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Total No. of Questions : 09] [Total No. of Pages : 03

Paper ID [A0614]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem. - 5th)

STRUCTURAL ANALYSIS - II (CE - 305)

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) *(10 × 2 = 20)*

a) State law of reciprocal deflections.

b) What is necessity of providing fixed beams?

c) State Castigliano's theorems.

d) Under what conditions there is Sway in rigid frames?

e) Explain distribution factors in moment distribution method.

f) What is the relationship between rotation contribution factor and moment distribution factor?

g) What are assumptions in cantilever method of analysis of frames?

h) What is a simple space truss?

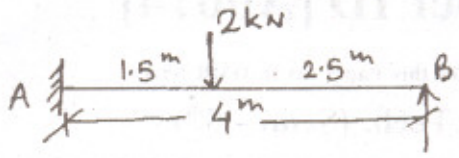
i) State Muller Breslau principle.

j) What is the effect of sinking of support in fixed beams?

Section - B

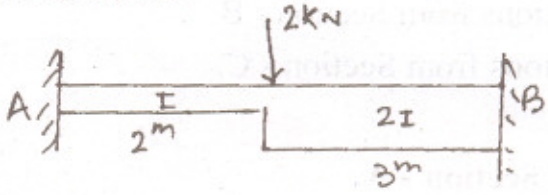
(4 × 5 = 20)

Q2) A propped cantilever AB of span 4m carries a point load of 2 kN as shown:



Calculate support reactions and moment at 'A' using Strain Energy method. $EI = 1 \times 10^6$ N.m^2.

Q3) A fixed beam AB of span 5m carries a point load of 2 kN at 2m from left support as shown:

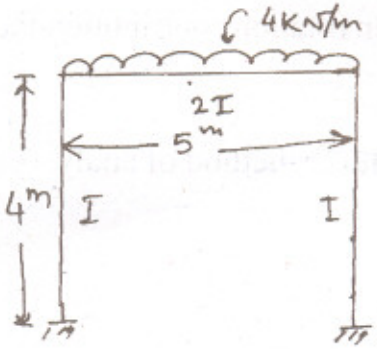


Calculate the fixed end moments by moment area method. $EI = 1 \times 10^6$ N.m^2.

Q4) Explain the procedure for the analysis of space frames using Tension coefficient method.

Q5) A continuous beam ABCD is fixed at A and simply support at D. Span AB=6m; BC=4m; CD=4m. Span AB carries a u.d.l .of 3 kN/m. Span BC carries a point load of 2 kN at its centre and Span CD carries a point load of 1 kN at 1m from D. Analyse the beam by Kani's method.

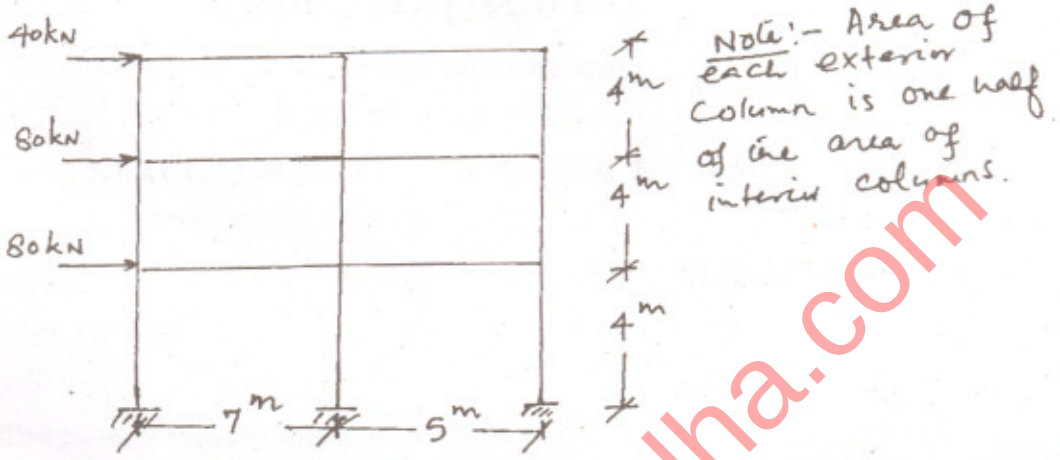
Q6) Analyze the frame shown by Moment Distribution method.



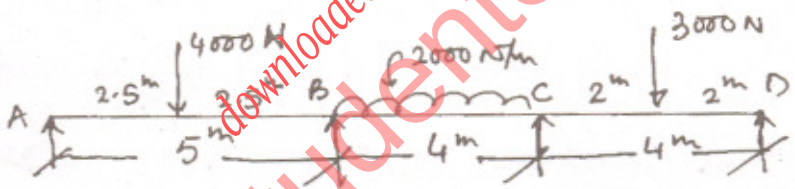
Section - C

(2 × 10 = 20)

Q7) Analyse the frame shown in Fig. by cantilever method.



Q8) A continuous beam ABCD carries the loads as shown. During loading support C sinks by 1 cm. Calculate the support moments and draw BMD using three moment's theorem (Clapeyron's theorem).



Q9) Analyse the portal frame shown by slope deflection method.