

320876(20)

B. E. (Eighth Semester) Examination,

April-May 2020

(Old Scheme)

(Civil Engg. Branch)

ANALYSIS of FRAMED STRUCTURE

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) in all question is compulsory. Solve any one from (b) or (c) in each question. Assume any other suitable data required.

Unit-I

1. (a) Explain rotation factor in Kani's method. 2
- (b) Analyse the continuous beam loaded in fig. 1, by Kani's method. Sketch BM diagram : 14

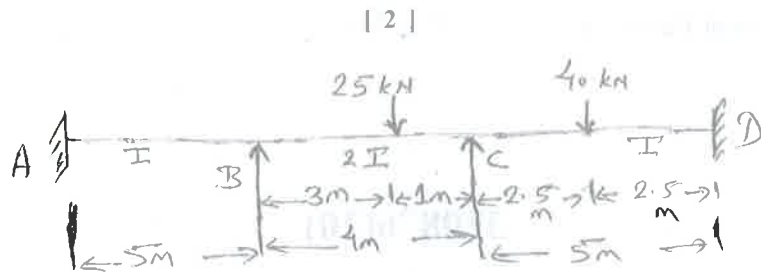


Fig. 1

- (c) Analyse the continuous beam loaded as shown in fig. 2 by the slope deflection method. Sketch the B.M. and S.F. diagrams. 14

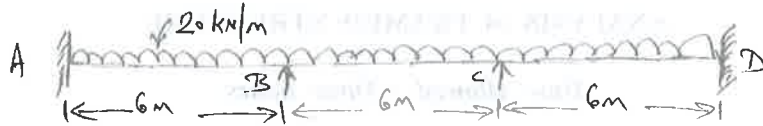


Fig. 2

Unit-II

2. (a) Explain Portal frame. 2
- (b) Analyse the frame shown in fig. 3 for horizontal force by approximate method (Portal method). 14

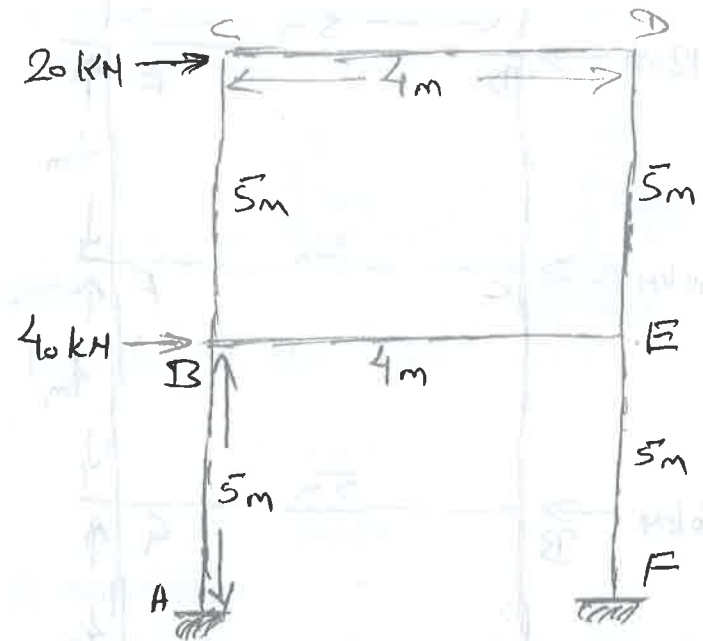


Fig. 3

- (c) Analysis the frame shown in fig. 4 by approximate method. 14

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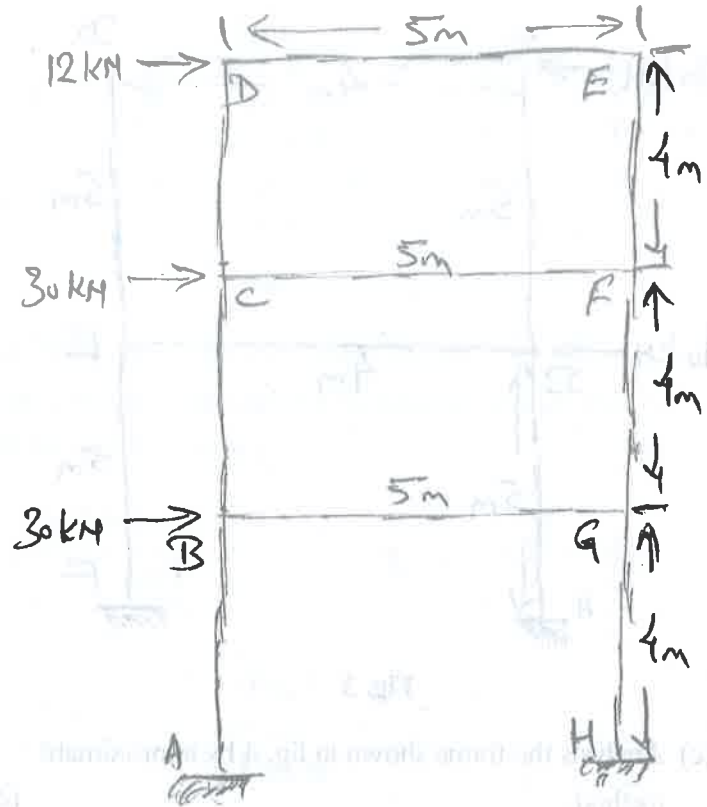


Fig. 4

Unit-III

3. (a) Define flexibility. 2
 (b) Analyse the structure having degree of freedom more than one. 14

[5]

- (c) Develop the flexibility matrix for the simply supported beam in fig. 5. 14

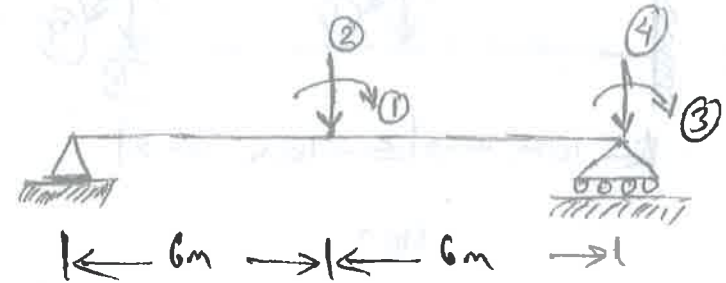


Fig. 5

Unit-IV

4. (a) Define Stiffness. 2
 (b) Develop the stiffness matrix for the sets of springs shown in fig. 6. 14

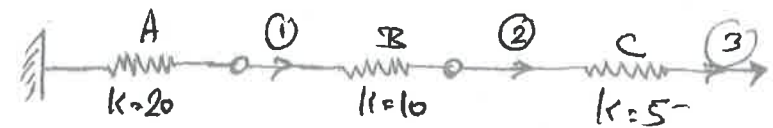


Fig. 6

- (c) Develop stiffness matrixes for the beam AB with reference to the co-ordinates shown in fig. 7. 14

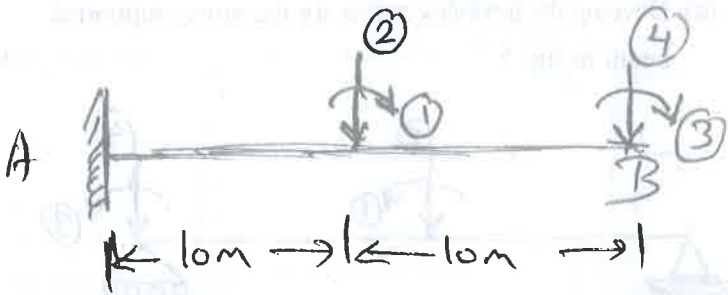


Fig. 7

Unit-V

5. (a) What is the need to study FEM? 2
- (b) Write the steps involved in finite element analysis. 14
- (c) Discuss the Rayleigh Ritz(z) finite elements method and Galerkin's method for FEM. 14