

**QUIZ 1**  
**Spring 2001-2002**  
 (Thursday, April 10, 2002)  
**CVEV 051 – STRUCTURES I**  
**CLOSED BOOK, 1 ½ HOURS**

**Name:** \_\_\_\_\_

**ID#:** \_\_\_\_\_

**NOTES**

- 2 PROBLEMS – 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.

**YOUR COMMENT(S)**

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**DO NOT WRITE IN THE SPACE BELOW**

**MY COMMENT(S)**

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**YOUR GRADE**

*Problem I:*    \_\_\_ /40  
*Problem II:*  \_\_\_ /60  
*Other:*        \_\_\_

\_\_\_\_\_

**TOTAL:**            /100

**Problem I:** (40 points)

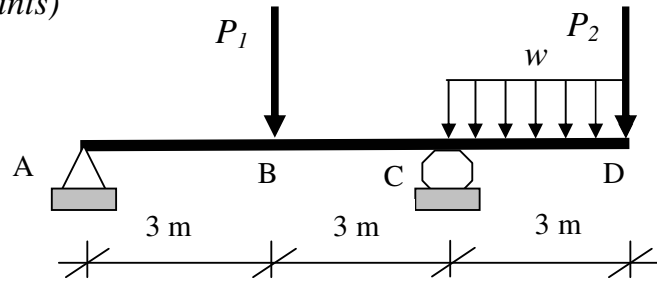


Figure I

For the beam shown in Figure I, the own weight is neglected.

Your diagrams/sketches should include any feature/value you think is relevant or important.

- Let  $w=10$  kN/m,  $P_1=50$  kN, and  $P_2=10$  kN  
 Draw the shear and bending moment diagrams and sketch the deflected shape.  
 (30 points)

SHEAR: \_\_\_\_\_

MOMENT: \_\_\_\_\_

DEFLECTION: \_\_\_\_\_

Calculations:

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Calculations and/or Diagrams (cont'd):

Dotted lines for writing calculations or diagrams.

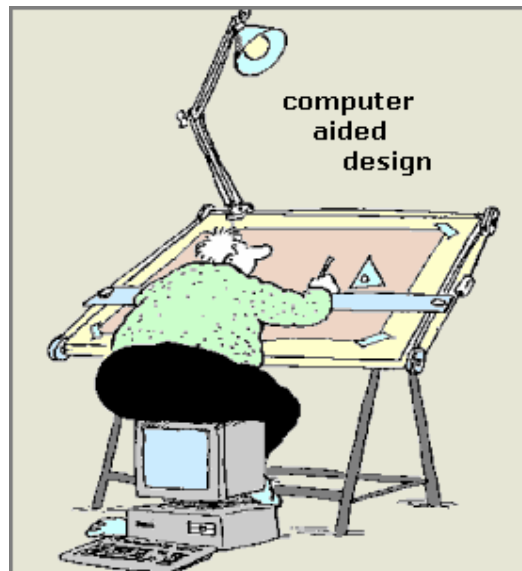
2. In this question, *no calculations* are required; use your intuition and best judgement. Sketch the deflected shape when  $P_1$  only is applied ( $w=0$  and  $P_2=0$ ). Sketch the deflected shape when  $P_2$  only is applied ( $w=0$  and  $P_1=0$ ). Deduce the influence line of the deflection at B (Assume upward deflection is positive). (10 points)

Deflection due to  $P_1$ : \_\_\_\_\_

Deflection due to  $P_2$ : \_\_\_\_\_

INF. DEF. at B: \_\_\_\_\_

take a break



**Problem II:** (60 points)

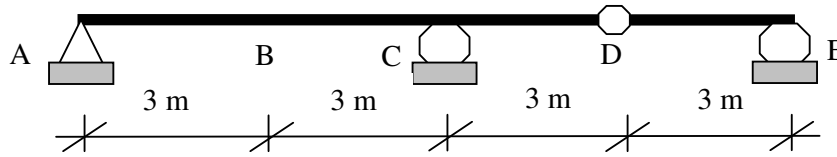


Figure II

- Referring to Figure II, draw the influence lines for  $R_C$ ,  $R_D$ ,  $R_E$ ,  $V_C$ ,  $V_D$ ,  $M_B$ ,  $M_C$ , and  $M_D$ . (40 points)

Calculations and Diagrams:

A series of horizontal dashed lines provided for calculations and drawing influence lines.











***EXTRA SHEET: Continued from page \_\_\_\_\_***

**Name:** \_\_\_\_\_

**ID#:** \_\_\_\_\_

Calculations and/or Diagrams:

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