Code No: RR220104 **RR** **Set No. 2**

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

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Determine the slope and displacement at the free end for a cantilever , span Lm loaded with UDL of w/m run EI is constant. [16]

2. A beam of uniform section simply supported at the ends carries a concentrated load of 80 kN at mid-span. Find the concentrated load the same beam will carry at mid-span when the ends are built-in and

   (a) the maximum deflection remains unchanged.

   (b) the maximum bending moment remains the same. EI is constant. [8+8]

3. Figure 3 shows two views of a tripod bracket. All connections are pinned. Find the forces in magnitude and nature in the three members due to a vertical load of 100kN acting at O. Use the method of tension coefficients. [16]

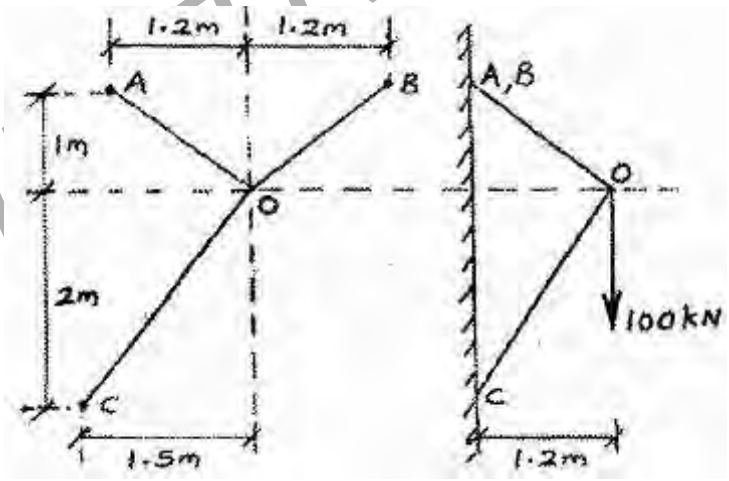

Figure 3

4. Analyse the continuous beam shown in Figure 4 by Clapeyron's theorem of three moments, if support B sinks by 8mm. Also sketch the BMD, SFD and elastic curve. Take E = 200 kN/mm^2 and I = 0.8 x $10^8 mm^4$. [16]

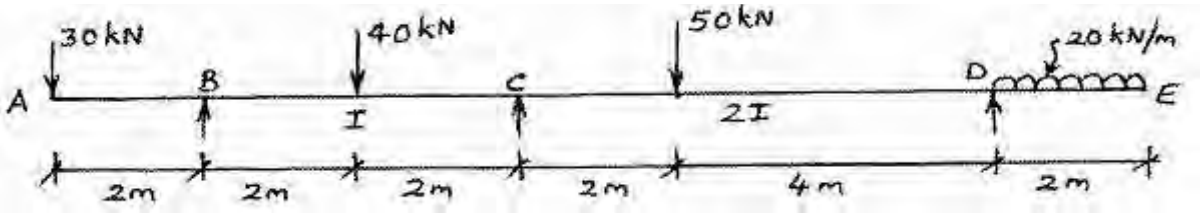

Figure 4

Code No: RR220104 **RR** **Set No. 2**

5. A moving load of 50kN/m and, 4 m long, crosses a girder of 16 m span. Calculate the maximum B.M at a section 5 m from the left hand support. [16]

6. (a) Differentiate between static indeterminacy and kinematic indeterminacy of a structure?

   (b) Find the forces in the members of the frame shown in Figure 6b the quantity "AE" is count for all the members. [6+10]

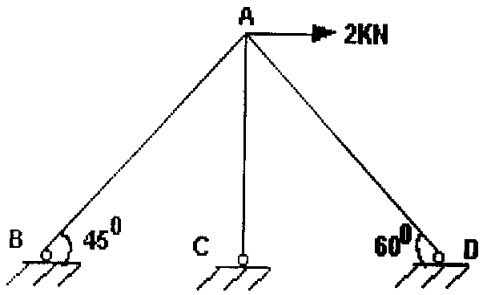

Figure 6b

7. 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]

8. Draw the bending moment and shear force diagram of a propped cantilever beam of span 6m due to a point load of 6 kN at the mid span. [16]

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Code No: RR220104 **RR** **Set No. 4**

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

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

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Draw the bending moment and shear force diagram of a propped cantilever beam of span 6m due to a point load of 6 kN at the mid span. [16]

2. Determine the slope and displacement at the free end for a cantilever , span Lm loaded with UDL of w/m run EI is constant. [16]

3. Analyse the continuous beam shown in Figure 3 by Clapeyron's theorem of three moments, if support B sinks by 8mm. Also sketch the BMD, SFD and elastic curve. Take E = 200 kN/mm^2 and I = 0.8 x $10^8 mm^4$. [16]

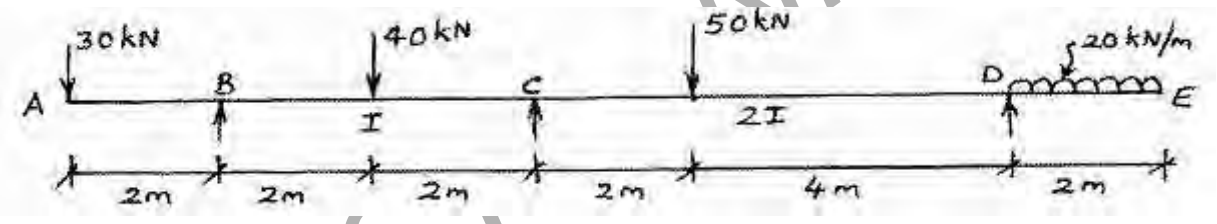

Figure 3

4. A moving load of 50kN/m and, 4 m long, crosses a girder of 16 m span. Calculate the maximum B.M at a section 5 m from the left hand support. [16]

5. A beam of uniform section simply supported at the ends carries a concentrated load of 80 kN at mid-span. Find the concentrated load the same beam will carry at mid-span when the ends are built-in and

   (a) the maximum deflection remains unchanged.

   (b) the maximum bending moment remains the same. EI is constant. [8+8]

6. 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]

7. Figure 7 shows two views of a tripod bracket. All connections are pinned. Find the forces in magnitude and nature in the three members due to a vertical load of 100kN acting at O. Use the method of tension coefficients. [16]

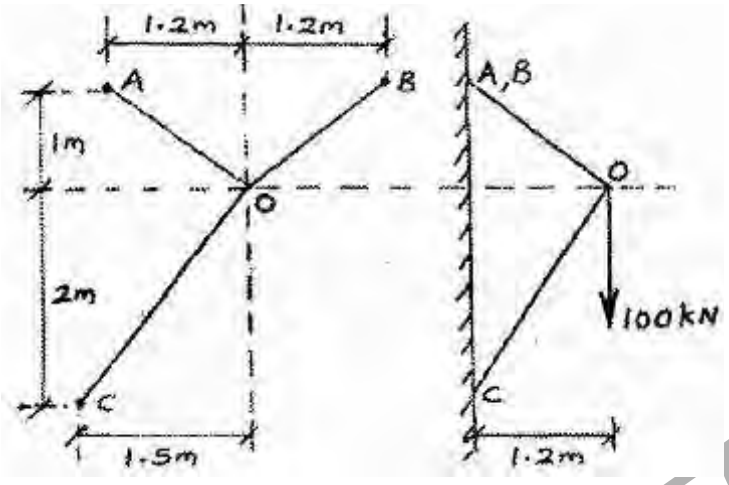

Figure 7

8. (a) Differentiate between static indeterminacy and kinematic indeterminacy of a structure?

   (b) Find the forces in the members of the frame shown in Figure 8b the quantity "AE" is count for all the members. [6+10]

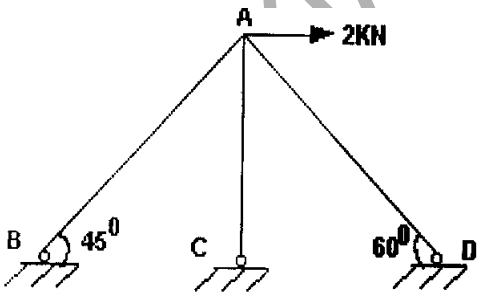

Figure 8b

⋆ ⋆ ⋆ ⋆ ⋆

Code No: RR220104 **RR** **Set No. 1**

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

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1. (a) Differentiate between static indeterminacy and kinematic indeterminacy of a structure?
   (b) Find the forces in the members of the frame shown in Figure 1b the quantity "AE" is count for all the members. [6+10]

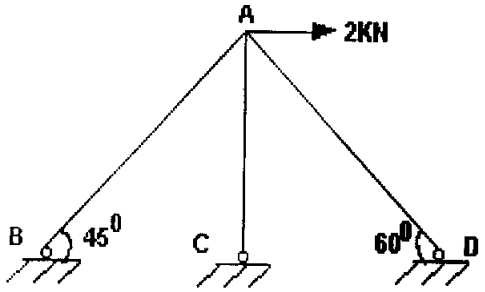

Figure 1b

2. Determine the slope and displacement at the free end for a cantilever , span Lm loaded with UDL of w/m run EI is constant. [16]

3. A beam of uniform section simply supported at the ends carries a concentrated load of 80 kN at mid-span. Find the concentrated load the same beam will carry at mid-span when the ends are built-in and
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4. A moving load of 50kN/m and, 4 m long, crosses a girder of 16 m span. Calculate the maximum B.M at a section 5 m from the left hand support. [16]

5. Draw the bending moment and shear force diagram of a propped cantilever beam of span 6m due to a point load of 6 kN at the mid span. [16]

6. Analyse the continuous beam shown in Figure 6 by Clapeyron's theorem of three moments, if support B sinks by 8mm. Also sketch the BMD, SFD and elastic curve. Take E = 200 kN/mm^2 and I = 0.8 x $10^8 mm^4$. [16]

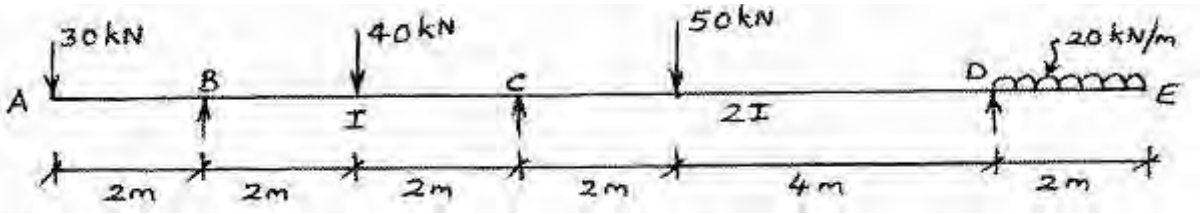

Figure 6

7. 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]

8. Figure 8 shows two views of a tripod bracket. All connections are pinned. Find the forces in magnitude and nature in the three members due to a vertical load of 100kN acting at O. Use the method of tension coefficients. [16]

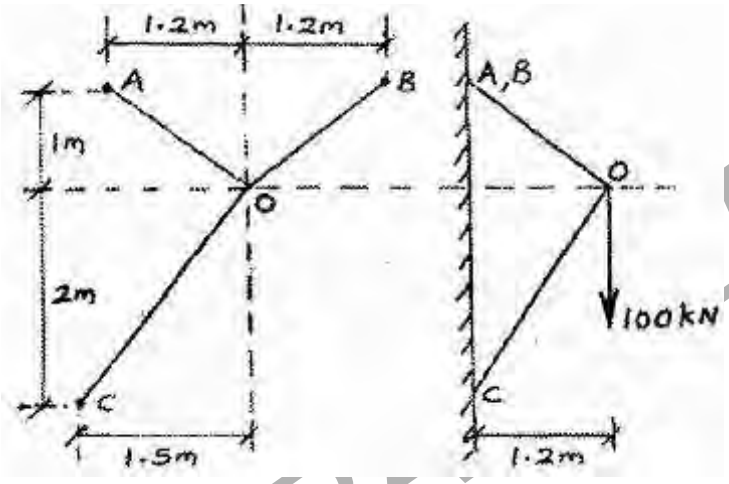

Figure 8

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Code No: RR220104 **RR** **Set No. 3**

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

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

Answer any FIVE Questions
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⋆ ⋆ ⋆ ⋆ ⋆

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4. (a) Differentiate between static indeterminacy and kinematic indeterminacy of a structure?
   (b) Find the forces in the members of the frame shown in Figure 4b the quantity "AE" is count for all the members. [6+10]

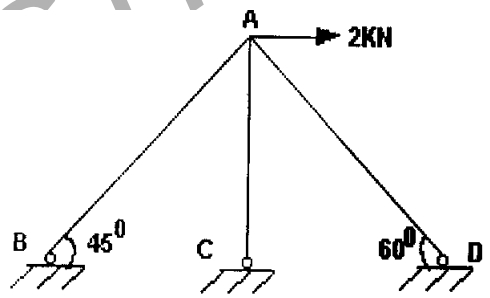

Figure 4b

5. Draw the bending moment and shear force diagram of a propped cantilever beam of span 6m due to a point load of 6 kN at the mid span. [16]

6. Figure 6 shows two views of a tripod bracket. All connections are pinned. Find the forces in magnitude and nature in the three members due to a vertical load of 100kN acting at O. Use the method of tension coefficients. [16]

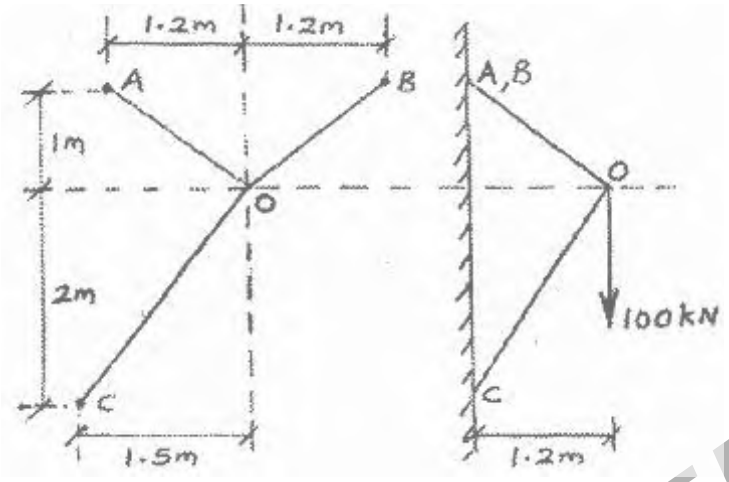

Figure 6

7. A beam of uniform section simply supported at the ends carries a concentrated load of 80 kN at mid-span. Find the concentrated load the same beam will carry at mid-span when the ends are built-in and

   (a) the maximum deflection remains unchanged.

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8. Analyse the continuous beam shown in Figure 8 by Clapeyron's theorem of three moments, if support B sinks by 8mm. Also sketch the BMD, SFD and elastic curve. Take E = 200 kN/mm^2 and I = 0.8 x $10^8 mm^4$. [16]

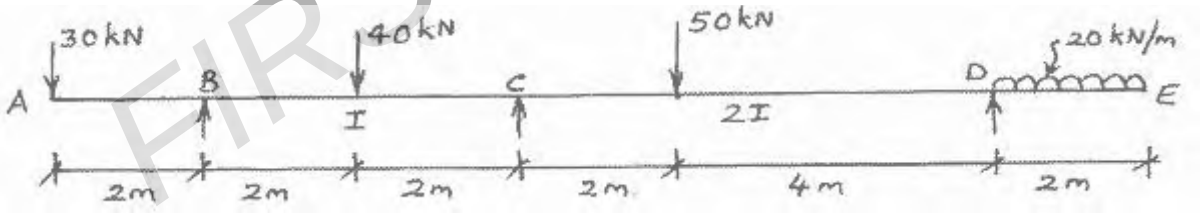

Figure 8

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