

Code No: R05310105

R05**Set No. 2**

III B.Tech I Semester Examinations, November 2010
STRUCTURAL ANALYSIS-II
Civil Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
 All Questions carry equal marks

1. Analyse the continuous beam shown in figure 2. The downward settlements of supports B and C in t-m units are $150/EI$ and $75/EI$ respectively. Use stiffness method. [8+8]

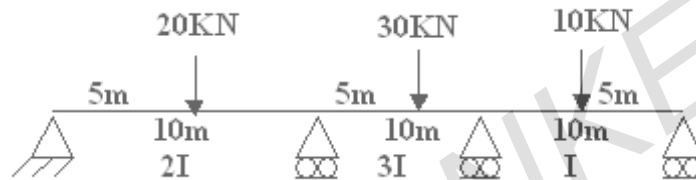


Figure 2

2. Analyse the portal frame shown in figure 1 and Sketch the BMD by using moment distribution method. [16]

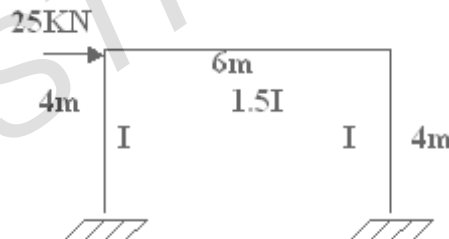


Figure 1

3. A continuous beam ABCD, 13 m long, is fixed at A and overhang at D. The first span of length 6 m is loaded with a UDL of intensity 2 kN/m, the second span of length 5 m is loaded with a central point load of 5 kN and the end of overhang is loaded with a point load of 8 kN. Using the slope deflection method, determine the bending moment at the supports and plot the bending moment diagrams. [16]
4. A two-hinged parabolic arch of span 40 m and rise 8 m is subjected to a temperature rise of 22°K . Calculate the maximum bending stress at the crown due to the temperature rise if $\alpha = 11 \times 10^{-6}$ per 1°K and $E = 2.1 \times 10^5 \text{ N/mm}^2$. The rib section is symmetrical and 1m deep. [16]
5. Explain the Portal method for analyzing a building frame subjected to horizontal forces. [16]
6. Analyse the Continuous beam shown in figure 4 using flexibility method and draw BMD. [16]

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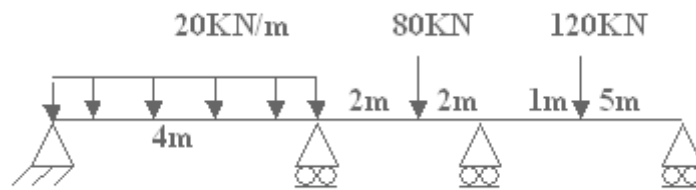
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Figure 4

7. A parabolic arch rib, 20 m span and 3 m rise is hinged at the abutments and the crown and carries a point load of 10 kN at 7.5 m from the left hand hinge. Calculate the horizontal thrust and the bending moment at a section 7.5 m from right hand hinge. What is the value of the greatest bending moment in the arch, and where does it occur? [16]
8. Determine the support moments for the continuous beam shown in figure 6 and draw BMD by using Kanis method. [16]

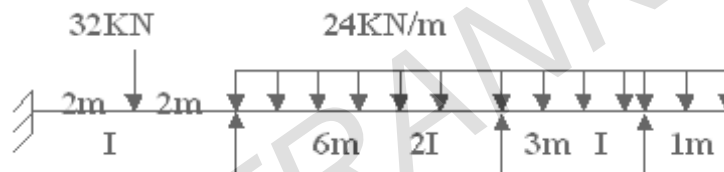


Figure 6

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R05**Set No. 4**

III B.Tech I Semester Examinations, November 2010
STRUCTURAL ANALYSIS-II
Civil Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
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1. Analyse the continuous beam shown in figure 2. The downward settlements of supports B and C in t-m units are $150/EI$ and $75/EI$ respectively. Use stiffness method. [8+8]

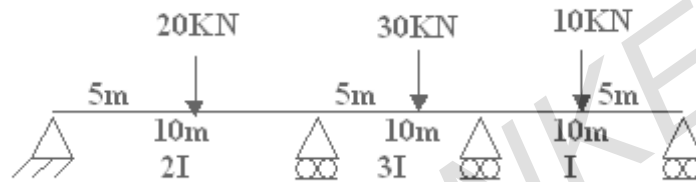


Figure 2

2. A continuous beam ABCD, 13 m long, is fixed at A and overhang at D. The first span of length 6 m is loaded with a UDL of intensity 2 kN/m, the second span of length 5 m is loaded with a central point load of 5 kN and the end of overhang is loaded with a point load of 8 kN. Using the slope deflection method, determine the bending moment at the supports and plot the bending moment diagrams. [16]
3. A two-hinged parabolic arch of span 40 m and rise 8 m is subjected to a temperature rise of 22°K . Calculate the maximum bending stress at the crown due to the temperature rise if $\alpha = 11 \times 10^{-6}$ per 1°K and $E = 2.1 \times 10^5 \text{ N/mm}^2$. The rib section is symmetrical and 1m deep. [16]
4. Determine the support moments for the continuous beam shown in figure 6 and draw BMD by using Kanis method. [16]

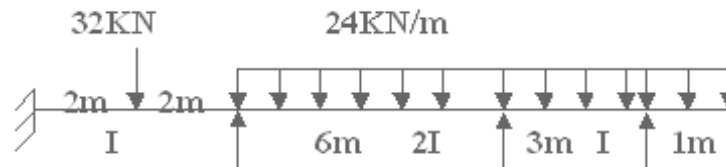


Figure 6

5. Explain the Portal method for analyzing a building frame subjected to horizontal forces. [16]
6. A parabolic arch rib, 20 m span and 3 m rise is hinged at the abutments and the crown and carries a point load of 10 kN at 7.5 m from the left hand hinge. Calculate the horizontal thrust and the bending moment at a section 7.5 m from right hand hinge. What is the value of the greatest bending moment in the arch, and where does it occur? [16]

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7. Analyse the portal frame shown in figure 1 and Sketch the BMD by using moment distribution method. [16]

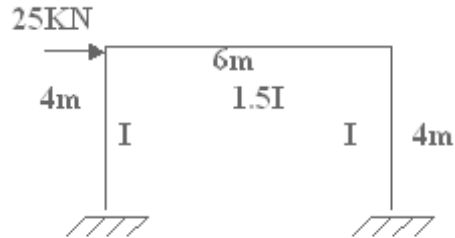


Figure 1

8. Analyse the Continuous beam shown in figure 4 using flexibility method and draw BMD. [16]

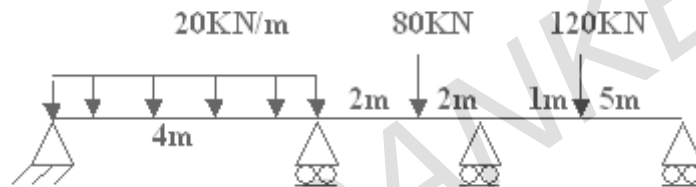


Figure 4

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R05**Set No. 1**

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Answer any FIVE Questions
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1. Determine the support moments for the continuous beam shown in figure 6 and draw BMD by using Kanis method. [16]

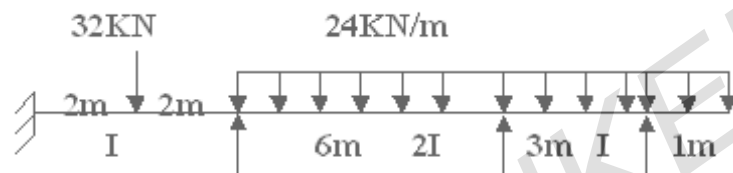


Figure 6

2. A two-hinged parabolic arch of span 40 m and rise 8 m is subjected to a temperature rise of 22° K. Calculate the maximum bending stress at the crown due to the temperature rise if $\alpha = 11 \times 10^{-6}$ per $^{\circ}$ K and $E = 2.1 \times 10^5$ N/mm². The rib section is symmetrical and 1m deep. [16]
3. A continuous beam ABCD, 13 m long, is fixed at A and overhang at D. The first span of length 6 m is loaded with a UDL of intensity 2 kN/m, the second span of length 5 m is loaded with a central point load of 5 kN and the end of overhang is loaded with a point load of 8 kN. Using the slope deflection method, determine the bending moment at the supports and plot the bending moment diagrams. [16]
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6. Analyse the Continuous beam shown in figure 4 using flexibility method and draw BMD. [16]

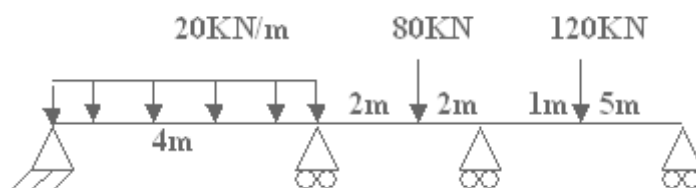


Figure 4

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R05**Set No. 1**

7. Analyse the continuous beam shown in figure2. The downward settlements of supports B and C in t-m units are $150/EI$ and $75/EI$ respectively. Use stiffness method. [8+8]

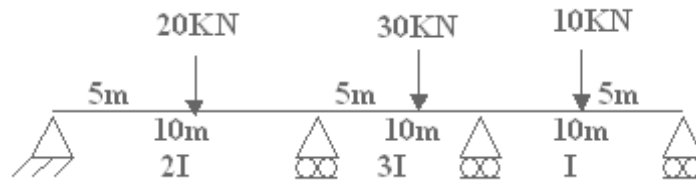


Figure 2

8. Analyse the portal frame shown in figure 1 and Sketch the BMD by using moment distribution method. [16]

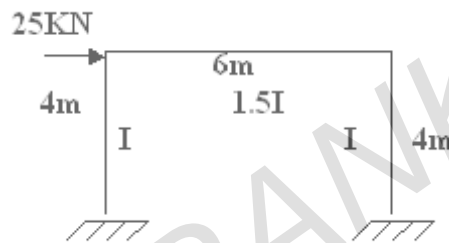


Figure 1

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R05**Set No. 3**

III B.Tech I Semester Examinations, November 2010
STRUCTURAL ANALYSIS-II
Civil Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
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1. Analyse the portal frame shown in figure 1 and Sketch the BMD by using moment distribution method. [16]

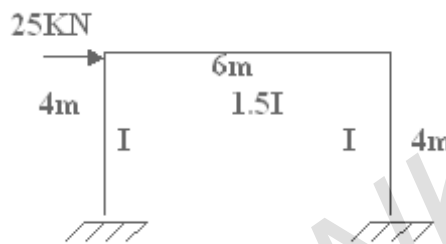


Figure 1

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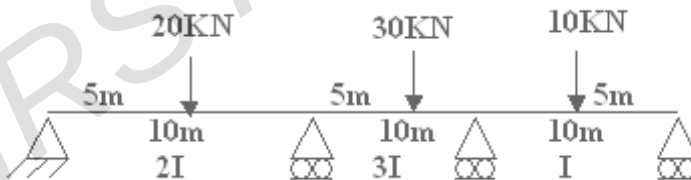


Figure 2

3. A two-hinged parabolic arch of span 40 m and rise 8 m is subjected to a temperature rise of 22°K . Calculate the maximum bending stress at the crown due to the temperature rise if $\alpha = 11 \times 10^{-6}$ per $^{\circ}\text{K}$ and $E = 2.1 \times 10^5 \text{ N/mm}^2$. The rib section is symmetrical and 1m deep. [16]
4. Analyse the Continuous beam shown in figure 4 using flexibility method and draw BMD. [16]

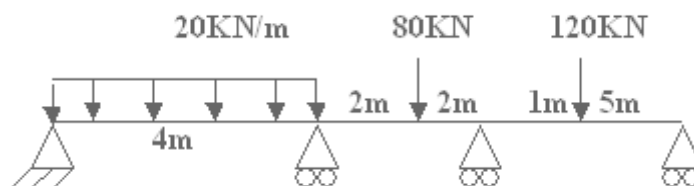


Figure 4

5. A continuous beam ABCD, 13 m long, is fixed at A and overhang at D. The first span of length 6 m is loaded with a UDL of intensity 2 kN/m, the second span of

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length 5 m is loaded with a central point load of 5 kN and the end of overhand is loaded with a point load of 8 kN. Using the slope deflection method, determine the bending moment at the supports and plot the bending moment diagrams. [16]

6. Determine the support moments for the continuous beam shown in figure 6 and draw BMD by using Kanis method. [16]

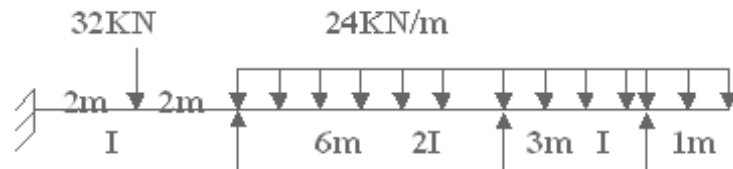


Figure 6

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