SP-113

Seat No.	

Total No. of Pages : 2

T.Y. B.Tech. (Civil Engineering) (CBCS) (Semester - VI) Examination, November - 2023

THEORY OF STRUCTURES

Sub. Code : 81515

Day and Date : Monday, 20 - 11 - 2023 **Total Marks : 70**

Time : 02.30 p.m. to 05.00 p.m.

Instructions :
1) **Q. No. 1 & Q. No. 5 are compulsory questions.**
2) **Solve any two questions from Q. No. 2 to Q. No. 4 and any two questions from Q. No. 6 to Q. No. 8.**
3) **Figures to the right indicate full marks.**
4) **Assume suitable data if necessary and state them clearly.**
5) **Use of non-programmable calculator is allowed.**

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SECTION - I

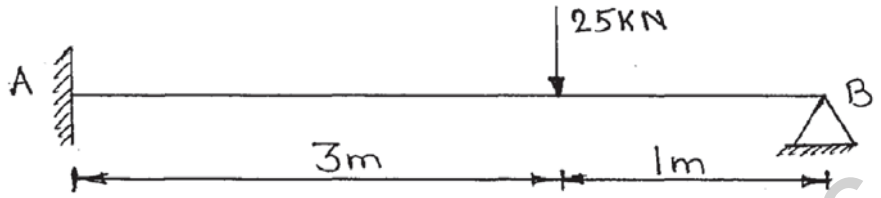
Q1) Write a short Note on following :

a) Explain in detail inderminancy of the structure. **[2]**

b) Explain in detail Clapeyron's theorem of three moments. **[3]**

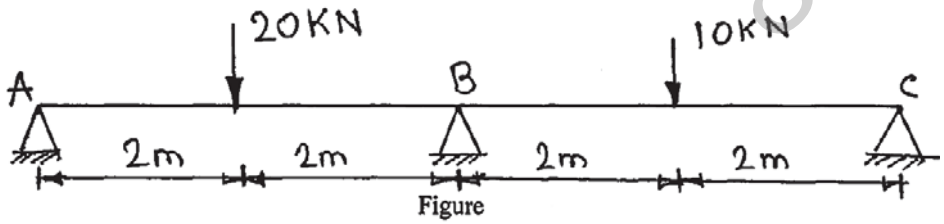
c) What is Unit load method explain in detail. **[2]**

Q2) Analyse the propped cantilever beam loaded as shown in the figure by using Consistent deformation method. Also draw SFD and BMD. **[14]**



Figure

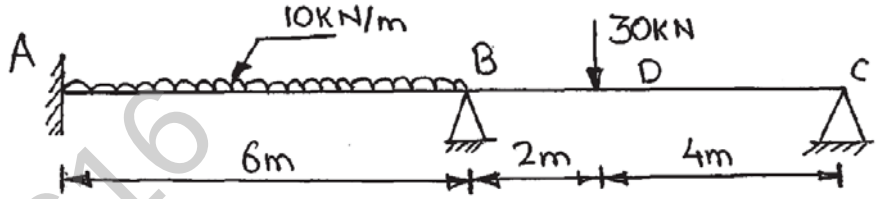
Q3) A continuous beam ABC is loaded as shown in the figure below. Find out supports moments and reactions by using Clapeyron's theorem of three moments. Also draw BMD. **[14]**



Figure

P.T.O.

Q4) Analysis the continuous beam by using Castiglione's theorem as shown in the figure. **[14]**



Figure

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SECTION - II

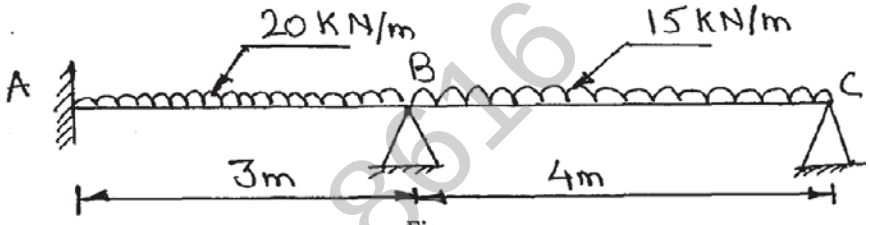
Q5) Write short note on following

a) Explain Modified Slope and deflection method in detail. **[2]**

b) Explain Distribution factor used in Moment distribution method. **[2]**

c) Write down properties of stiffness matrix. **[3]**

Q6) Analyse continuous beam ABC as shown in figure by using slope and deflection equation also draw BMD. **[14]**



Figure

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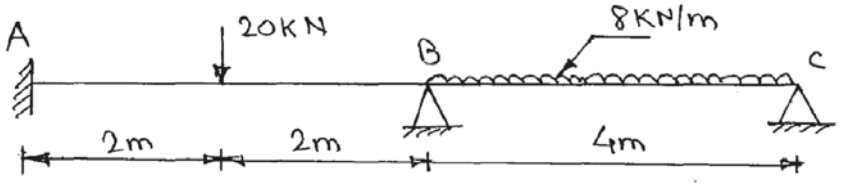
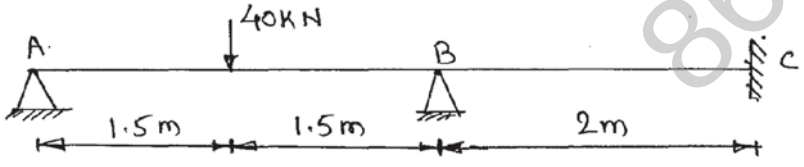
Q7) Analyse continuous beam ABC as shown in figure by using moment distribution method also draw BMD. **[14]**



Figure

Q8) Analyse frame ABC by using stiffness matrix method, Span AB subjected to central Point load of 40KN and there is NO load on span BC as shown in figure. Also draw BMD. **[14]**



Figure

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