



B.Tech V Semester Supplementary Examinations, June/July 2023  
**STRUCTURAL ANALYSIS - II**  
(CIVIL ENGINEERING)

Maximum Marks: 70

Date: 23.06.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
  3. Part B consists of 5 Units. Total 10 questions it consists.
  4. Part-B each question carries 10 marks and may have a, b, c, d as sub questions.

**Part-A**

All the following questions carry equal marks

(10x2M=20 Marks)

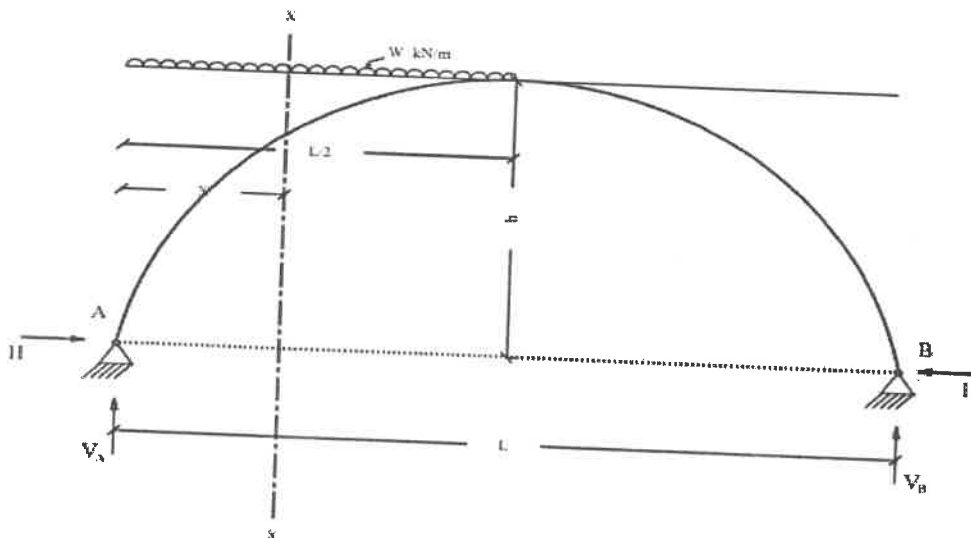
- 1 Define castigliano's second theorem
- 2 Write down the classification of two hinged arch.
- 3 Define elastic curve.
- 4 Define distribution factor.
- 5 Define rotation factor.
- 6 Write about Kani's method of analysis.
- 7 Define static indeterminacy.
- 8 Write the differences between stiffness and flexibility matrix method of analysis.
- 9 List the methods used for approximate analysis of structure.
- 10 Write the Muller breslaus principle.

**Part-B**

Answer All the following questions.

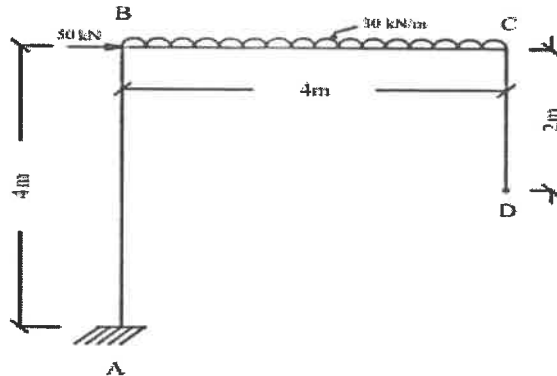
(5X10M=50Marks)

- 11 A Two Hinged Parabolic Arch of length 'L' carries a UDL of 'w' kN/m over a length of L/2 from left support. Show that  $H = \frac{wl^2}{16h}$  [10]

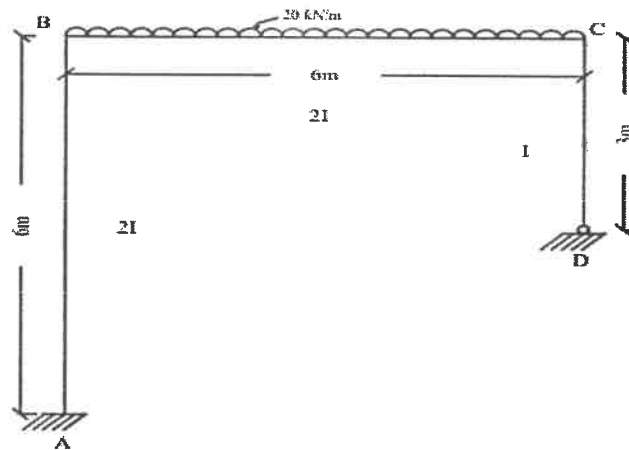


OR

- 12 Determine the vertical and horizontal displacement at the free end 'D' in the frame shown in fig. Take  $EI=12 \times 10^3 \text{ N-mm}^2$  Use Castigliano's theorem. [10]

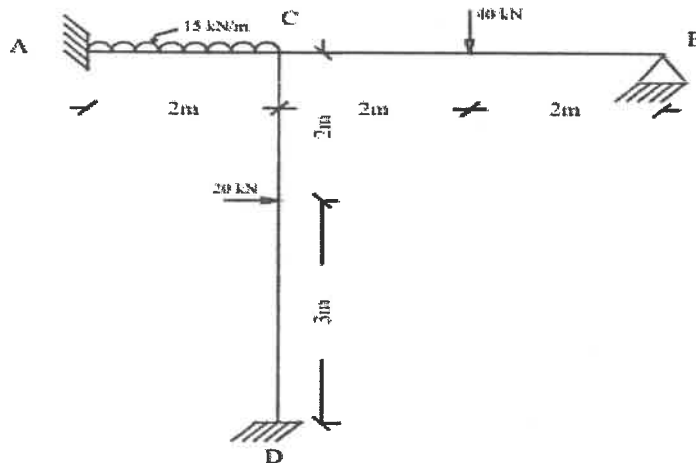


- 13 Using moment distribution method analyse the unsymmetrical frame and draw B.M.D. [10]



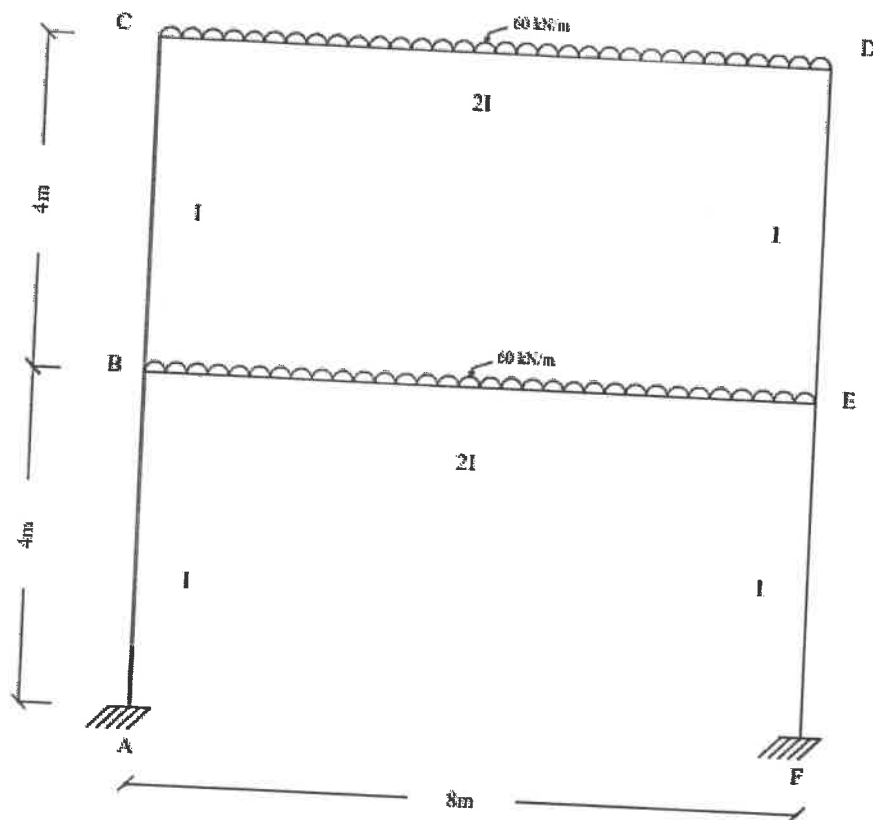
OR

- 14 Analyse the Non-sway frame by using slope deflection method and draw BMD. [10]

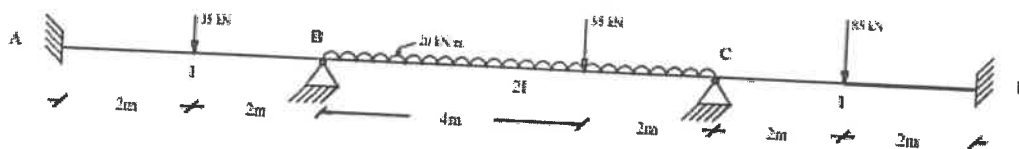


- 15 Analyse the single bay-double storey frame carrying UDL as shown in fig. Apply kani's method on given

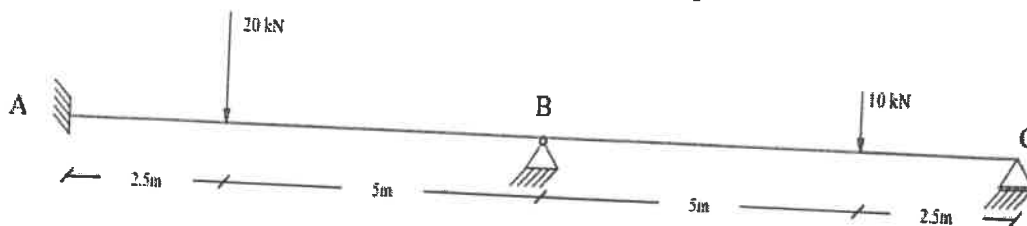
frame. [10]



- 16 OR  
 Analyse the continuous beam which is fixed at A & D as shown in fig. Apply kani's method to analyse the given beam. [10]

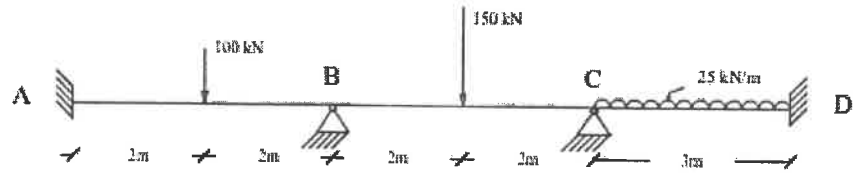


- 17 Analyse the beam shown in figure by Stiffness matrix method. [10]

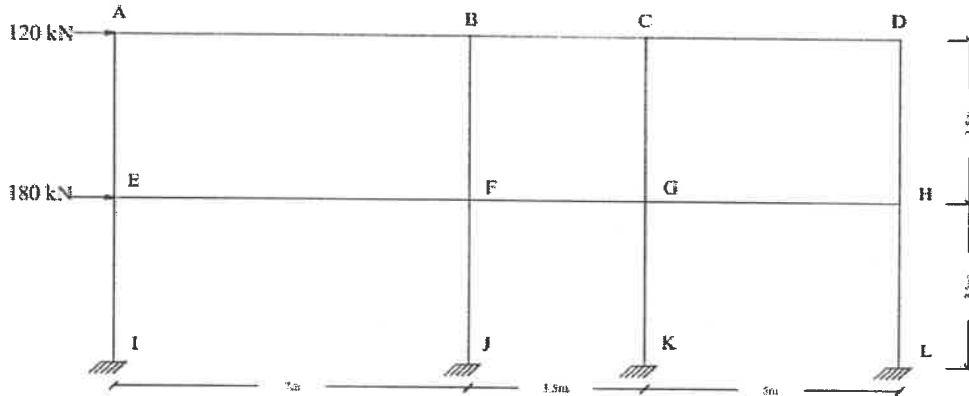


- 18 OR  
 Using matrix method of analysis. Analyse the three span continuous beam which is fixed at supports A

& D, hinged at B & C shown in figure. [10]



19 Analyse the three bay-Double storey frame, Using Portal method. [10]



OR

20 Apply the Approximate method of analysis on given multi-storey frame. [10]

