Q.P. Code: 16CE117 R16

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations November-2020

STRUCTURAL ANALYSIS-I

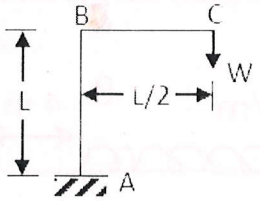
(CIVIL ENGINEERING)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

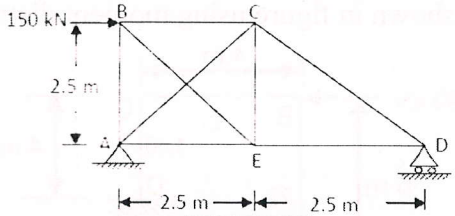
UNIT-I

1 A vertical load W is applied to the rigid cantilever frame shown in figure below. Assuming EI to be constant throughout the frame determine the horizontal and vertical displacements of the point C. Neglect axial deformation. **12M**



OR

2 Determine the force in the members AC of a pin-jointed truss shown in figure below. Assume cross-sectional area of each member to be 15×10^{-4} m2. **12M**



UNIT-II

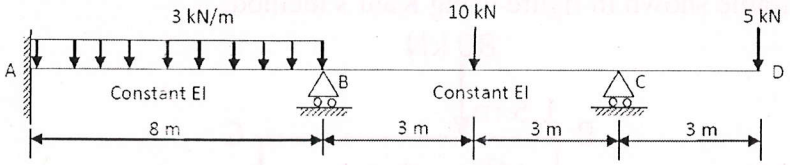
3 Calculate the fixed end moments and the reactions at the supports for a fixed beam AB of length 6 m. The beam carries point loads of 160 KN and 120 KN at a distance of 2 m and 4 m from the left end A. Draw SFD & BMD. **12M**

OR

4 A continuous beam ABC of uniform section with span AB and BC as 4 m each is fixed at A and simply supported at B and C. The beam is carrying a uniformly distributed load of 6 kN/m run throughout its length. Find the support moments and the reactions using theorem of three moments. Also draw SFD and BMD. **12M**

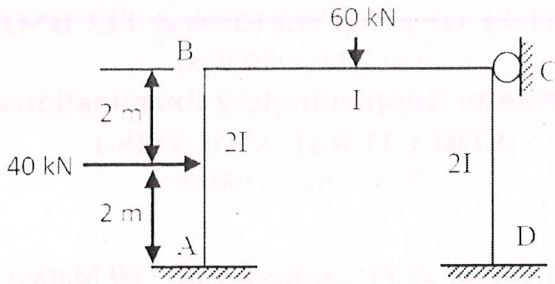
UNIT-III

5 Analyze the continuous beam shown in figure below, using slope deflection method. Draw shear force and bending moment diagram for the continuous beam. **12M**



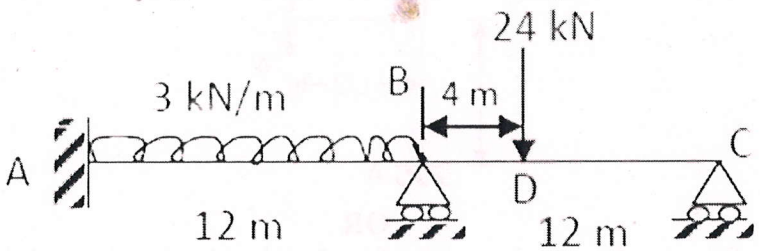
OR

6 Analyze the portal frame shown in figure below, by slope deflection method. The relative moment of inertia value for each member is indicated in the figure below. Sketch the bending moment diagram. **12M**



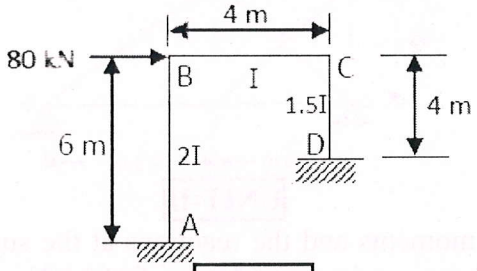
UNIT-IV

7 Analyze the continuous beam shown in figure below by using moment distribution method. The support B sinks 30 mm, values of E and I are 200 GPa and 0.2 x 10^9 m4 respectively uniform throughout. Draw S.F and B.M diagrams. **12M**



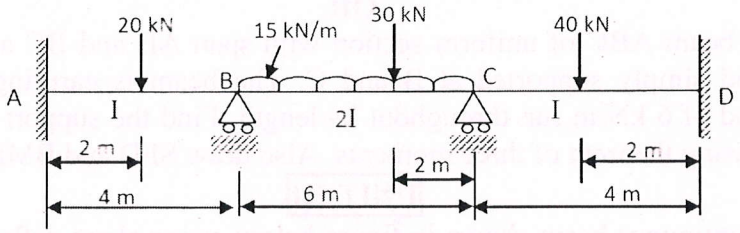
OR

8 Analyze the portal frame shown in figure using moment distribution method **12M**



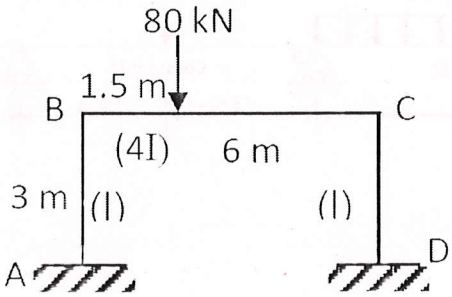
UNIT-V

9 Analyze the continuous beam shown in the figure by Kani's method. **12M**



OR

10 Analyze the frame shown in figure using Kani's method. **12M**



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