H.T.No. | | | | | | | | | | |

Code No: CE1512 **GEC-R14**

II B. Tech II Semester Regular Examinations, April 2017

STRUCTURAL ANALYSIS - I

(Civil Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.
Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks.

PART-A

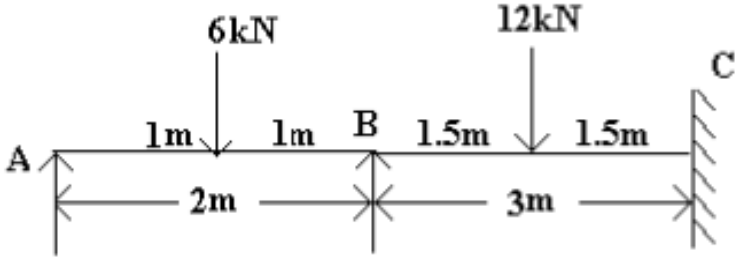
6 × 2 = 12M

1. a) Is propped cantilever is statically determinate or indeterminate structure?
   b) What is the degree of redundancy of a propped cantilever beam?
2. Write general equation for clayperon's theorem of three moments with EI as constant.
3. Slope deflection method is also called as _____ method.
4. Write the expressions for strain energy due to axial force and bending moment.
5. Draw ILD for bending moment at the mid span in case of a cantilever beam of span 'L'.
6. What are different types of indeterminacy present in structures and how to calculate the degree of indeterminacy in each case?

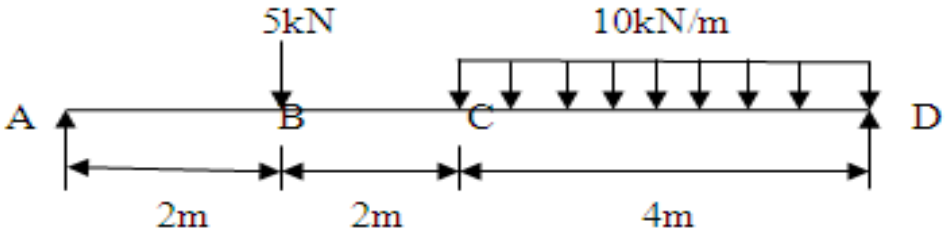
PART-B

4 × 12 = 48M

1. Explain step by step procedure of slope deflection method to analyze the beam? (12M)
2. A fixed beam of 6m span carries two point loads 250kN each at 2m from each end. Find the fixed end moments and draw the S.F.D & B.M.D. Take E=200KN/mm^2, I= 860x10^6 mm^4. (12M)
3. Analyse the two-span continuous beam loaded as shown in Fig by the Theorem of three moments. Sketch the B.M.D (E I = constant). (12M)

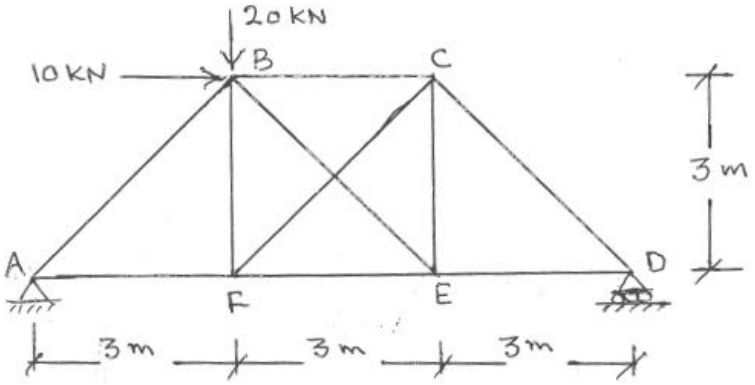


4. Use strain energy method to find the deflection at the middle of the beam as shown in fig. Take E=200GPa and I= 400x10^{6}mm^4. (12M)



5. Two point loads of 8 kN and 4 kN spaced 3 m apart cross a girder of 15 m span, the smallest load leading from left to right. Construct the maximum shear force and bending moment diagrams, stating the position and amount of absolute maximum bending moment. (12M)

6. Find the forces in the members BE and CF of the truss shown in Figure. The ratio of length to cross sectional area for all the members in same. (12M)



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