Code No: R05220106 **R05** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
STRUCTURAL ANALYSIS-I
Civil Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Find the fixed end moments for a fixed beam of span 6 m subjected to a concentrated clockwise moment of 10 kNm at 2.5 m from the left end. [16]

2. A continuous beam ABC consists of spans AB and BC of lengths 4m and 6m respectively, the ends A and B being fixed. C is a free end. The span AB carries a uniformly distributed load of 24 kN/m while the span BC carries a point load of 108 kN at a distance of 2m from C. Find the support moments and support reactions. [16]

3. A beam simply supported over a span 'L' is traversed by a uniformly distributed load of intensity 'q' and length 'L/5'. If the beam also carries a D.L, uniformly distributed over the span of intensity 'q/2', locate the point where there is reversal of shear force. [16]

4. In the pin jointed frame shown in Figure 7, if joint B undergoes horizontal and vertical displacements of magnitude δ_u, δ_v respectively. Find the magnitude of the load that is applied at B. If $A_1, A_2 and L_1, L_2$ represent the area of c/s and lengths of the members AB and BC respectively, with E as modulus of elasticity then what shall be the force required if the joint B has no horizontal shift. [16]

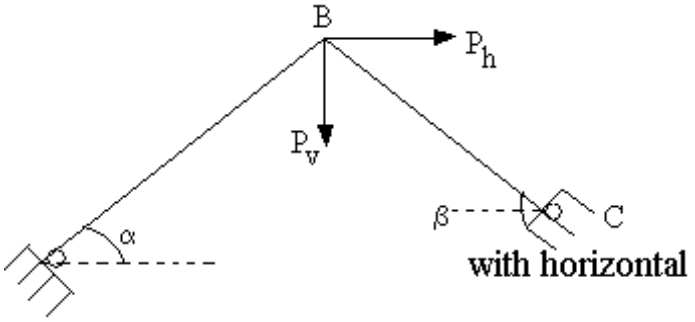

Figure 7

5. A beam ABC is supported at A,B and C and has an internal hinge at D at a distance of 3m from A. AB=6m and BC=9m. Draw the influence lines for the reactions at supports and S.F and B.M at a point 1m from B in the span BC. [16]

6. Develop the slope-deflection equations for analyzing continuous beams and portal frames. Illustrate their application. [16]

7. Find the maximum bending moment and locate the point of inflection for a propped cantilever beam of span 5 m due to a uniformly varying load, whose intensity is 5 kN/m at the fixed support and 2 kN/m at the simple support. [16]

8. Fine the forces in the members BE and CF of the truss shown in Figure 3. The ratio of length to cross sectional area for all the members in same. [16]

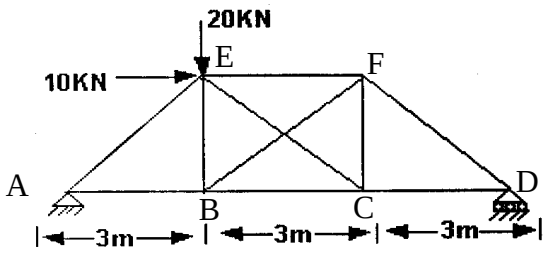

Figure 3

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Code No: R05220106 **R05** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
STRUCTURAL ANALYSIS-I
Civil Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. A continuous beam ABC consists of spans AB and BC of lengths 4m and 6m respectively, the ends A and B being fixed. C is a free end. The span AB carries a uniformly distributed load of 24 kN/m while the span BC carries a point load of 108 kN at a distance of 2m from C. Find the support moments and support reactions. [16]

2. Find the maximum bending moment and locate the point of inflection for a propped cantilever beam of span 5 m due to a uniformly varying load, whose intensity is 5 kN/m at the fixed support and 2 kN/m at the simple support. [16]

3. A beam simply supported over a span 'L' is traversed by a uniformly distributed load of intensity 'q' and length 'L/5'. If the beam also carries a D.L, uniformly distributed over the span of intensity 'q/2', locate the point where there is reversal of shear force. [16]

4. Fine the forces in the members BE and CF of the truss shown in Figure 3. The ratio of length to cross sectional area for all the members in same. [16]

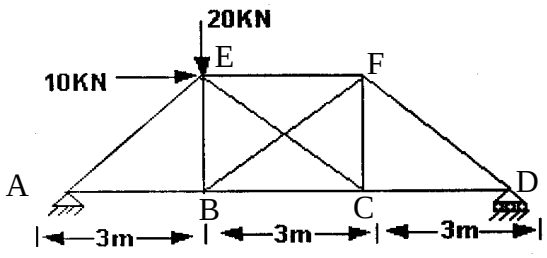

Figure 3

5. Develop the slope-deflection equations for analyzing continuous beams and portal frames. Illustrate their application. [16]

6. Find the fixed end moments for a fixed beam of span 6 m subjected to a concentrated clockwise moment of 10 kNm at 2.5 m from the left end. [16]

7. In the pin jointed frame shown in Figure 7, if joint B undergoes horizontal and vertical displacements of magnitude δ_u, δ_v respectively. Find the magnitude of the load that is applied at B. If $A_1, A_2 and L_1, L_2$ represent the area of c/s and lengths of the members AB and BC respectively, with E as modulus of elasticity then what shall be the force required if the joint B has no horizontal shift. [16]

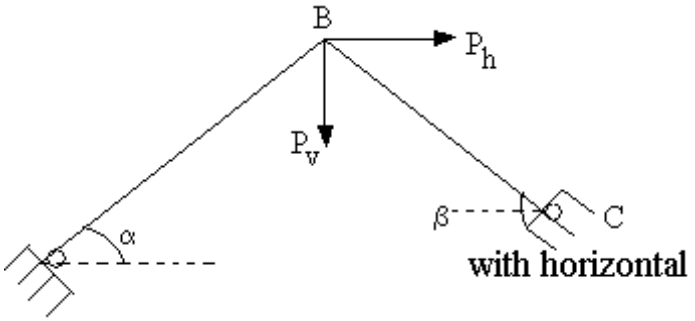

Figure 7

8. A beam ABC is supported at A,B and C and has an internal hinge at D at a distance of 3m from A. AB=6m and BC=9m. Draw the influence lines for the reactions at supports and S.F and B.M at a point 1m from B in the span BC.[16]

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Code No: R05220106 **R05** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
STRUCTURAL ANALYSIS-I
Civil Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Fine the forces in the members BE and CF of the truss shown in Figure 3. The ratio of length to cross sectional area for all the members in same. [16]

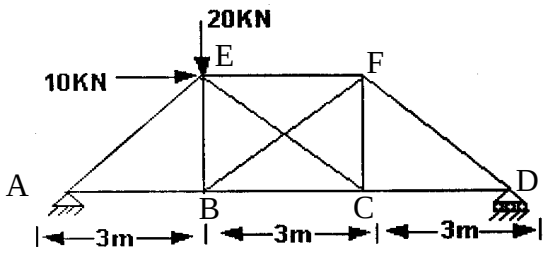

Figure 3

2. A continuous beam ABC consists of spans AB and BC of lengths 4m and 6m respectively, the ends A and B being fixed. C is a free end. The span AB carries a uniformly distributed load of 24 kN/m while the span BC carries a point load of 108 kN at a distance of 2m from C. Find the support moments and support reactions. [16]

3. A beam simply supported over a span 'L' is traversed by a uniformly distributed load of intensity 'q' and length 'L/5'. If the beam also carries a D.L, uniformly distributed over the span of intensity 'q/2', locate the point where there is reversal of shear force. [16]

4. A beam ABC is supported at A,B and C and has an internal hinge at D at a distance of 3m from A. AB=6m and BC=9m. Draw the influence lines for the reactions at supports and S.F and B.M at a point 1m from B in the span BC. [16]

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7. In the pin jointed frame shown in Figure 7, if joint B undergoes horizontal and vertical displacements of magnitude δ_u, δ_v respectively. Find the magnitude of the load that is applied at B. If $A_1, A_2 and L_1, L_2$ represent the area of c/s and lengths of the members AB and BC respectively, with E as modulus of elasticity then what shall be the force required if the joint B has no horizontal shift. [16]

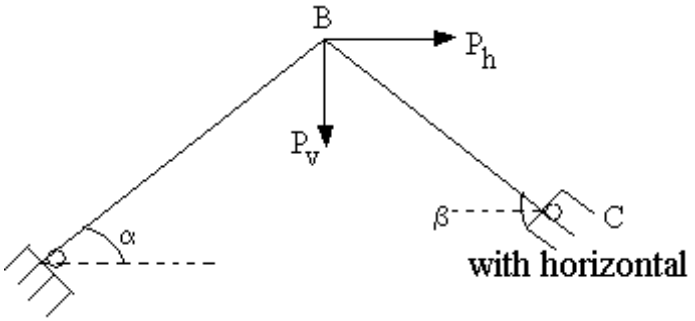

Figure 7

8. Develop the slope-deflection equations for analyzing continuous beams and portal frames. Illustrate their application. [16]

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Code No: R05220106 **R05** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
STRUCTURAL ANALYSIS-I
Civil Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. A beam ABC is supported at A,B and C and has an internal hinge at D at a distance of 3m from A. AB=6m and BC=9m. Draw the influence lines for the reactions at supports and S.F and B.M at a point 1m from B in the span BC. [16]

2. Develop the slope-deflection equations for analyzing continuous beams and portal frames. Illustrate their application. [16]

3. Fine the forces in the members BE and CF of the truss shown in Figure 3. The ratio of length to cross sectional area for all the members in same. [16]

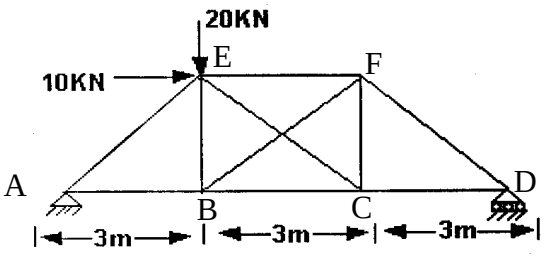

Figure 3

4. A continuous beam ABC consists of spans AB and BC of lengths 4m and 6m respectively, the ends A and B being fixed. C is a free end. The span AB carries a uniformly distributed load of 24 kN/m while the span BC carries a point load of 108 kN at a distance of 2m from C. Find the support moments and support reactions. [16]

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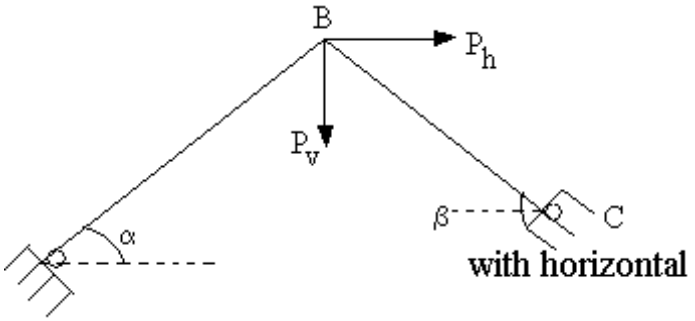

Figure 7

8. Find the fixed end moments for a fixed beam of span 6 m subjected to a concentrated clockwise moment of 10 kNm at 2.5 m from the left end. [16]

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