8. How member stiffness matrix is developed with respect to member coordinate system ? Derive the expression for the global matrix from energy considerations. Explain displacement boundary conditions. **20**

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B. Tech. EXAMINATION, Dec. 2018

(Fifth Semester)

(Old Scheme) (Re-appear Only)

(CE)

CE301

STRUCTURAL ANALYSIS-II

Time : 3 *Hours*]   [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. Assume any data if missing in the question paper.

1. (a) Define the following terms :   **10**
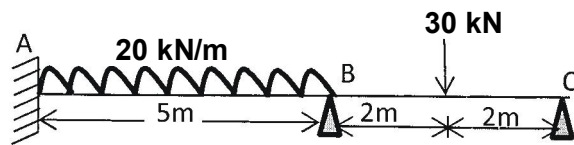
(i) Static theorem

(ii) Kinematic theorem

(iii) Load factor

(iv) Shape factor and its importance.

(b) Determine the plastic moment capacity of the following section :   **10**

2. Define finite element. What is finite element method ? List the broad category of elements. Explain energy approach.   **20**

3. A suspension cable bridge of span 80 m and central dip 8 m is suspended from the same level at two towers. The bridge cable is stiffened by a three hinged stiffening girder which carries a single concentrated load of 10 kN at a point 20 m from left end. Sketch the shear force and bending moment diagram for the girder.   **20**

4. What is matrix method of analysis ? Why stiffness method is called a Displacement method ? Write down the difference between force and displacement method.   **20**

5. Analyse the continuous beam by diplacement method :   **20**
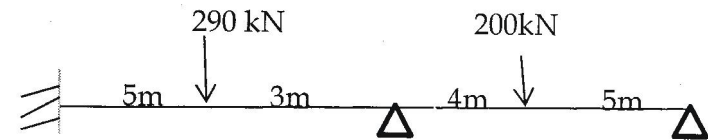
6. Analyse the continuous beam by force method :   **20**

7. What is global stiffness matrix ? How the member forces and displacements are transformed in local co-ordinate to global co-ordinates.   **20**