Total number of printed pages:03 **Programme(UG)/6th/UCE601**

2025

STRUCTURAL ANALYSIS - II

Full Marks : 100

Time : Three hours

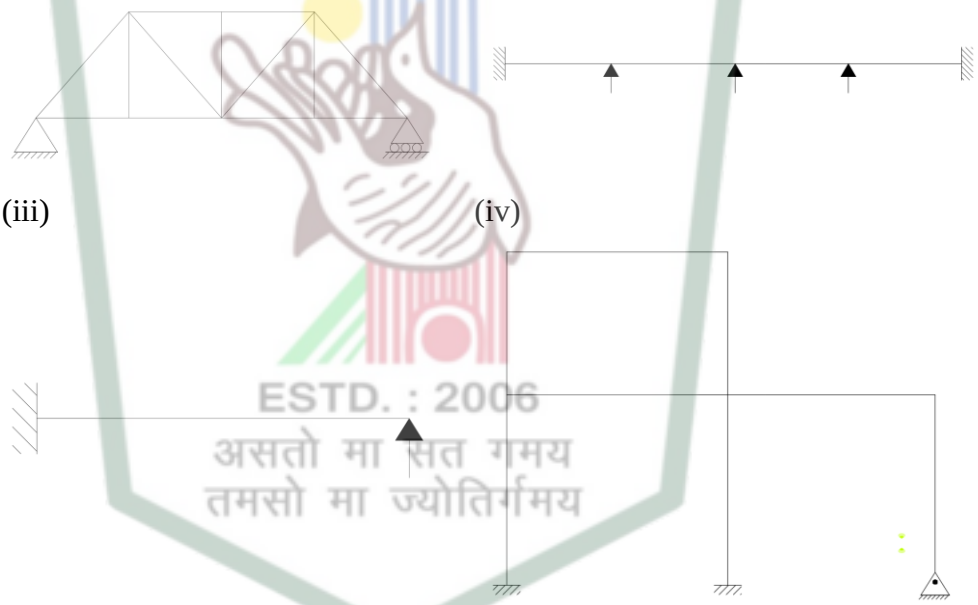
The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

Q.No.1 (a) Define the following: (i) Degree of static indeterminacy, (ii) Stiffness factor (iii) Rotational factor and (iv) Carry over factor **08**

(b) Determine the degree of static indeterminacy for the following: **12**

(i) (ii)



(iii) (iv)

Q.No.2 For the continuous beam shown in figure-1 using slope deflection method analyze the beam. The support C sinks by 12mm. Take EI as constant for all the members. **20**

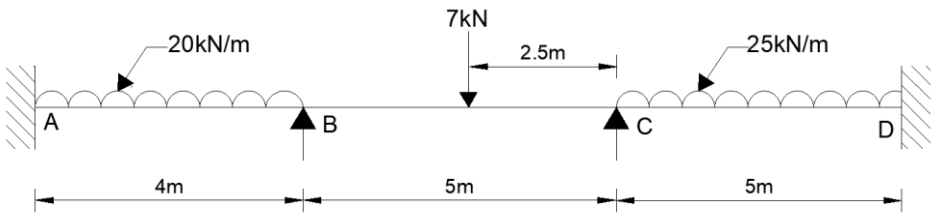


Figure-1

Q.No.3 Using moment distribution method, analyze the frame shown in figure-2. And draw the bending moment diagram. The EI of the members as indicated in the figure. **20**

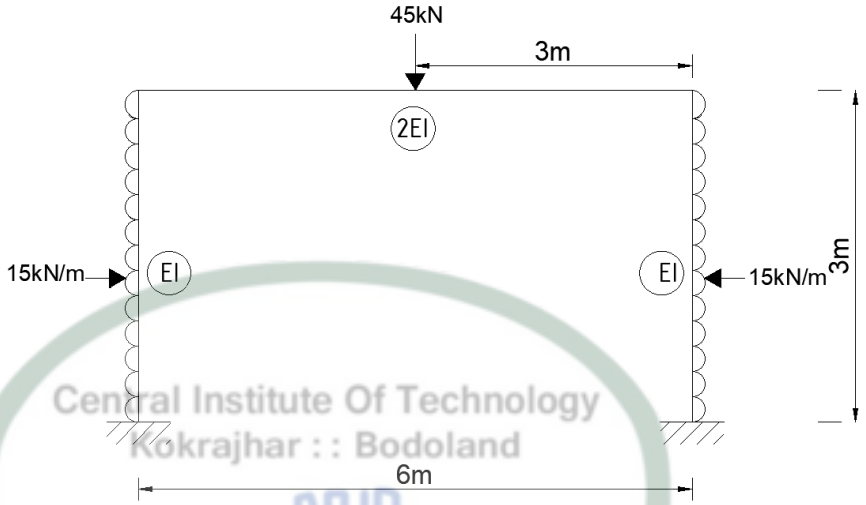


Figure-2

Q.No.4 Analyze the beam shown in figure-4 by Kani's method and draw the bending moment diagram. Take EI as constant. **20**

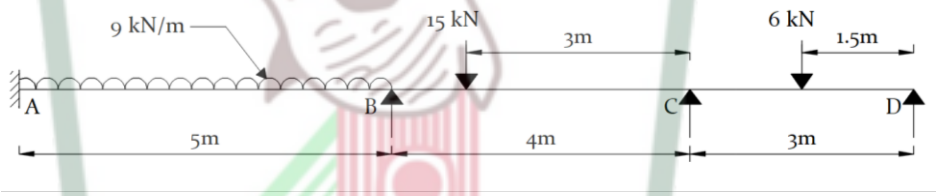


Figure-4

Q.No.5 For the beam shown in figure-5 determine the fixed end moments at supports by using column analogy method. Take EI as constant. **20**

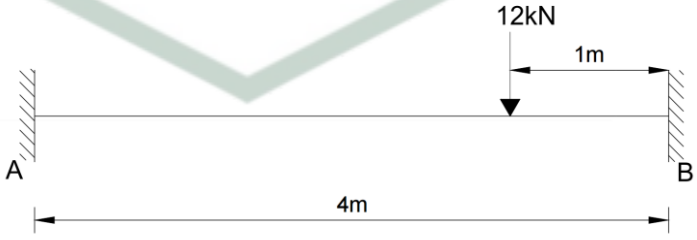


Figure-5

Q.No.6 (a) Explain the causes of failure of masonry dam. **07**

(b) A masonry dam of trapezoidal section is 9m high. The top width is 1m while the bottom width is 7m. If the depth of water impounded is 8m, find the extreme pressure intensities at the base. If the height of the dam is increased to 11m by adding an additional 1m x 2m deep rectangular section and the depth of water impounded is raised to 9m, what would be the extreme pressure intensities at the base? Take unit weight of masonry as 22000N/m^3 and unit weight of water as 9810 N/m^3. **13**

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