element stiffness matrix of Frame member without sway? **13**

4. Analyse the given structure by flexibility method? **14**



EI constant

5. Analyse continuous beam by flexibility method? **13**



SECTION – B

6. Generate element stiffness matrix of space truss? **13**

7. Explain Half band matrix and skyline storage method with help of example. **13**

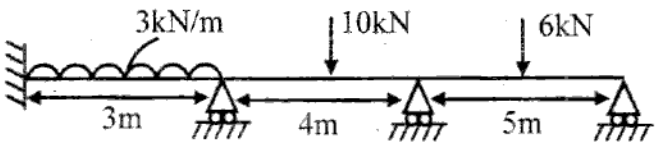
8. Explain:

   i) Displacement code. **4**

   ii) Joint displacement code and **4**

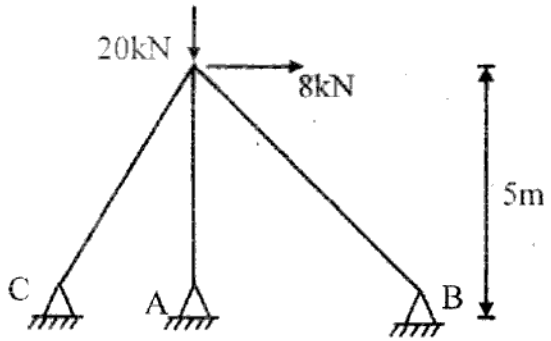
   iii) Element displacement code relation with the help of example? **5**

9. Analyse continuous beam by stiffness element approach method. **14**



Assume necessary data?

10. Analyse tripod with section area 800mm^2, Youngs modulus 150 kN / m^2 using stiffness method? **14**



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