OR

Analyse the pin jointed truss as shown in figure 6 by stiffness matrix method. Take area of cross-section of all members = 1000 mm^2 and modulus of elasticity $E = 200 kN/mm^2$.

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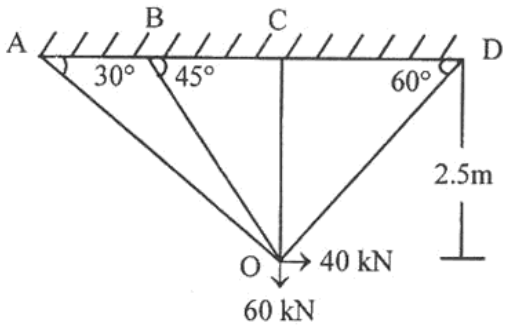

Figure 6

5. a) State Muller Breslau's principle.
   b) Explain influence line diagram.
   c) What is a beam column? How the structural behavior of a beam column does differs from a column.
   d) For a continuous beam of two equal spans draw influence line for bending moment and reaction for central support.

OR

Compute the ordinates at interval of 2m of the influence line for B.M. at the mid-span of span BC for continuous beam shown in figure 7. The beam has uniform moment of inertia throughout its length.

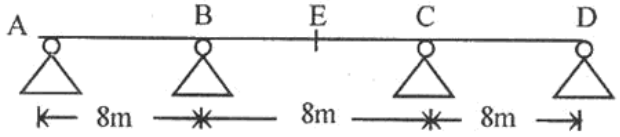

Figure 7

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Roll No .....

CE - 601

B.E. VI Semester

Examination, June 2015

Theory of Structures - II

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

1. a) Define stiffness and carry over factor.
   b) Write down the advantages of Kani's method.
   c) Mention the causes of sides way of portal frames.
   d) Analyse the frame shown in figure.1 by moment distribution method.

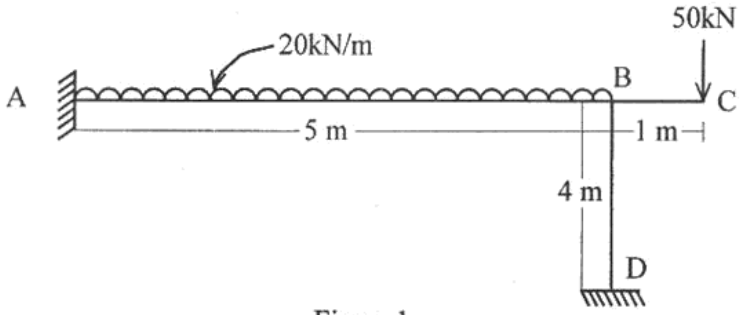

Figure 1

OR

Determine the support moments for the continuous beam of figure 2. by Kani's method.

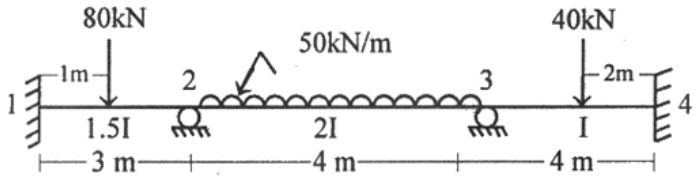

Figure 2

2. a) Define shape factor and load factor.
   b) Define plastic hinge.
   c) Differentiate plastic analysis of structure with elastic analysis.
   d) Calculate the collapse load Wu for a proposed cantilever loaded as shown in figure 3. Take the plastic moment capacity of the beam Mp.

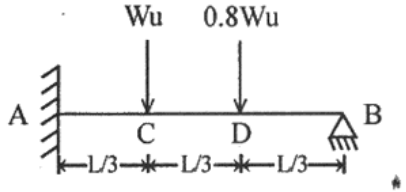

Figure 3

OR

Find the shape factor for triangular section.

3. a) Short note on wind load calculation using IS 875.
   b) Differentiate between portal and cantilever method of analysis of frames to lateral loads.
   c) Write a short note on structural behavior of tall buildings subjected to lateral forces.

d) For the multistory frame shown in figure 4. determine by cantilever method all column-end and beam-end moments due to lateral loads as shown.

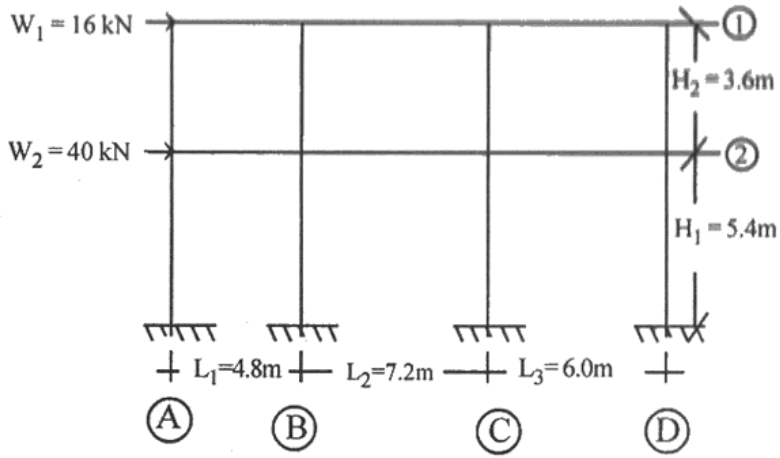

Figure - 4

OR

For the multistory frame shown in figure 4 determine by portal method all column-end and beam-end moments due to lateral loads as shown.

4. a) State principal of virtual work.
   b) Define static and kinematic indeterminacy.
   c) Give any three comparisons between flexibility and stiffness method.
   d) Analyse the continuous beam as shown in figure 5 by flexibility matrix method.

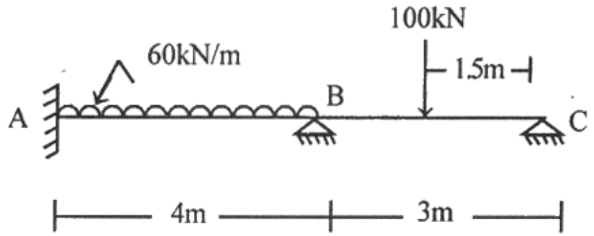

Figure 5