Code No: RR312105 | RR | SET-1

B. Tech III Year I Semester Examinations, December-2011
AIRCRAFT STRUCTURES - I
(AERONAUTICAL ENGINEERING)

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

Answer any five questions
All questions carry equal marks

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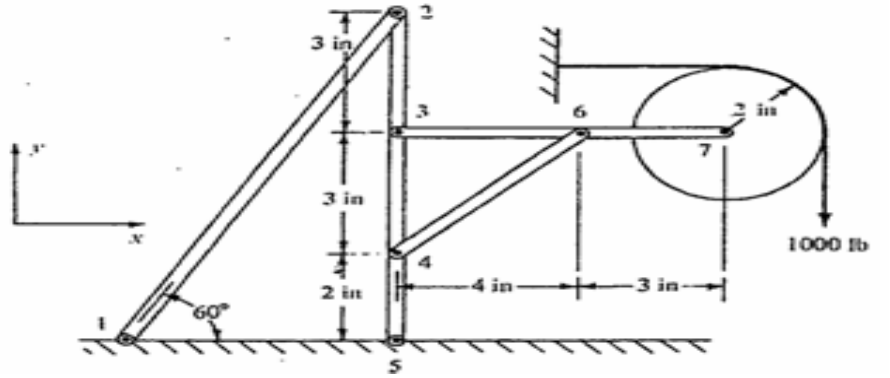
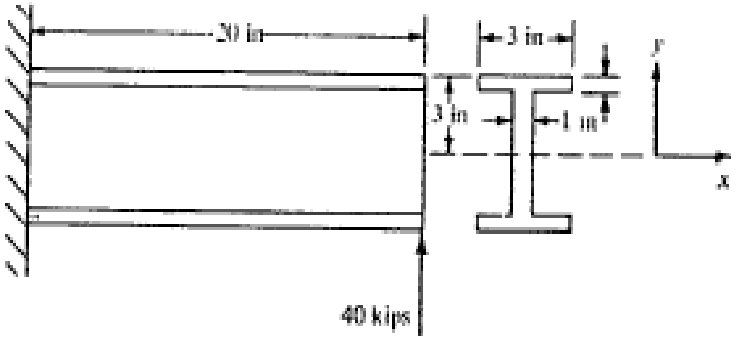
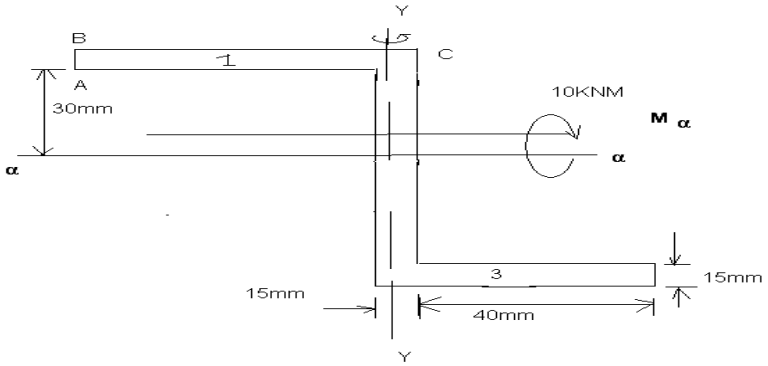
1. Find the internal loads acting on each member of the shown in fig. [16]



2. Find the maximum normal stress in the beam in figure, the shear stress distribution over the cross –section. [16]



3.a) Find the bending stress at any points A, B and of the beam cross – section shown in figure below.



b) Discuss about Euler's Formula for critical loads of column. [8+8]

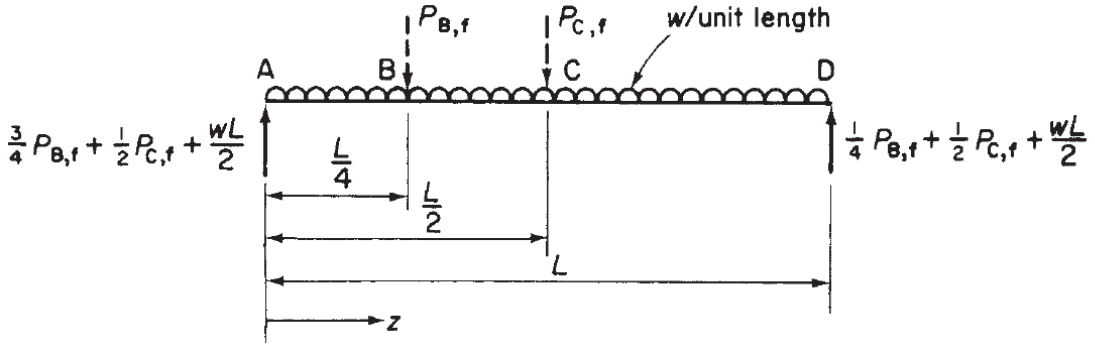
4.a) Explain the 2D elasticity equations for generalized plan strain cases Airy's function?

b) Discuss about the classifications of columns with give some examples? [8+8]

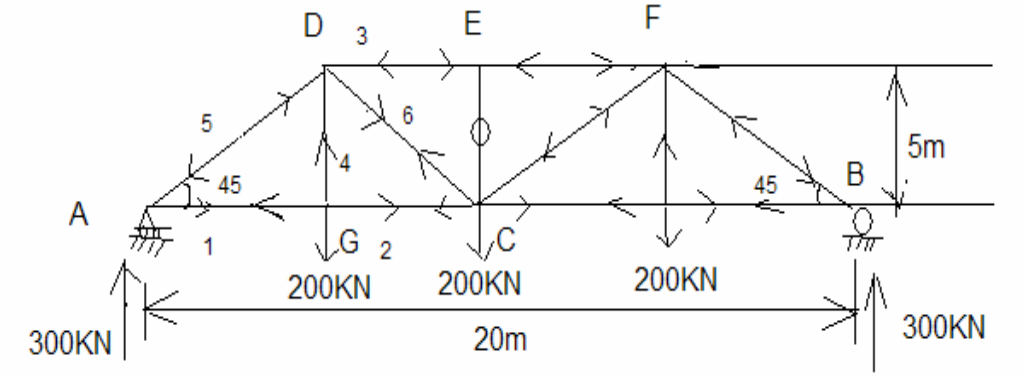
5.a) Explain the Mohr's circle with neat sketch?

b) Draw a three dimensional view of plane stress? [8+8]

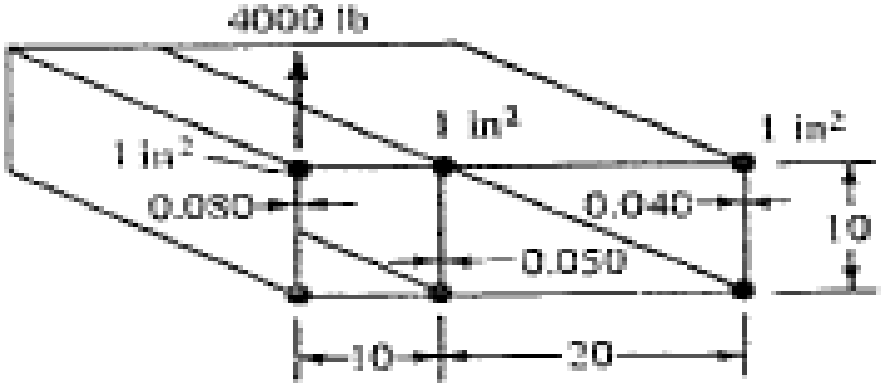
6. Calculate the vertical displacements of the Quarter and mid – span points B and C of the simply supported beam of length L and Flexural rigidity EI loaded, as shown below figure. [16]



7. The Pratt – truss shown below has four bays of 5m, each with a height of 5m. It carrier a load of 200KN at each lower joint. The lower chord members are each 2500mm² in section. While the upper chord members are 4000mm² in section. The verticals have a Sectional area of 2000mm² and the diagonals 4250mm². calculate the central deflection Take E = 200 KN/mm². [16]



8. Find the shear flows in the two – cell box of figure below. The horizontal webs have gages of T =0.040inch. Assume G is constant for all webs. The cross section is symmetrical about a horizontal center line. [16]



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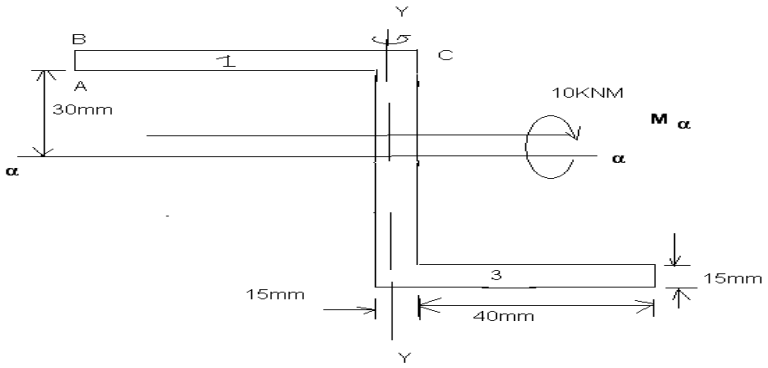
Code No: RR312105 | RR | SET-2

B. Tech III Year I Semester Examinations, December-2011
AIRCRAFT STRUCTURES - I
(AERONAUTICAL ENGINEERING)

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

Answer any five questions
All questions carry equal marks

1.a) Find the bending stress at any points A, B and of the beam cross – section shown in figure below.



b) Discuss about Euler's Formula for critical loads of column. [8+8]

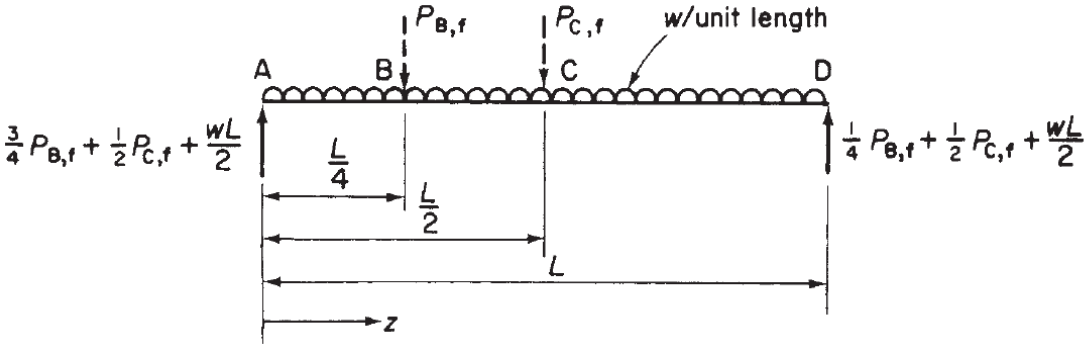
2.a) Explain the 2D elasticity equations for generalized plan strain cases Airy's function?

b) Discuss about the classifications of columns with give some examples? [8+8]

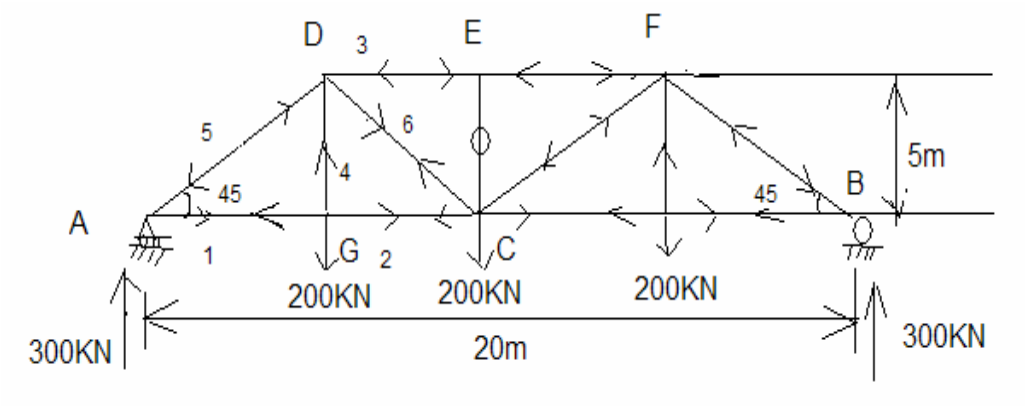
3.a) Explain the Mohr's circle with neat sketch?

b) Draw a three dimensional view of plane stress? [8+8]

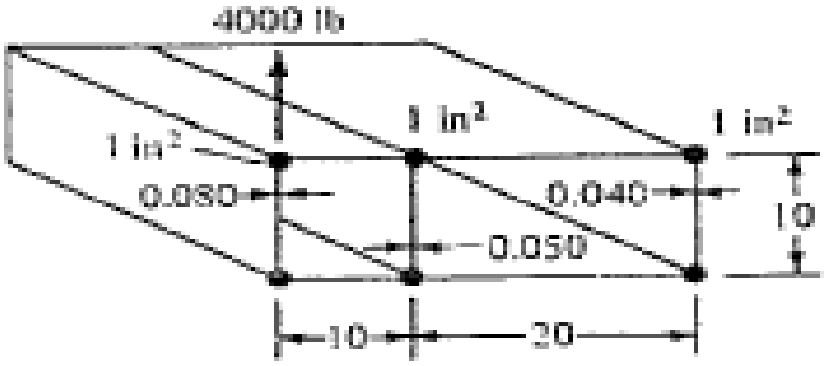
4. Calculate the vertical displacements of the Quarter and mid – span points B and C of the simply supported beam of length L and Flexural rigidity EI loaded, as shown below figure. [16]



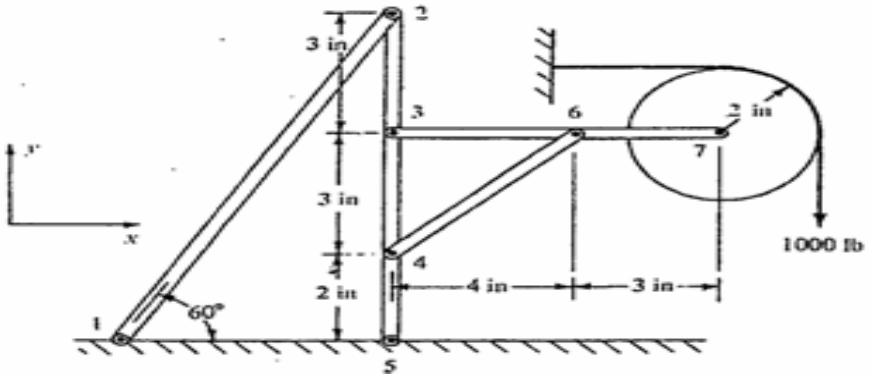
5. The Pratt – truss shown below has four bays of 5m, each with a height of 5m. It carrier a load of 200KN at each lower joint. The lower chord members are each 2500mm² in section. While the upper chord members are 4000mm² in section. The verticals have a Sectional area of 2000mm² and the diagonals 4250mm². calculate the central deflection Take E = 200 KN/mm². [16]



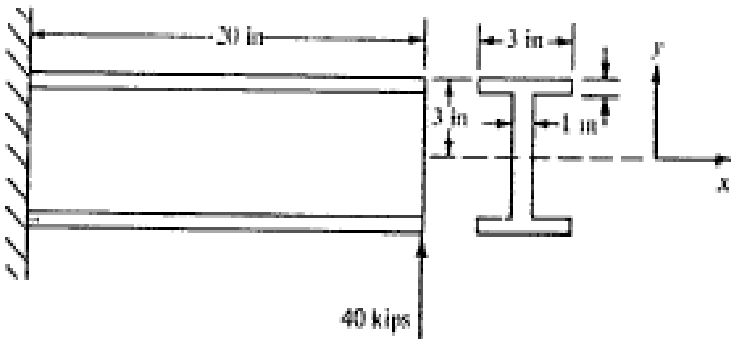
6. Find the shear flows in the two – cell box of figure below. The horizontal webs have gages of T =0.040inch. Assume G is constant for all webs. The cross section is symmetrical about a horizontal center line. [16]



7. Find the internal loads acting on each member of the shown in fig. [16]



8. Find the maximum normal stress in the beam in figure, the shear stress distribution over the cross –section. [16]



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Code No: RR312105 | RR | SET-3

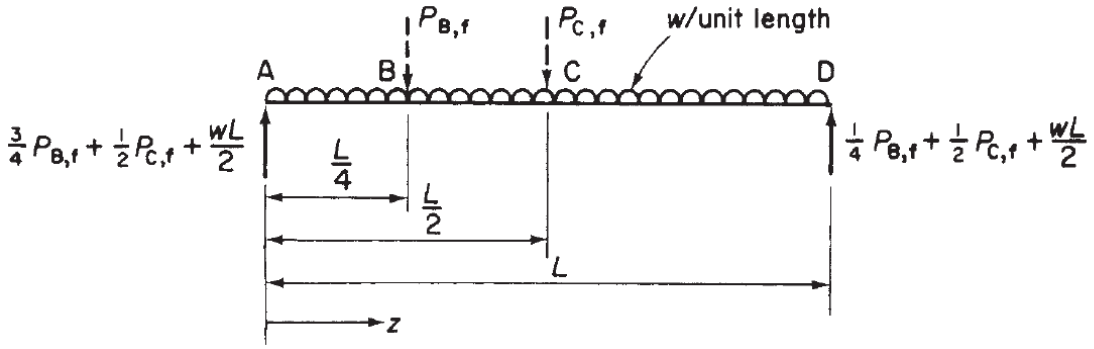
B. Tech III Year I Semester Examinations, December-2011
AIRCRAFT STRUCTURES - I
(AERONAUTICAL ENGINEERING)

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

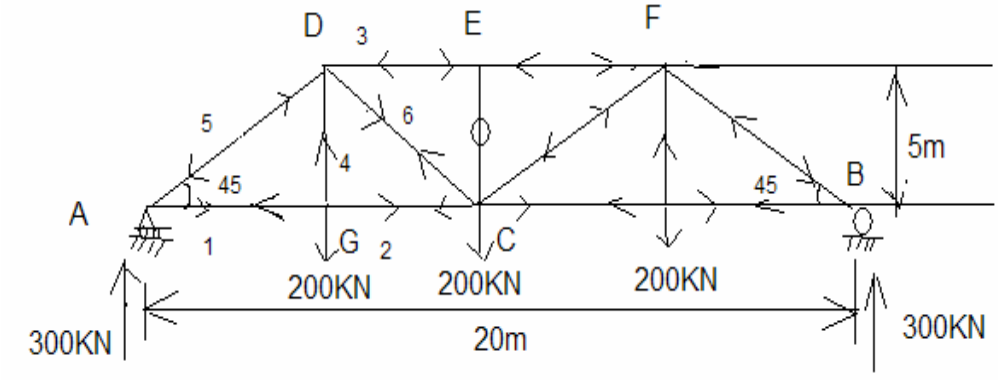
Answer any five questions
All questions carry equal marks

1.a) Explain the Mohr's circle with neat sketch?
b) Draw a three dimensional view of plane stress? [8+8]

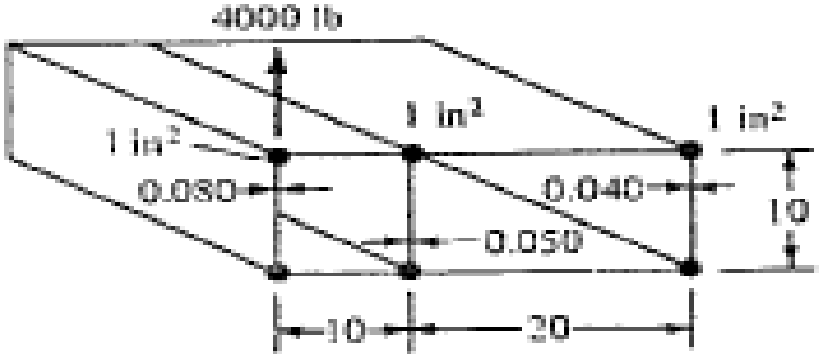
2. Calculate the vertical displacements of the Quarter and mid – span points B and C of the simply supported beam of length L and Flexural rigidity EI loaded, as shown below figure. [16]



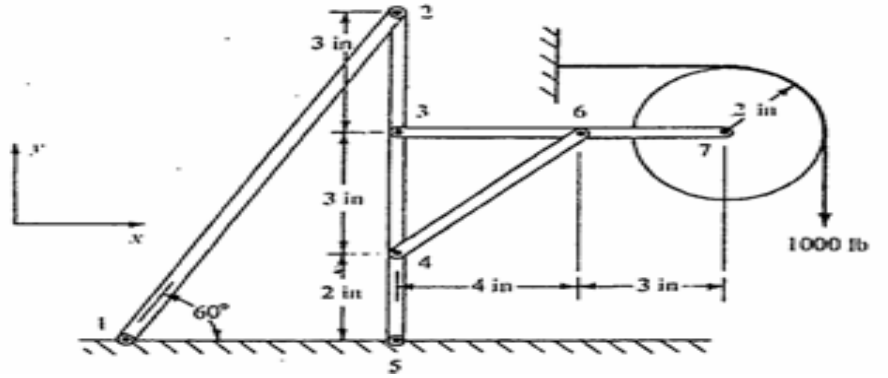
3. The Pratt – truss shown below has four bays of 5m, each with a height of 5m. It carrier a load of 200KN at each lower joint. The lower chord members are each 2500mm² in section. While the upper chord members are 4000mm² in section. The verticals have a Sectional area of 2000mm² and the diagonals 4250mm². calculate the central deflection Take E = 200 KN/mm². [16]



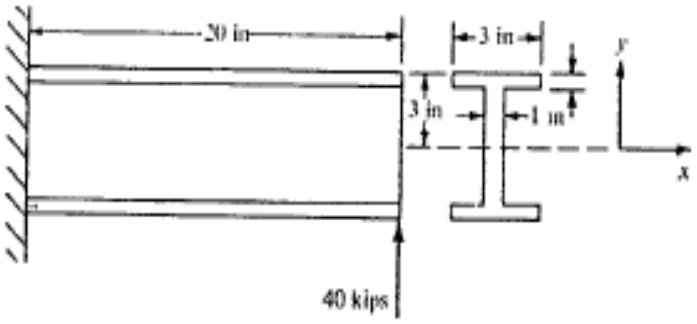
4. Find the shear flows in the two – cell box of figure below. The horizontal webs have gages of T =0.040inch. Assume G is constant for all webs. The cross section is symmetrical about a horizontal center line. [16]



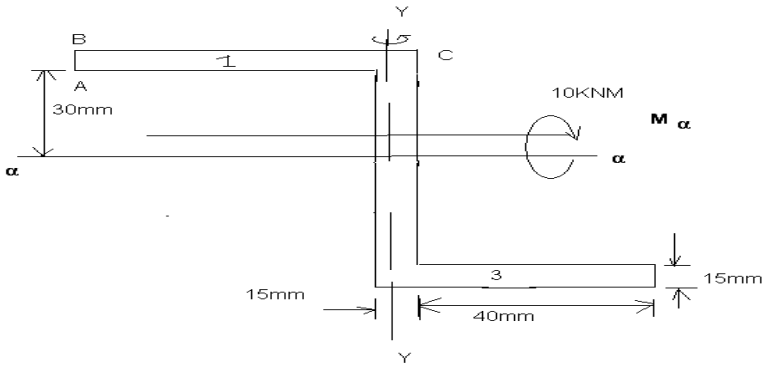
5. Find the internal loads acting on each member of the shown in fig. [16]



6. Find the maximum normal stress in the beam in figure, the shear stress distribution over the cross –section. [16]



7.a) Find the bending stress at any points A, B and of the beam cross – section shown in figure below.



b) Discuss about Euler's Formula for critical loads of column. [8+8]

8.a) Explain the 2D elasticity equations for generalized plan strain cases Airy's function?

b) Discuss about the classifications of columns with give some examples? [8+8]

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Code No: RR312105 | RR | SET-4

B. Tech III Year I Semester Examinations, December-2011
AIRCRAFT STRUCTURES - I
(AERONAUTICAL ENGINEERING)

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

Answer any five questions
All questions carry equal marks

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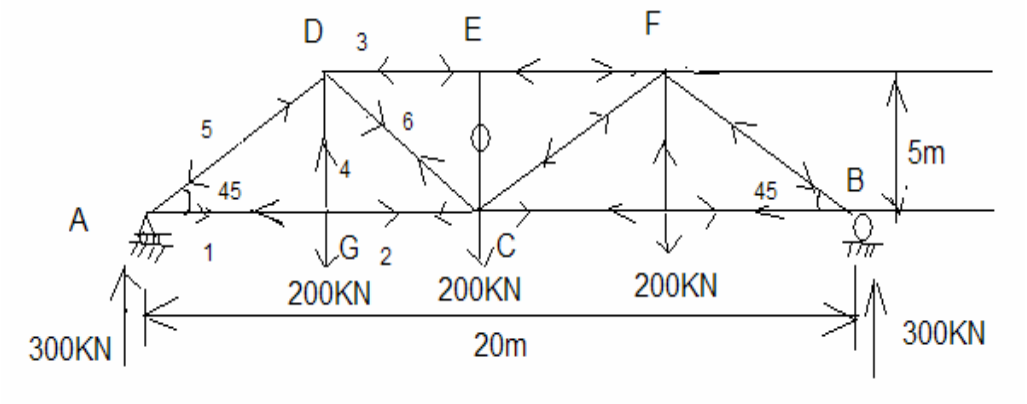
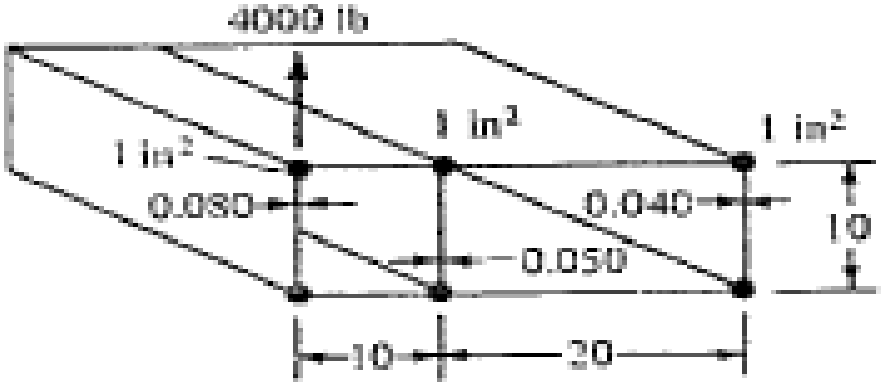
1. The Pratt – truss shown below has four bays of 5m, each with a height of 5m. It carrier a load of 200KN at each lower joint. The lower chord members are each 2500mm² in section. While the upper chord members are 4000mm² in section. The verticals have a Sectional area of 2000mm² and the diagonals 4250mm². calculate the central deflection Take E = 200 KN/mm². [16]



2. Find the shear flows in the two – cell box of figure below. The horizontal webs have gages of T =0.040inch. Assume G is constant for all webs. The cross section is symmetrical about a horizontal center line. [16]



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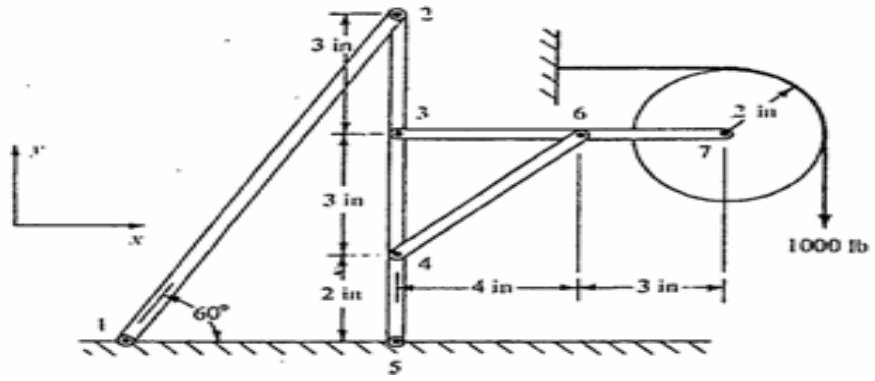
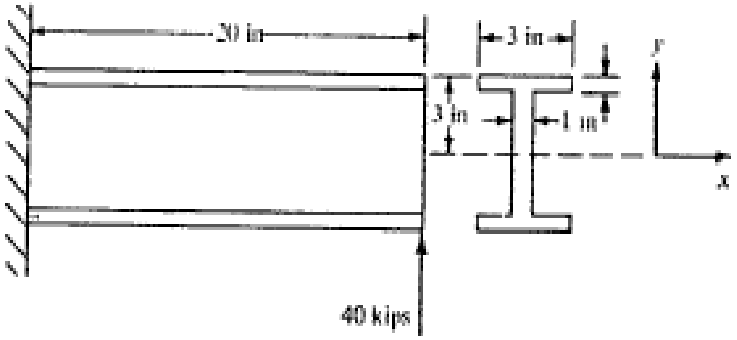
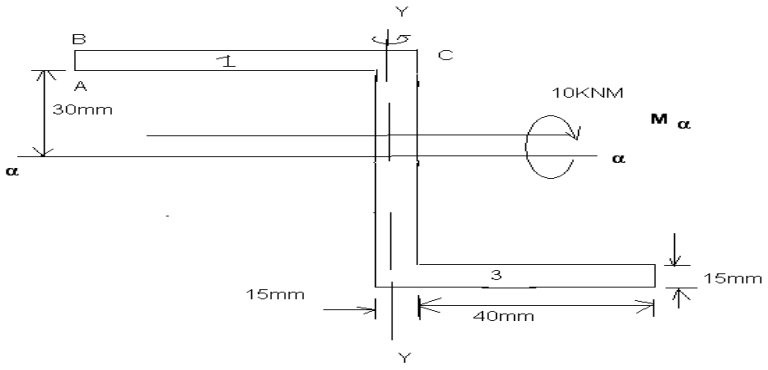


4. Find the maximum normal stress in the beam in figure, the shear stress distribution over the cross –section. [16]



5.a) Find the bending stress at any points A, B and of the beam cross – section shown in figure below.



b) Discuss about Euler's Formula for critical loads of column. [8+8]

6.a) Explain the 2D elasticity equations for generalized plan strain cases Airy's function?

b) Discuss about the classifications of columns with give some examples? [8+8]

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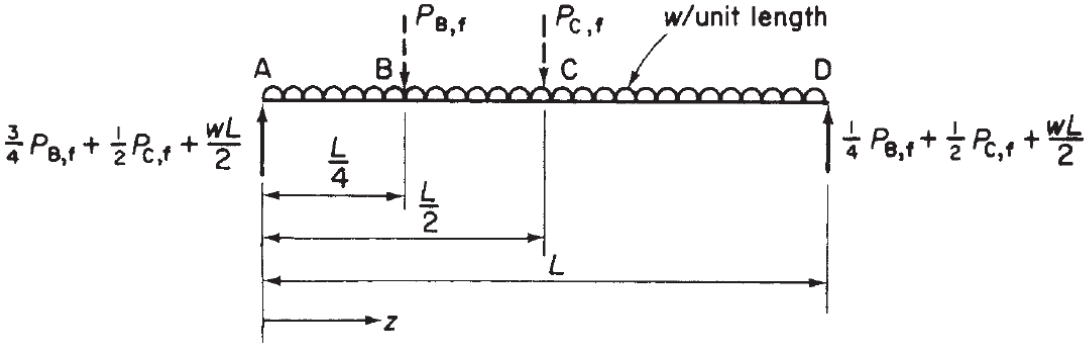

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