R13

Code No: 126DZ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, April - 2018
STRUCTRUAL ANALYSIS - II
(Common to CEE, CE)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A
                                                                      (25 Marks)

1.a) Define distribution factor.   [2]
  b) What is the carry over factor of a bending member when the far end is (i) hinged (ii) fixed.   [3]
  c) What are the basic assumptions made in slope deflection method?   [2]
  d) Name the different types of arches as per structure configuration and determine SI of fixed arch.   [3]
  e) What is Substitute frame method, when this method will be used?   [2]
  f) Write the assumptions made in portal method.   [3]
  g) Discuss the properties of stiffness matrix.   [2]
  h) Develop flexibility matrix for the beam shown in Figure 1.   [3]

figure 1

  i) State Castigliano's First theorem.   [2]
  j) Draw ILD for Reaction at prop of a Propped Cantilever beam.   [3]

PART - B
                                                                      (50 Marks)

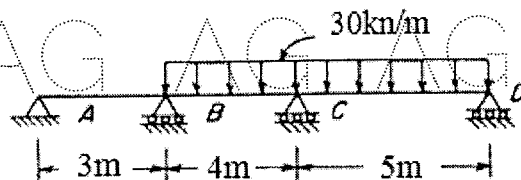2.   Analyze the continuous beam shown in Figure 2 using Kani's method. [10]
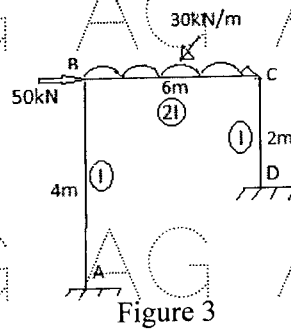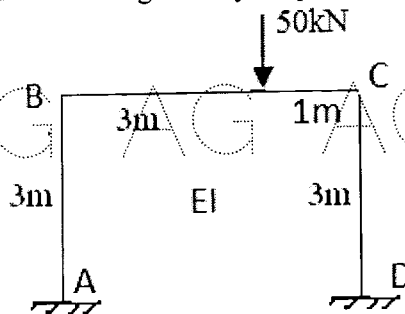

Figure 2

**OR**

3. Analyze the portal frame shown in figure 3 by Moment Distribution method and draw BMD. [10]

Figure 3

4. Analyze the portal frame shown figure 4 by Slope-Deflection method. [10]

Figure 4

OR

5. A parabolic two hinged arch has a span of 24m and a rise of 4m is subjected to 100kN and 150kN acting left and right quarter span respectively. Calculate the horizontal thrust and also calculate the bending moment at the loaded points. [10]

6. Determine the approximate values of moment, shear and axial force in each member of frame as shown in figure 5 using portal method. [10]

Figure 5

OR
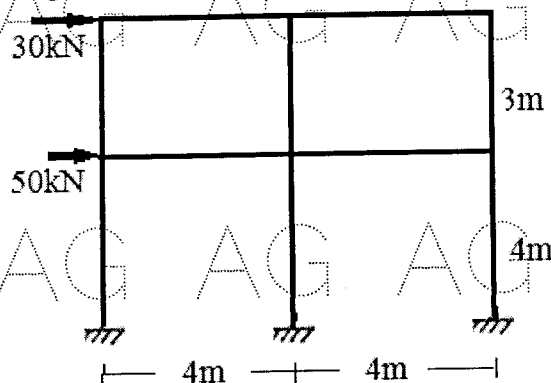
7. Discuss about factor method and substitute frame method analysis of frames for loads. [10]

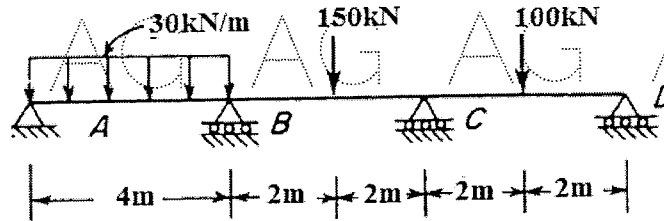8. Analyse the continuous beam shown in Figure 6 using Flexibility method. [10]

figure 6

OR

9. Analyse the frame shown in figure 7 by matrix stiffness method. Flexural rigidity is EI. [10]
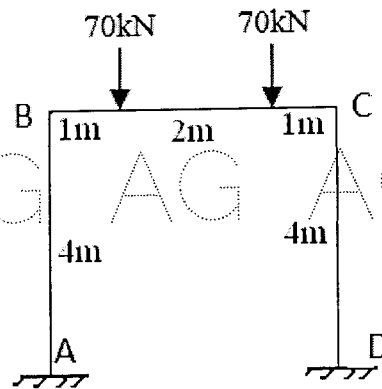

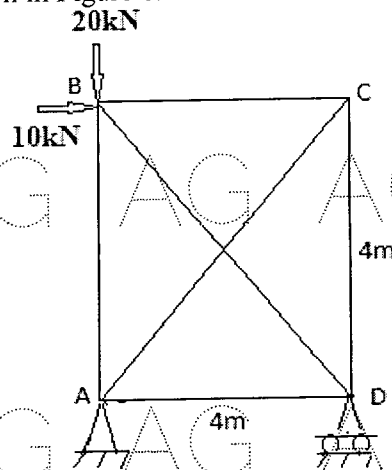Figure 7

10. Analyze the truss shown in Figure 8. [10]

Figure 8

OR

11.a) State Muller-Breslau's Principle, explain how to draw Qualitative Influence Lines for Statically Indeterminate Structures.

b) Draw qualitative ILD for vertical reaction at each supports of a three span continuous beam. [5+5]

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