CODE NO: 07A40104 | R07 | SET No - 1

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
STRUCTURAL ANALYSIS-I
(CIVIL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks
- - -

1. Find the central deflection of the uniform bend ABCDEFG shown in figure 1 by using Castiglano theorem. [16]

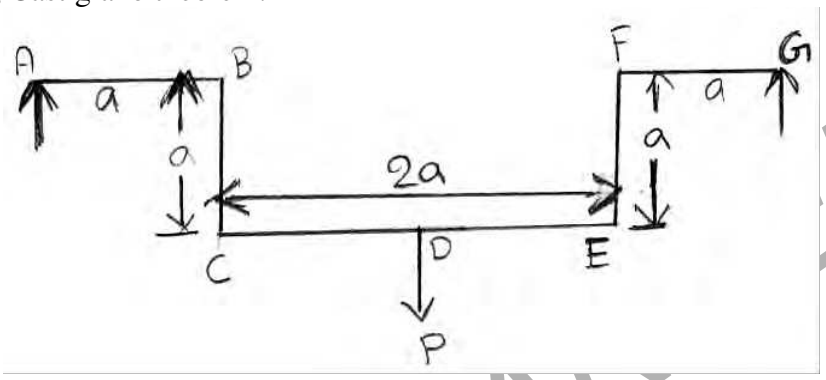

Figure 1:

2. Draw the influence line diagram for forces in the members U_3L_4, U_3U_4 and U_3L_3 of the frame shown in Figure 2 and find the maximum forces developed, when uniformly distributed load of intensity 40 kN/m, longer than the span moves from left to right on bottom chord. [16]

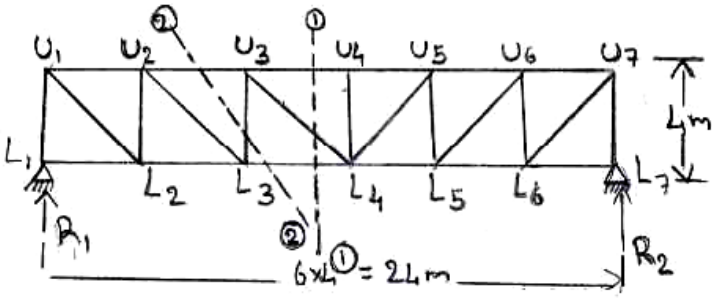

Figure 2

3. Analyze the fixed beam shown in Figure 3 and draw shear force and bending moment diagrams. Locate the points of contraflexure. [16]

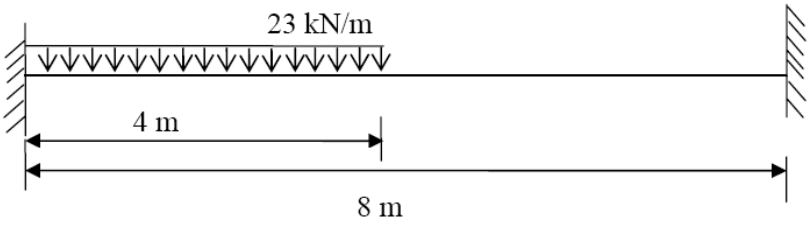

Figure 3:

4. The pin-joined truss shown in Figure 4 is having supports at A and D and is subjected to a horizontal force of 60 kN at C. Determine the forces developed in all members of the truss. Given cross-sectional areas of all members = 6000mm^2, Young's Modulus 200 kN / mm^2. [16]

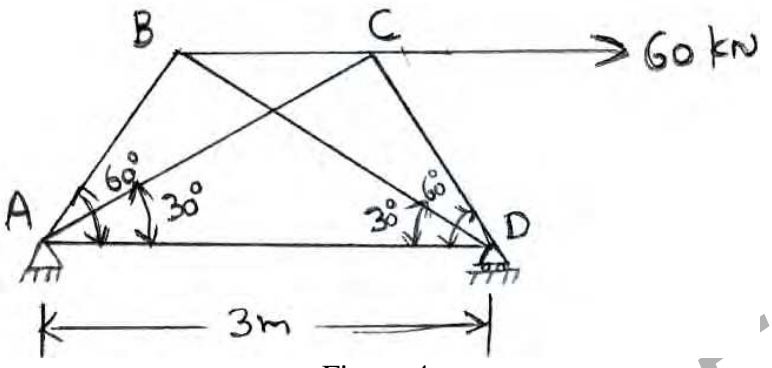

Figure 4

5. Using the method of minimum strain energy, analyze the portal frame shown in Figure 5. Plot the B.M diagram. EI is constant. [16]

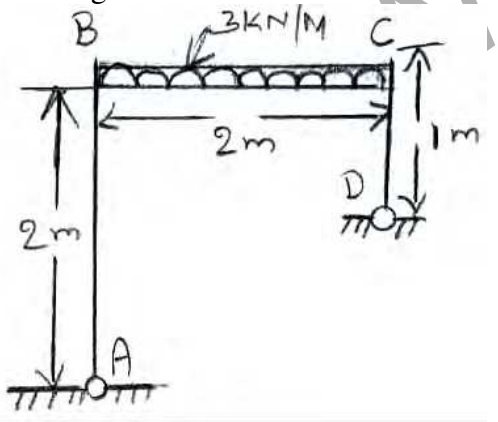

Figure 5

6. A simply supported girder has a span of 25m as shown in figure 6. Draw the influence line for shearing force at a section 10m from one end, and using the diagram determine the maximum shearing force due to the passage of a knife-edge load of 5 kN, followed immediately by a uniformly distributed load of 2.4 kN per meter extending over a length of 5m. The loads may cross in either direction. [16]

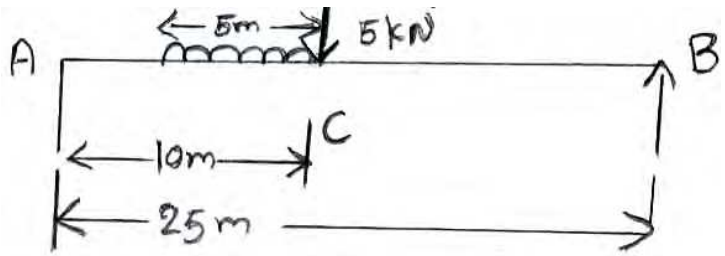

Figure 6

7. Determine the deflections at quarter span points from the prop. Assume constant EI throughout the beam.(Shown in Figure 7) [16]

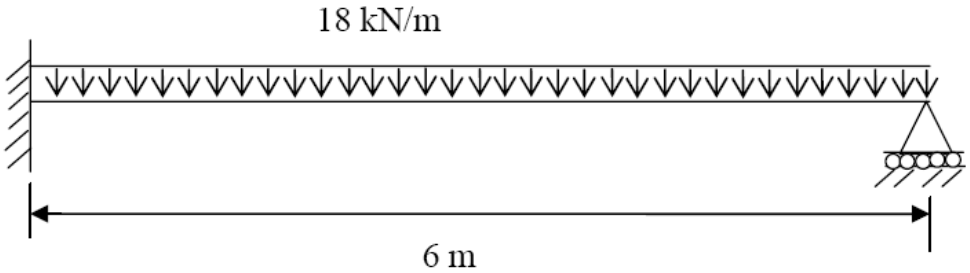

Figure 7

8. Analyze the continuous beam shown in Figure 8 using slope-deflection method, and draw shear force and bending moment diagrams. Locate and find the distances of the points of contra-flexure from supports. Draw elastic curve. [16]

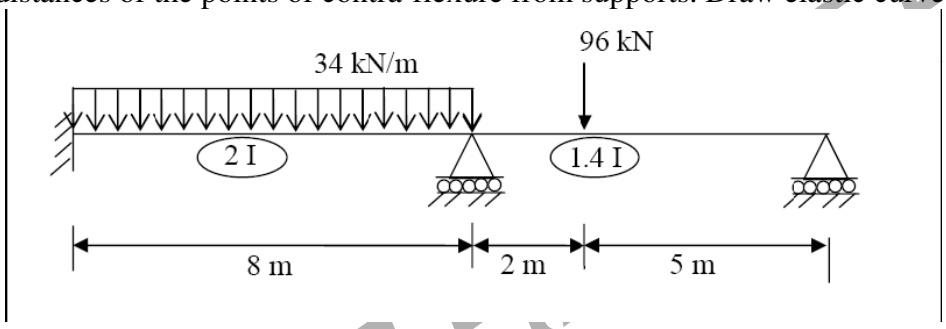

Figure 8

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CODE NO: 07A40104	R07	SET No - 2

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
STRUCTURAL ANALYSIS-I
(CIVIL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks

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1. Analyze the fixed beam shown in Figure 1 and draw shear force and bending moment diagrams. Locate the points of contraflexure. [16]

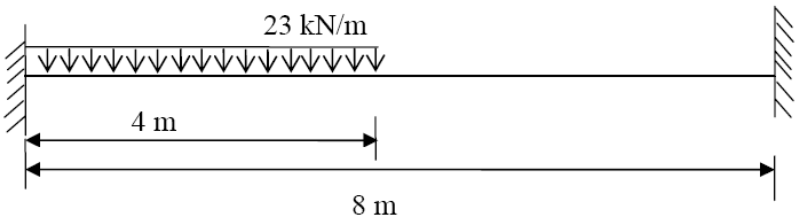


Figure 1:

2. The pin-joined truss shown in Figure 2 is having supports at A and D and is subjected to a horizontal force of 60 kN at C. Determine the forces developed in all members of the truss. Given cross-sectional areas of all members = 6000mm^2, Young's Modulus 200 kN / mm^2. [16]

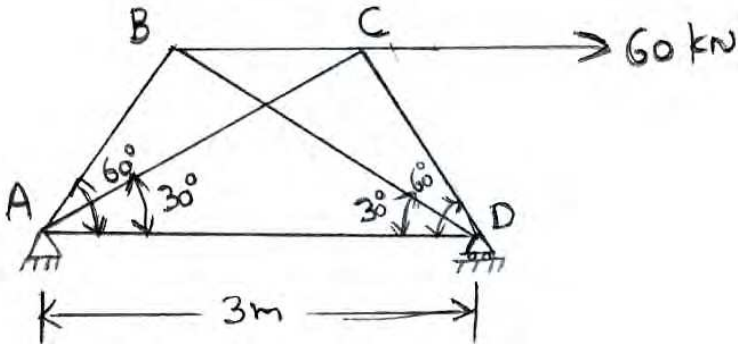


Figure 2

3. Using the method of minimum strain energy, analyze the portal frame shown in Figure 3. Plot the B.M diagram. EI is constant. [16]

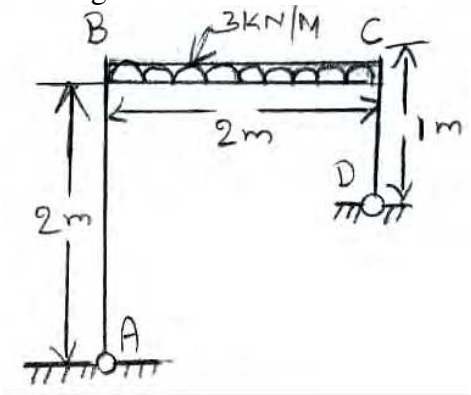


Figure 3

4. A simply supported girder has a span of 25m as shown in figure 4. Draw the influence line for shearing force at a section 10m from one end, and using the diagram determine the maximum shearing force due to the passage of a knife-edge load of 5 kN, followed immediately by a uniformly distributed load of 2.4 kN per meter extending over a length of 5m. The loads may cross in either direction. [16]

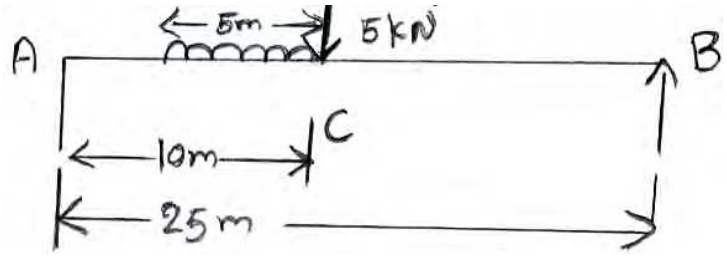


Figure 4

5. Determine the deflections at quarter span points from the prop. Assume constant EI throughout the beam.(Shown in Figure 5) [16]

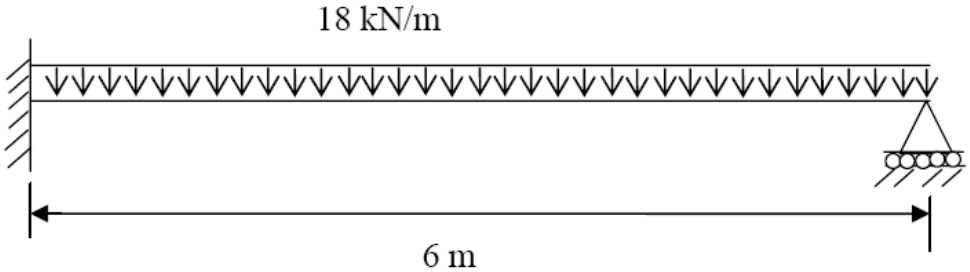


Figure 5

6. Analyze the continuous beam shown in Figure 6 using slope-deflection method, and draw shear force and bending moment diagrams. Locate and find the distances of the points of contra-flexure from supports. Draw elastic curve. [16]

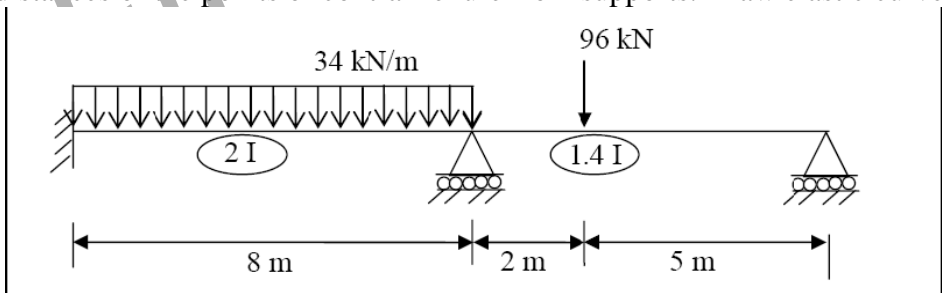
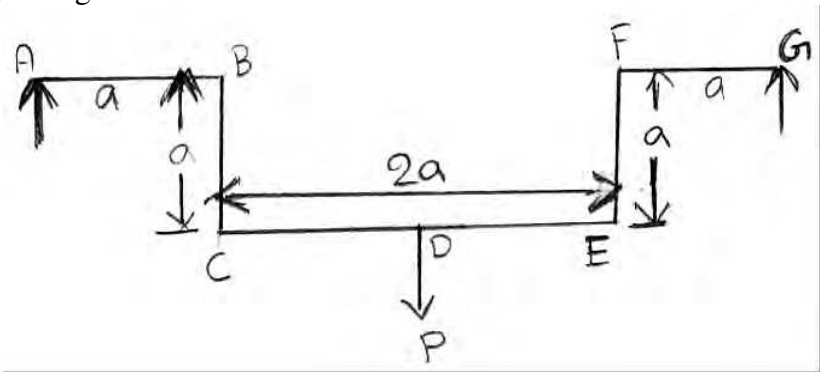


Figure 6

7. Find the central deflection of the uniform bend ABCDEFG shown in figure 7 by using Castiglano theorem. [16]



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8. Draw the influence line diagram for forces in the members U_3L_4, U_3U_4 and U_3L_3 of the frame shown in Figure 8 and find the maximum forces developed, when uniformly distributed load of intensity 40 kN/m, longer than the span moves from left to right on bottom chord. [16]

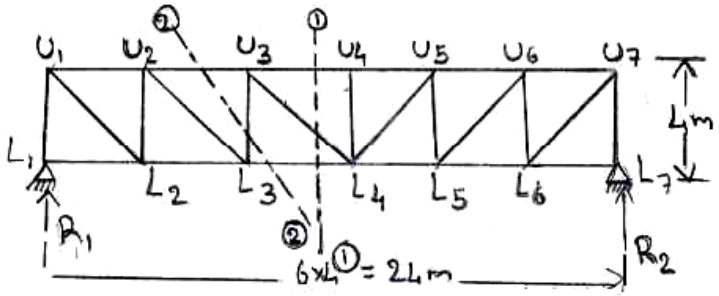

Figure 8

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CODE NO: 07A40104 | R07 | SET No - 3

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
STRUCTURAL ANALYSIS-I
(CIVIL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks

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1. Using the method of minimum strain energy, analyze the portal frame shown in Figure 1. Plot the B.M diagram. EI is constant. [16]

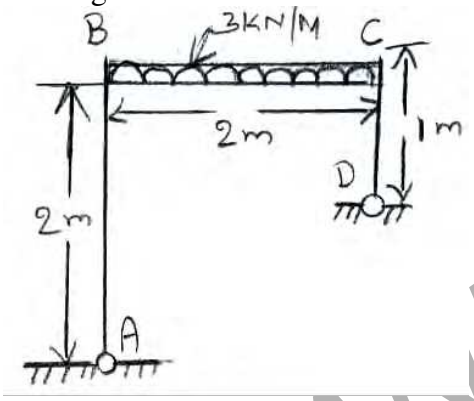

Figure 1

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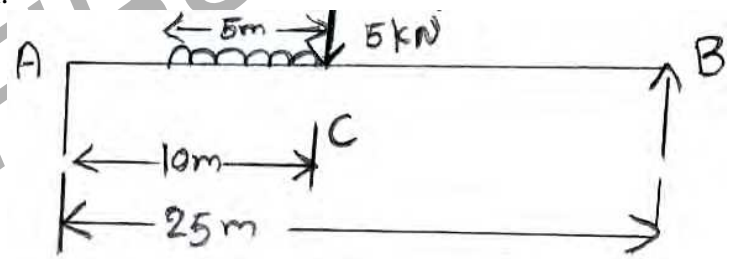

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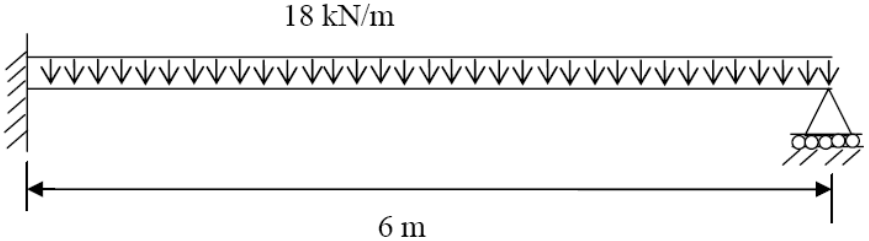

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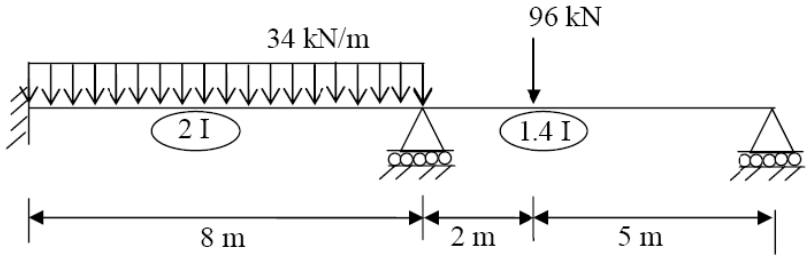
4. Analyze the continuous beam shown in Figure 4 using slope-deflection method, and draw shear force and bending moment diagrams. Locate and find the distances of the points of contra-flexure from supports. Draw elastic curve. [16]



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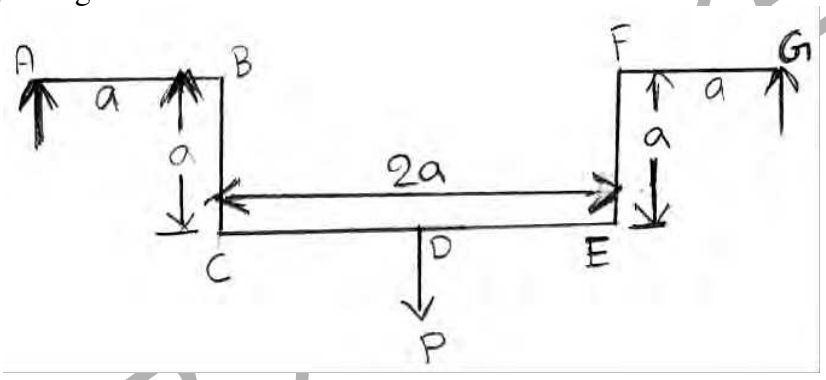
5. Find the central deflection of the uniform bend ABCDEFG shown in figure 5 by using Castiglano theorem. [16]



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6. Draw the influence line diagram for forces in the members U_3L_4, U_3U_4 and U_3L_3 of the frame shown in Figure 6 and find the maximum forces developed, when uniformly distributed load of intensity 40 kN/m, longer than the span moves from left to right on bottom chord. [16]

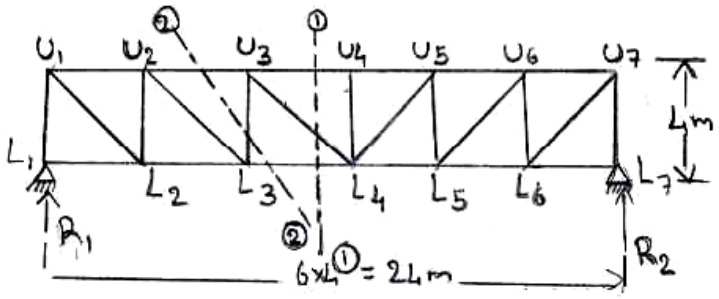
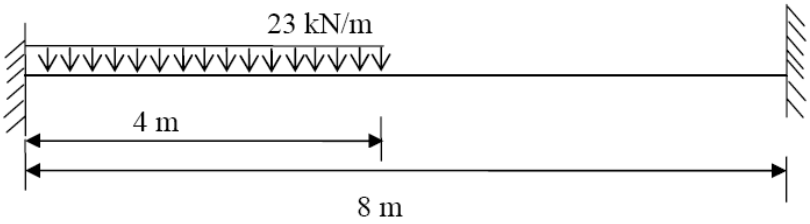


Figure 6

7. Analyze the fixed beam shown in Figure 7 and draw shear force and bending moment diagrams. Locate the points of contraflexure. [16]



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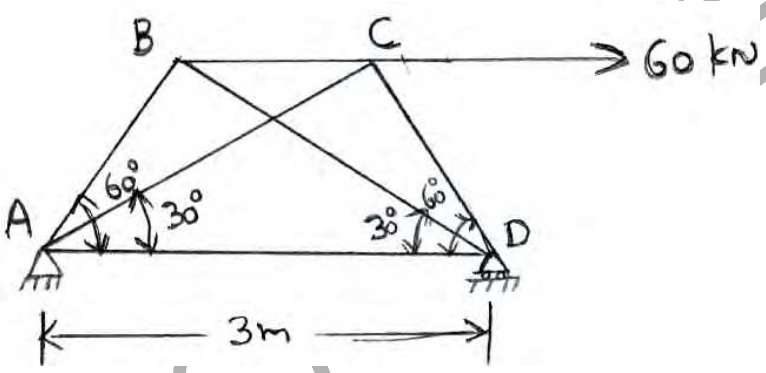

Figure 8

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CODE NO: 07A40104	R07	SET No - 4

II B.TECH - II SEMESTER EXAMINATIONS, APRIL/MAY, 2011
STRUCTURAL ANALYSIS-I
(CIVIL ENGINEERING)

Time: 3hours **Max. Marks: 80**

Answer any FIVE questions
All Questions Carry Equal Marks
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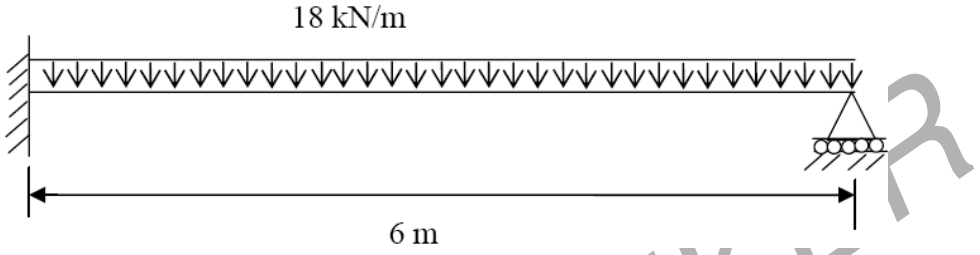

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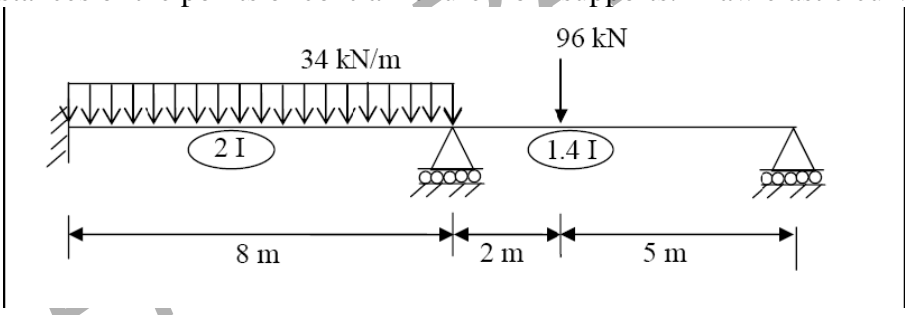

Figure 2

3. Find the central deflection of the uniform bend ABCDEFG shown in figure 3 by using Castiglano theorem. [16]

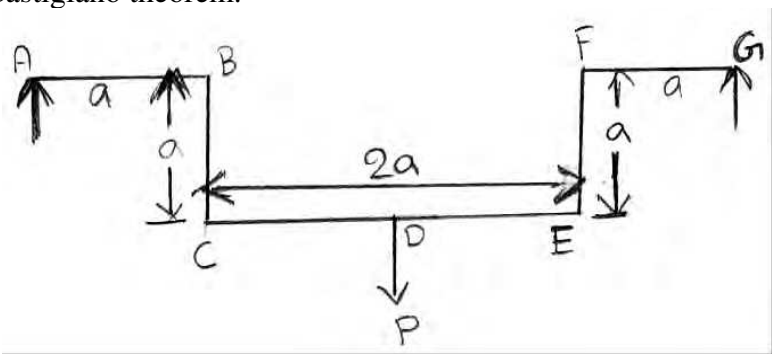

Figure 3:

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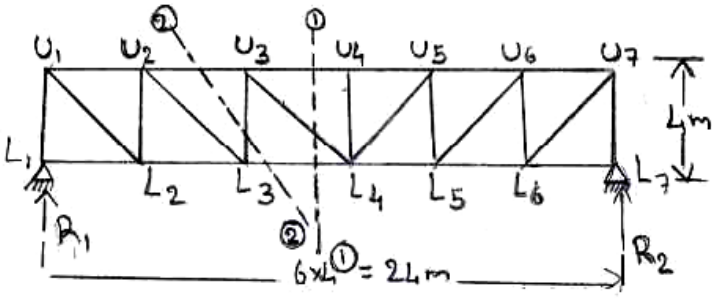

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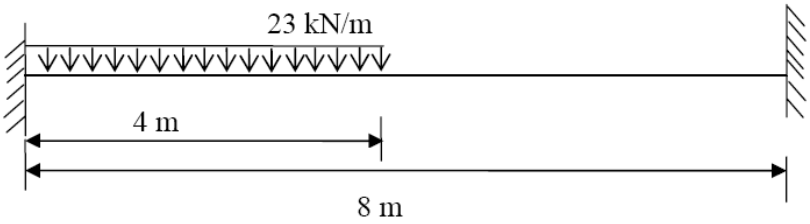

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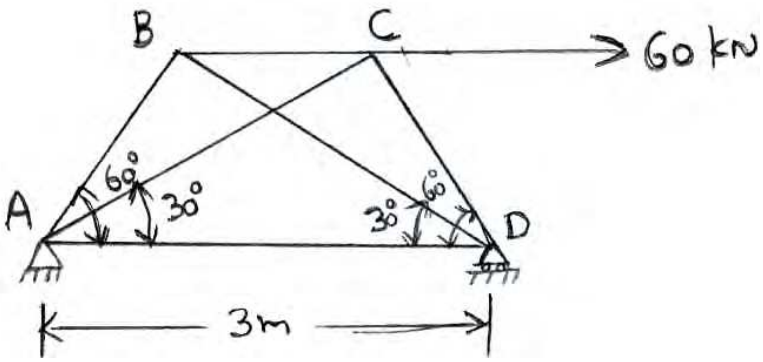

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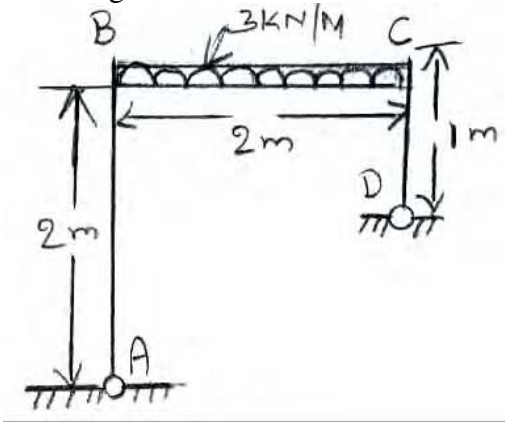

Figure 7

8. A simply supported girder has a span of 25m as shown in figure 8. Draw the influence line for shearing force at a section 10m from one end, and using the diagram determine the maximum shearing force due to the passage of a knife-edge load of 5 kN, followed immediately by a uniformly distributed load of 2.4 kN per meter extending over a length of 5m. The loads may cross in either direction. [16]

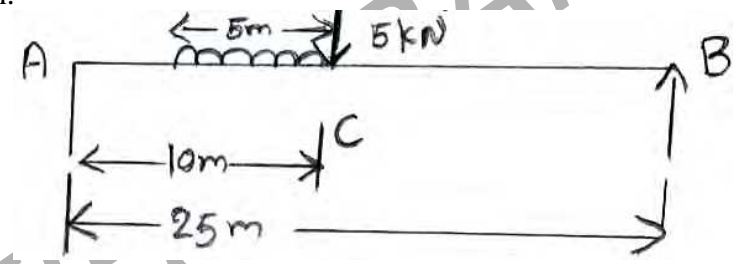

Figure 8

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