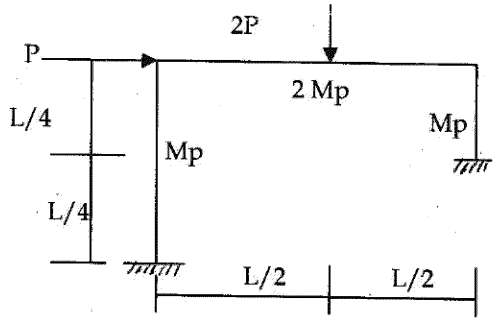
6. What are various methods of plastic analysis of a structure ? Analyse the following frame by mechanism method and determine the collapse load. **20**



7. The cables of a suspension bridge have a span of 40 m and a dip of 5 m. The cable is stiffened by a two hinged girder to enable the cable to maintain its parabolic shape. There is a uniform dead load of 10 kN/m over the whole span and in addition a live load of 30 kN/m over a length of 10 m. Determine the maximum cable tension when head of the live load is on the central hinge. Also calculate the Bending moment and shear force at a section at 10 m from left support. **20**

No. of Printed Pages : 05 **Roll No. .....**

W-471

B. Tech. EXAMINATION, Dec. 2017

(Fourth Semester)

(Weekend) (Re-appear Only)

(ME)

CE-W-202

STRUCTURAL ANALYSIS-II

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

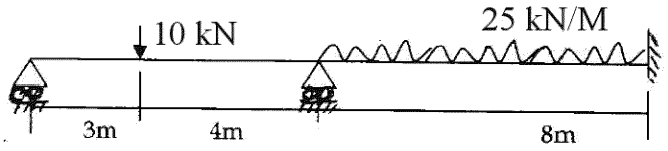
Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. Assume any missing data suitably.

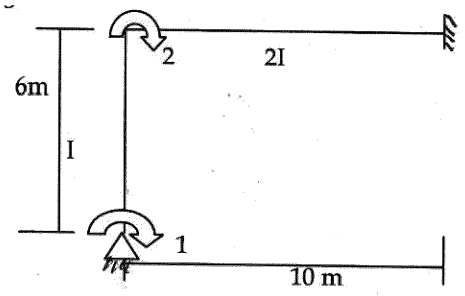
1. (a) Define Stiffness. Discuss force and displacement methods of structural analysis and compare them. **10**

(b) What do you understand by flexibility factor ? Derive flexibility factor for rotation of a beam with far end fixed. **10**

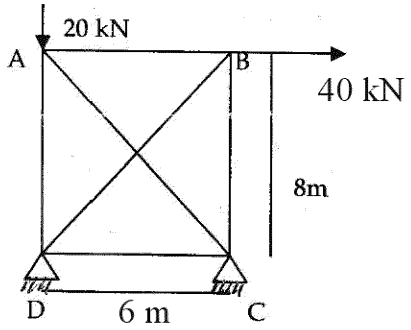
2. Solve the following continuous beam by flexibility method : **20**



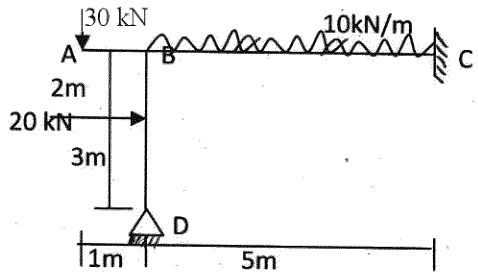
3. Develop stiffness matrix for the following structure for given coordinates. **20**



4. Analyse the following truss by flexibility approach. **20**



5. Analyse the following frame by displacement method if the support C sinks by 1000/EI in vertical direction. **20**



8. Write short notes on any *three* of the following : **20**

(a) Linear Shape function in Finite Element Method.

(b) Elements in Finite Element Method

(c) Coordinate transformation matrix

(d) Effect of temperature rise on stress in cable.

8. Write short notes on any *three* of the following : **20**

(a) Linear Shape function in Finite Element Method.

(b) Elements in Finite Element Method

(c) Coordinate transformation matrix

(d) Effect of temperature rise on stress in cable.