Q.P. Code: 16CE117 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations Feb-2021

STRUCTURAL ANALYSIS-I

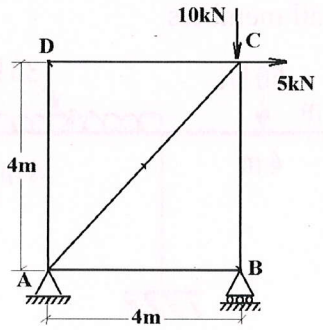
(Civil Engineering)

Time: 3 hours Max. Marks: 60

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

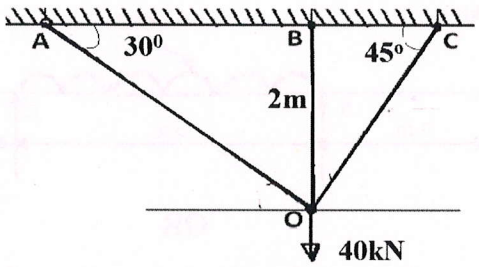
UNIT-I

1 Find horizontal and vertical deflection of joint C of truss ABCD loaded as shown in figure below. Assume that, all members have the same axial rigidity. **12M**



OR

2 Three wires AO, BO and CO support a load 40 kN as shown in figure. Assume that the cross sectional area of all members are same. Determine the forces in all the wires. **12M**



UNIT-II

3 **a** What are the advantages of fixed beams over simply supported beams? **4M**

b A fixed beam of length 6 m carries two point loads of 30 kN each at a distance of 2m from both ends. Determine the fixed end moments and draw BMD. **8M**

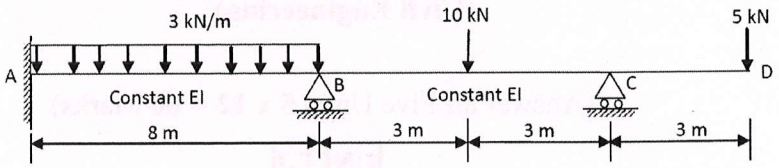
OR

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

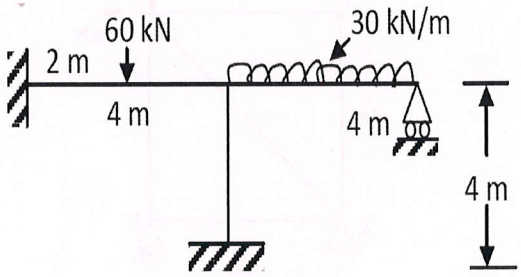
5 **a** Explain in brief about (i) Degree of static indeterminacy and (ii) Degree of kinematic indeterminacy with one example each. **4M**

b Analyze the continuous beam shown in figure below, using slope deflection method. Draw bending moment diagram for the continuous beam. **8M**



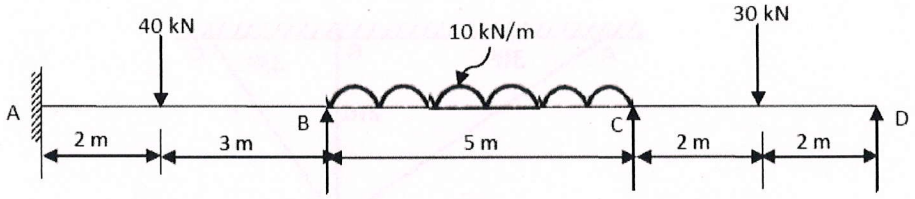
OR

6 Analyze the frame shown in figure by slope deflection method. Draw BMD. Assume flexural rigidity is same for all members. **12M**



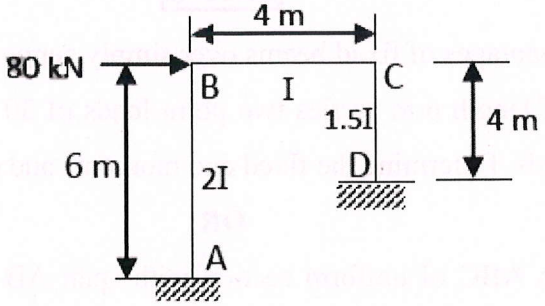
UNIT-IV

7 Analyze the continuous beam as shown in figure below by moment distribution method. Draw the bending moment diagram. **12M**



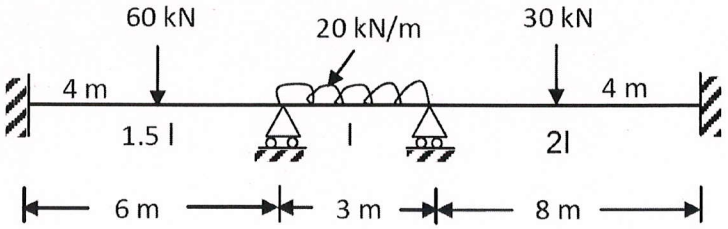
OR

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



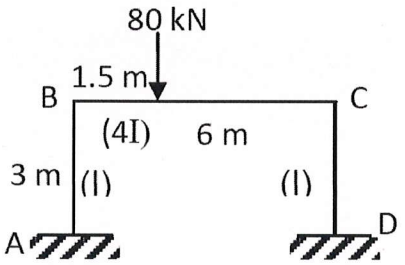
UNIT-V

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



OR

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



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