CE 311 (R-20)

Total No. of Questions : 10] [Total No.of Pages : 02

III/IV B. Tech. DEGREE EXAMINATIONS, DECEMBER 2022

First Semester

CIVIL ENGINEERING

STRUCTURAL ANALYSIS - I

Time : **Three Hours** Maximum : **60** Marks

Answer ONE Question from each Unit.

All questions carry equal marks. 5x12=60 M

UNIT - I

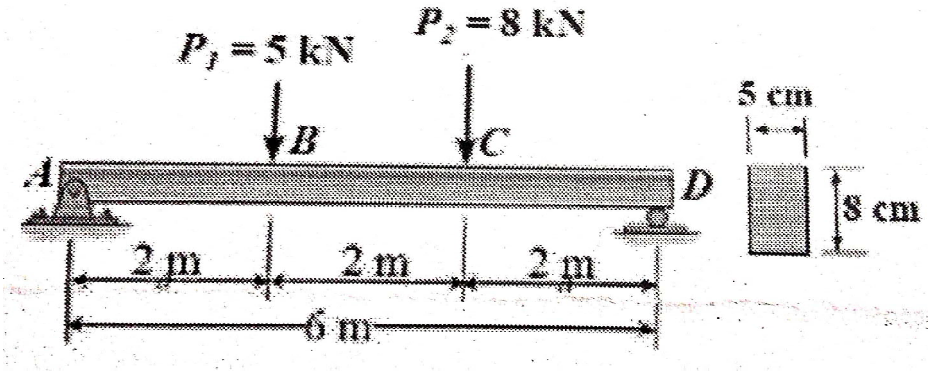
1. Explain in detail about Castigliano's theorem with an example.

(OR)

2. Explain Virtual Work method for Deflections in detail.

UNIT - II

3. Using graphical method, draw the shear and bending moment diagrams for the beam shown in the figure. Determine the absolute maximum bending stress.



(OR)

4. Explain in detail about Influence lines for simple trusses.

UNIT - III

5. Explain the analysis of propped cantilever by method of consistent deformations with neat diagram and explain with an example.

(OR)

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6. Explain in detail about effects of sinking of support and effect of rotation of a support with an example.

UNIT - IV

7. a) Explain the strain energy method for analysis of continuous beam with an example.

   b) Explain in detail about Composite Structure with an example.

(OR)

8. Explain forces in intermediate pin joined frame due to temperature variation lack of fit in detail.

UNIT - V

9. Explain in detail about Slope Deflection Equations with an example.

(OR)

10. Explain the analysis of continuous beam and portal frames (single bay, single storey with vertical legs only) without and with sides way in detail.