Roll No ....

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.

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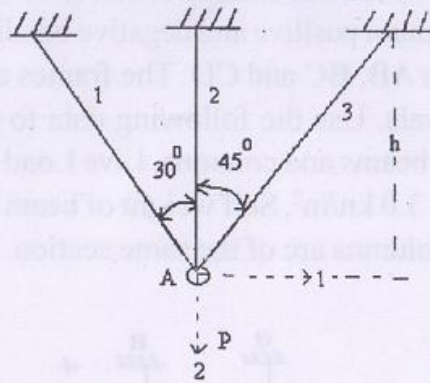
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   a) Use the displacement method to analyse the plane three member trusses as shown in figure. 8. All members have identical axial stiffness AE.

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Figure 8

   b) Explain degree of static and kinematic indeterminancy 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.
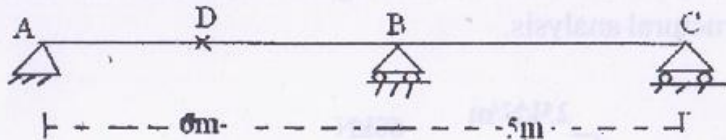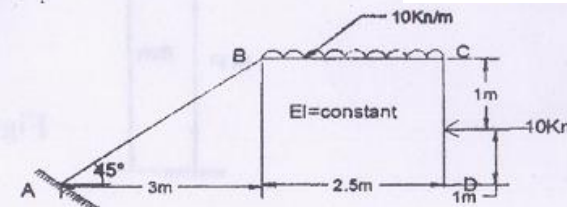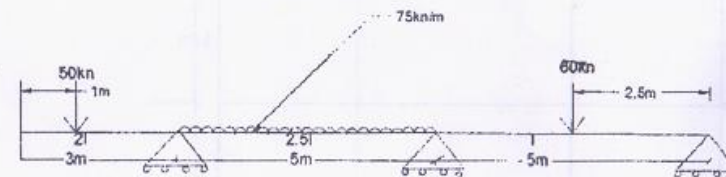

Figure 9

   b) Explain degree of static and kinematic indeterminancy 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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Unit - 2

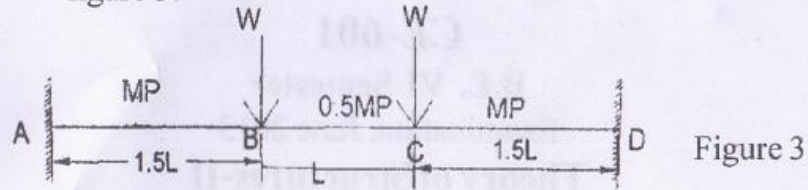2. a) Determine collapse load in the fixed beam shown in figure 3.

Figure 3

   b) Differentiate plastic analysis of structures with elastic analysis.

OR

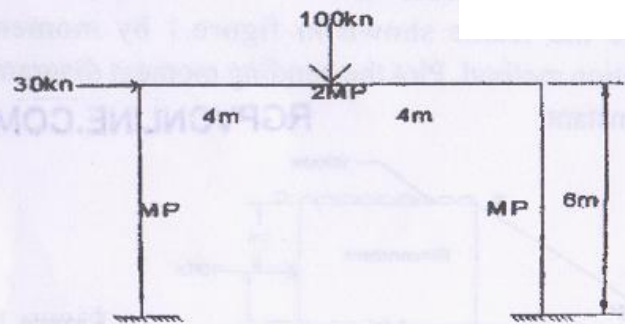   a) Find the collapse load factor for the frame shown in figure 4.

Figure 4

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

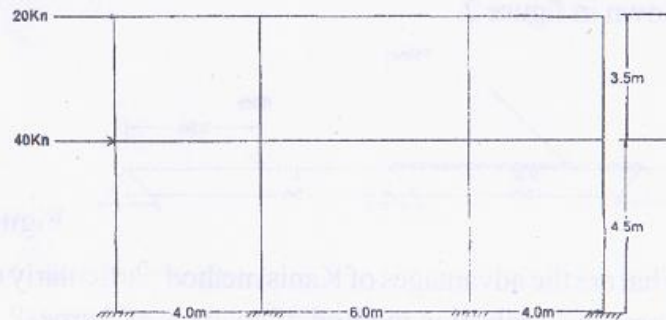## Unit - 3

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

Figure 5

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   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/m², Dead load $= 3.0$ kn/m², Self weight of beam $= 2.0$ kn/m². Beam and columns are of the same section.
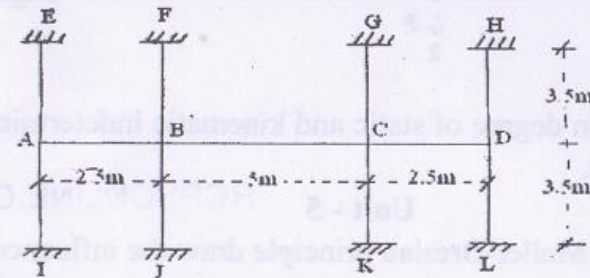

Figure 6

Unit - 4

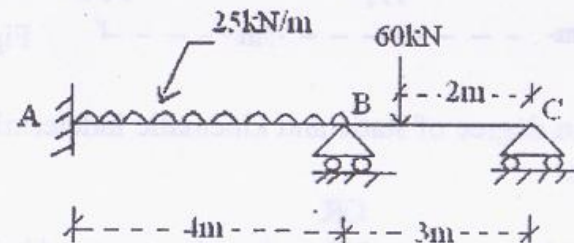4. a) Analyse the beam shown in figure. 7 by force method of structural analysis.

Figure 7

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

OR

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