

QUIZ 2
Spring 2003-2004
 (Thursday, May 13, 2004)
CIVE 311 – STRUCTURES I
CLOSED BOOK, 1 HOUR & 45 MN

Name: _____

ID#: _____

NOTES

- 2 PROBLEMS – 13 PAGES.
- ALL YOUR ANSWERS SHOULD BE PROVIDED ON THE QUESTION SHEETS.
- **TWO EXTRA SHEETS ARE PROVIDED AT THE END.**
- **ASK FOR ADDITIONAL SHEETS IF YOU NEED MORE SPACE.**
- SOME ANSWERS MAY REQUIRE MUCH LESS THAN THE SPACE PROVIDED.
- **DO NOT** USE THE BACK OF THE SHEETS FOR ANSWERS.
- DRAFT BOOKLET WILL BE PROVIDED; BUT DO NOT USE FOR ANSWERS.
- BOTH QUESTION SHEETS AND DRAFT BOOKLET SHOULD BE RETURNED.
- CHECK BOXES ARE FOR YOU TO CONFIRM THAT HAVE SOLVED A QUESTION

YOUR COMMENT(S)

DO NOT WRITE IN THE SPACE BELOW

MY COMMENT(S)

YOUR GRADE

Problem I: ___ /65
 Problem II: ___ /35
 Other: ___

TOTAL: /100

Problem I: (65 points)

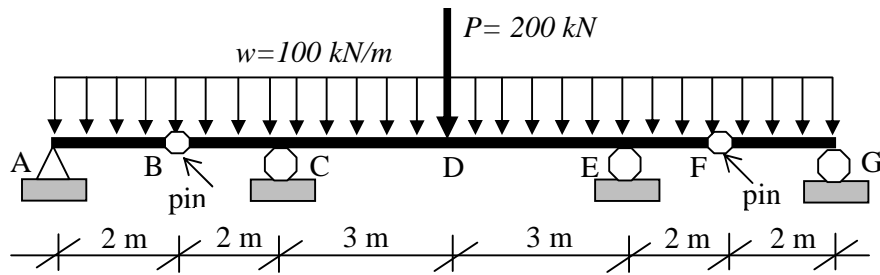


Figure I

Referring to Figure I, let $EI = 200,000 \text{ kN.m}^2$ throughout the beam. Neglect the own weight of the beam.

NOTE: THE SYSTEM IS SYMMETRICAL; YOU MAY TAKE ADVANTAGE OF THIS.

1. Calculate the reactions, and draw the shear and bending moment diagrams. (15 points)
 Sketch a reasonable deflected shape showing important features (deflections, slopes, inflections, ...). (5 points)

Calculations and Diagrams:

Calculations and/or Diagrams (cont'd):

A series of horizontal dashed lines provided for calculations and diagrams.

- 2. Indicate how you would solve for the deflected shape using the method of INTEGRATION (Do not compute or write detailed equations; show an outline of the steps required). (10 points)

Calculations and Diagrams:

3. Draw the CONJUGATE BEAM with the corresponding load. Explain in **two lines** how you would solve for a deflection and slope at a point (Do not solve). (5 points)



Calculations and Diagrams:

- 4. Using the MOMENT-AREA METHOD, compute the vertical deflections and slopes at points B and D (Again, symmetry can help here). Is the vertical deflection at B maximum between A and C; why or why not? (30 points)

Calculations and Diagrams:

Calculations and/or Diagrams (cont'd):

A series of horizontal dashed lines provided for calculations and diagrams.

Calculations and/or Diagrams (cont'd):

Dashed lines for calculations or diagrams.

Calculations and/or Diagrams (cont'd):

A series of horizontal dashed lines providing space for calculations and diagrams.

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Calculations and/or Diagrams:

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ID#: _____

Calculations and/or Diagrams:
