QUIZ 2
Spring 2004-2005
(Tuesday May 12, 2005)
CIVE311 – STRUCTURES I
CLOSED BOOK, 1 & 1/2 HOURS

Name: _____ **ID#:** _____

NOTES

- 1 PROBLEM – 3 QUESTIONS - 10 PAGES.
- ALL YOUR ANSWERS SHOULD BE PROVIDED ON THE QUESTION SHEETS.
- **ONE EXTRA SHEET IS 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 TO CONFIRM THAT YOU HAVE SOLVED A QUESTION. ☑

YOUR COMMENT(S)

_ _

_ _

DO NOT WRITE IN THE SPACE BELOW

MY COMMENT(S)

_ _

_ _

YOUR GRADE

*QUESTION 1:*_ _ /60
*QUESTION 2:*_ _ /30
*QUESTION 3:*_ _ /10
Other: _ _ _
_____

TOTAL: /100

Problem I/I:

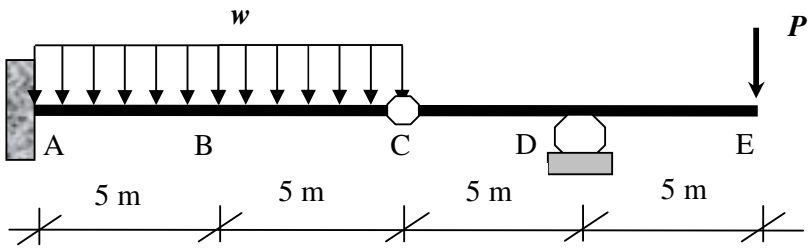

Figure I

Referring to Figure I:
***EI*=1,000,000 kN.m^2** throughout the beam (except in Question 3).
***w*=25 kN/m** and ***P*=100 kN** throughout the problem.
Neglect the own weight of the beam.

1. USING THE MOMENT-AREA METHOD

Compute the slopes at C and D (θ_C and θ_D) and the vertical deflections at B, C and E (v_B, v_C and v_E). You can calculate slopes and deflection in whichever order you find suitable. (*50 points*) ☐

Based on the results obtained, sketch the final deflected shape. (*10 points*) ☐

Calculations and Diagrams:

Calculations and/or Diagrams (cont'd):

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2. USING THE CONJUGATE BEAM METHOD

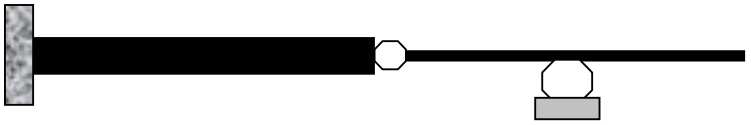
Compute the maximum downward deflection between A and C. *(30 points)* ☐

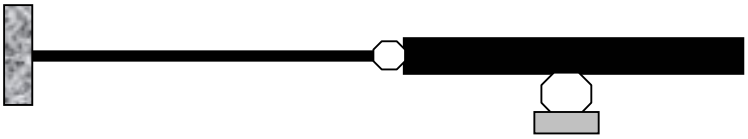
Calculations and/or Diagrams (cont'd):

Calculations and/or Diagrams (cont'd):

3. For the same beam and loads applied as in Figure I, and assuming member AC or member CE to be very stiff, sketch the expected deflected shape of the beam for each of the cases as shown below. (NO CALCULATIONS) (*10 points*) ☐

Deflected Shapes:





EXTRA SHEET: Continued from page _____

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Calculations and/or Diagrams: