

III B. Tech I Semester Regular Examinations, February-2022
STRUCTURAL ANALYSIS
(Civil Engineering)

Time: 3 hours

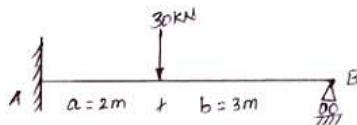
Max. Marks: 75

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

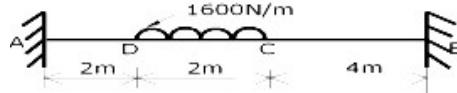
1. a) Estimate the reaction components as is shown in figure for a [8M]
Proppped cantilever beam.



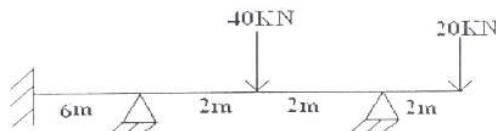
- b) A propped cantilever beam AB of span L is subjected to a moment M at the prop end B. Determine the moment at fixed end A. [7M]

(OR)

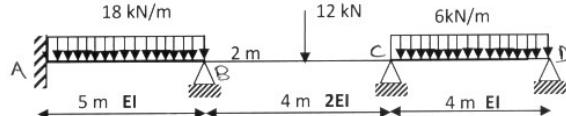
2. a) Calculate the fixed end moments for the fixed beam carrying [7M]
uniformly distributed load w/m.
b) Find the fixed end moments and plot bending moment diagram. [8M]

**UNIT-II**

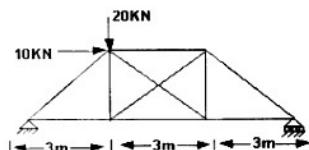
3. Analyze the continuous beam loaded as shown in figure by using [15M]
the moment distribution method. Draw SFD and BMD.

**(OR)**

4. Analyze the continuous beam loaded as shown in figure by using [15M]
the moment distribution method. Draw SFD and BMD.

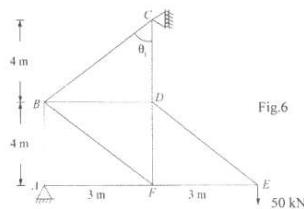
**UNIT-III**

5. Analyze the given truss by method of section. [15M]



(OR)

6. Analyze the truss as shown in figure by using tension coefficient [15M] method.

**UNIT-IV**

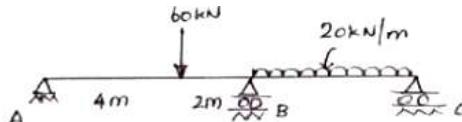
7. A system of four loads 80, 160, 160 and 120 kN crosses a simply supported beam of span 25 m with the 120 kN load leading. The loads are equally spaced at 1 m. Determine the values of the following using influence lines:
- Absolute Maximum bending moment and shear force.
 - Maximum bending moment at 10m from the left support.

(OR)

8. Two point loads of 100 kN and 200 kN spaced 3 m apart cross a girder of span 12 m from left to right with the 100 kN leading.
- Draw the ILD for shear force and bending moment and find the values of maximum bending moment.
 - Find the maximum shear force and bending moment at a section 4 m from the left support.
 - Find the absolute maximum bending moment and shear Force.

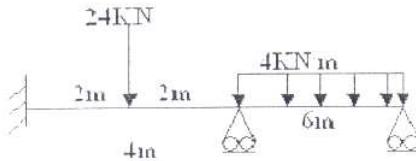
UNIT-V

9. Analyze the continuous beam shown in figure by stiffness matrix [15M] method.



(OR)

10. Analyze the continuous beam shown in figure by flexibility matrix [15M] method.



2 of 2