Roll No. [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] Total No. of Pages : 04

Total No. of Questions : 09

B.Tech.(CE) (Sem.–5)

STRUCTURAL ANALYSIS-II

Subject Code : CE-305

Paper ID : [A0614]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

1. Write short notes on :

   (a) Define 'Degree of Static and Kinematic Indeterminacy'.

   (b) What is the Degree of Static Indeterminacy and Kinematic Indeterminacy of a beam of span 'L' with one end fixed and other end propped, carrying a uniformly distributed load 'w' throughout its span.

   (c) State Betti's Law and Maxwell's Law of reciprocal deflections.

   (d) What is a Substitute Frame Approach ?

   (e) Compare Cantilever and Portal Method of Approximate Analysis of frames.

   (f) State Lame Clayepron's Theorem.

   (g) State the application of Unit Load Method.

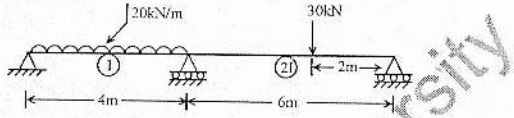
   (h) Outline Muller Breslau's Principle and where is it preferred in structural analysis?

   (i) Outline and state the use of Slope Deflection Equations.

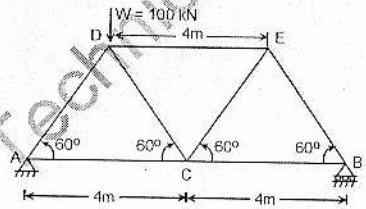
   (j) What is Relative Stiffness ? Explain with an example.

SECTION-B

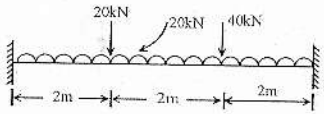
2. Analyze the continuous beam shown below by Three Moment Equation.



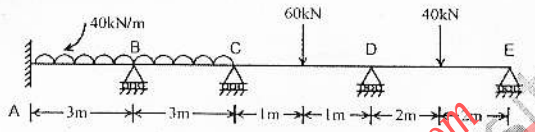
3. A pin-jointed truss shown below loaded with a single load W = 100 kN. If the area of all the members shown is 1000 mm², what is the vertical deflection of Point C ? Take E = 200 kNmm² for all the members.



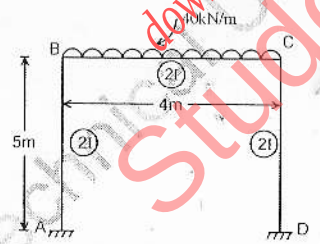
4. Using method of consistent deformation, find the fixed end moments developed in the fixed beam shown below :



5. Formulate the slope deflection equations and equilibrium equations for the continuous beam shown below. Moment of Inertia is same throughout.

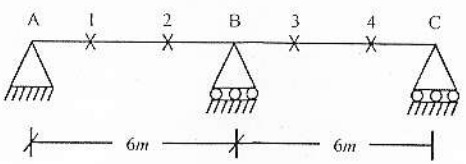


6. Analyze the frame shown below by moment distribution method and sketch the BMD.

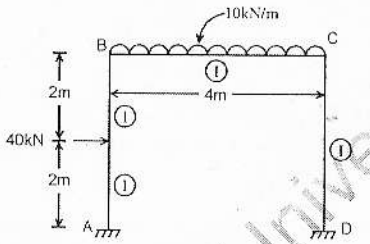


SECTION-C

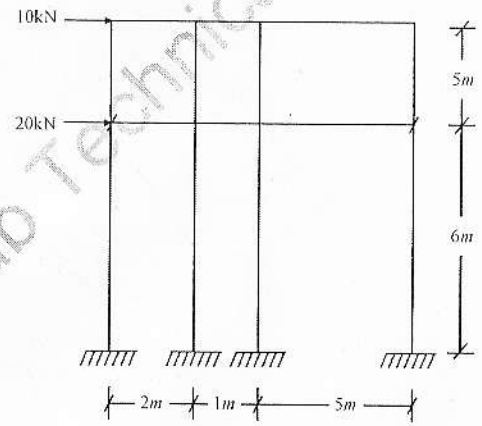
7. Draw the influence line diagram for moment at B in the continuous beam shown below after calculating ordinates at 2m intervals. Assume Flexural Rigidity as constant throughout.



8. Analyze the rigid jointed frame shown below by Rotation Contribution Method.



9. Analyze the frame shown below by Cantilever Method.



'A' is same for all columns.

[N-2-390]