

- a) Use the displacement method to analyse the plane three member trusses as shown in figure. 8. All members have identical axial stiffness  $AE$ .

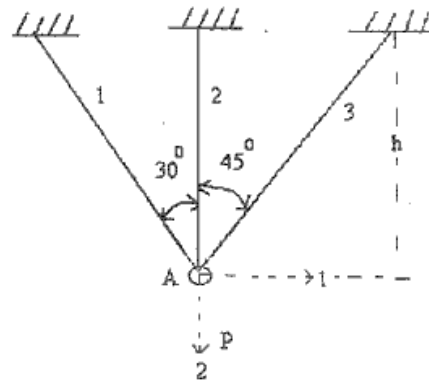


Figure 8

- b) Explain degree of static and kinematic indeterminacy briefly.

#### Unit - 5

5. a) Using Muller-Breslau principle draw the influence line diagram for shear force at mid-span D in the beam shown in figure. 9 after computing the values of the ordinate at 1m interval.

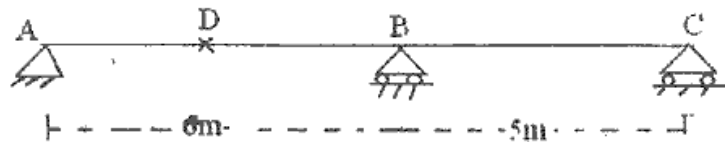


Figure 9

- b) Explain degree of static and kinematic indeterminacy briefly.

OR

- a) What is beam column? How does the structural behavior of a beam column differ from a column?  
 b) State and explain Muller-Breslau principle.  
 c) State the influence line diagram and its advantage.

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## CE-601

B.E. VI Semester

Examination, June 2013

## Theory of Structures-II

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note: All questions carry equal marks. Assume suitable data wherever necessary. All questions are compulsory.

### Unit - 1

1. a) Analyse the frame shown in figure.1 by moment distribution method. Plot the bending moment diagram.  $EI$  is constant.

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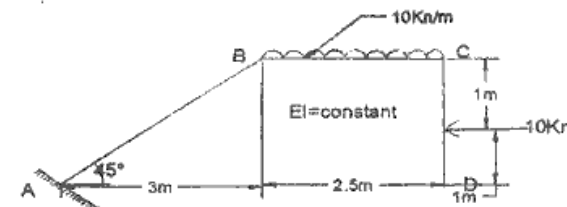


Figure 1

- b) Mention the causes of side sway of portal frames.

OR

- a) Determine the support moments for the continuous beam shown in figure 2.

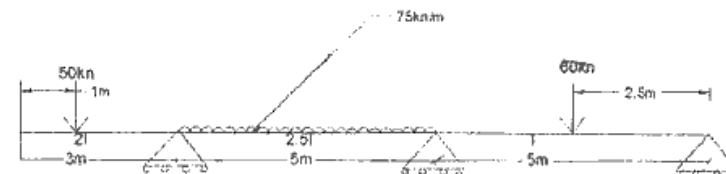
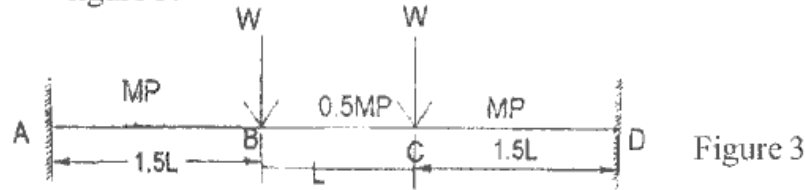


Figure 2

- b) What are the advantages of Kanis method particularly over moment distribution method of analysis of frames?

**Unit - 2**

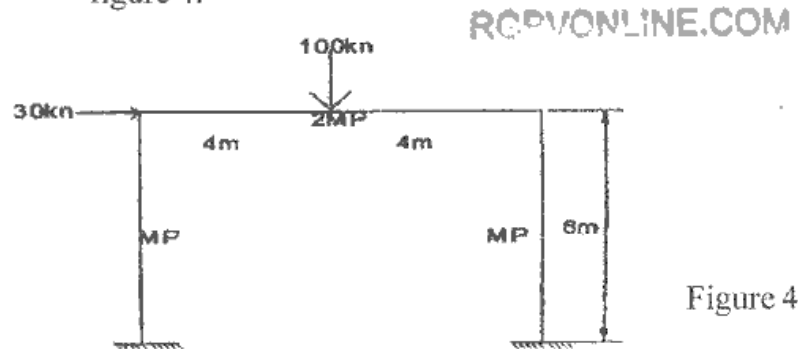
2. a) Determine collapse load in the fixed beam shown in figure 3.



- b) Differentiate plastic analysis of structures with elastic analysis.

OR

- a) Find the collapse load factor for the frame shown in figure 4.



- b) Write a short note on i) Shape factor ii) Load factor.

**Unit - 3**

3. a) Analyse the frame shown in figure 5.

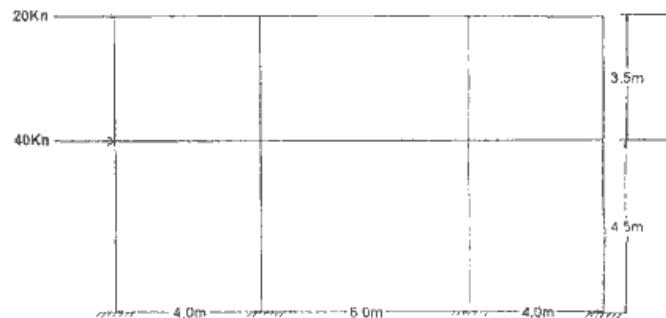


Figure 5

- b) Differentiate between the portal and cantilever method of approximate analysis of lateral loads.

OR

- a) Analyse the substitute frame section shown in figure. 6 for the maximum positive and negative bending moments in the beams AB, BC and CD. The frames are spaced at 3.5 m intervals. Use the following data to estimate the moments in beams and columns. Live Load = 2.0 kN/m<sup>2</sup>, Dead load = 3.0 kN/m<sup>2</sup>, Self weight of beam = 2.0 kN/m<sup>2</sup>. Beam and columns are of the same section.

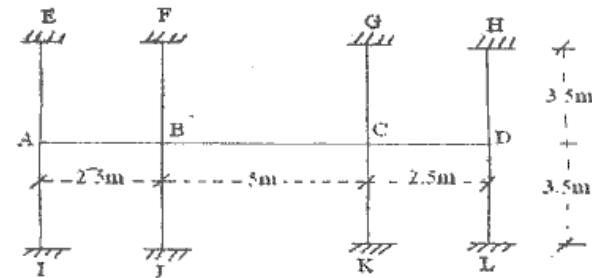


Figure 6

**Unit - 4**

4. a) Analyse the beam shown in figure. 7 by force method of structural analysis.

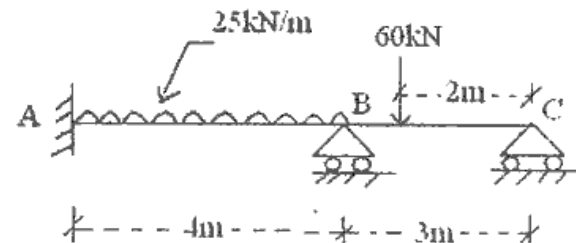


Figure 7

- b) Compare the flexibility and stiffness methods of matrix structural analysis.

OR

PTO