QUIZ 1
Spring 2002-2003
(Wednesday, April 2, 2003)
CIVE311 – STRUCTURES I
CLOSED BOOK, 1 ½ HOURS

Name: _____ **ID#:** _____

NOTES

- 2 PROBLEMS – 12 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.

YOUR COMMENT(S)

_ _

_ _

DO NOT WRITE IN THE SPACE BELOW

MY COMMENT(S)

_ _

_ _

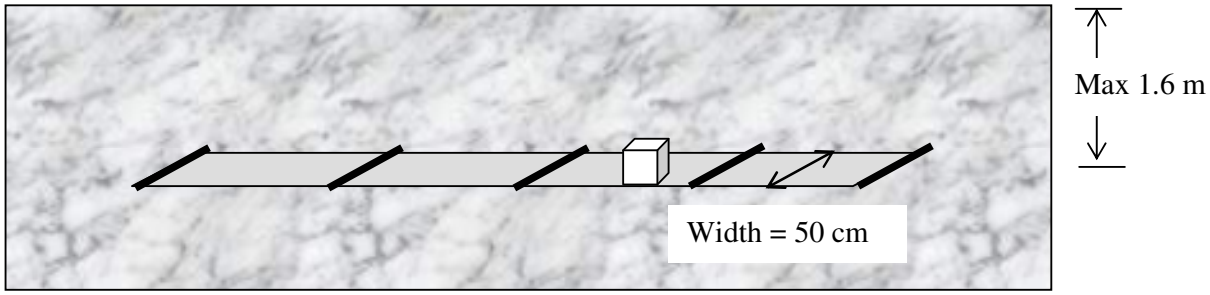
YOUR GRADE

Problem I: _ _ _ /35
Problem II: _ _ _ /65
Other: _ _ _
_____

TOTAL: /100

QUIZ 1
Spring 2002-2003
(Wednesday, April 2, 2003)
CIVE311 – STRUCTURES I
OPEN SESSION, ½ HOUR

Name: _____ **ID#:** _____



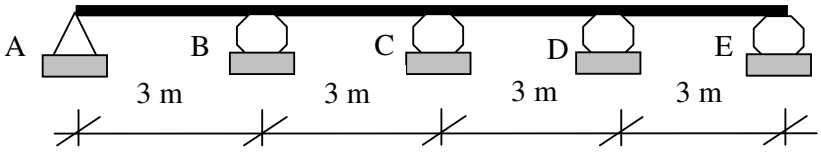


Figure 0

- Ignore own weight of shelf and supports
- Load is 24 boxes (50x50x50 cm) and Density is 20 kN/m^3

Compute the maximum $\boldsymbol{R_A}$ for the following conditions:

1. One level of boxes is allowed and boxes are spread all through 4 spans
2. One level of boxes is allowed
3. More than one level of boxes is allowed

Problem I: *(35 points)*

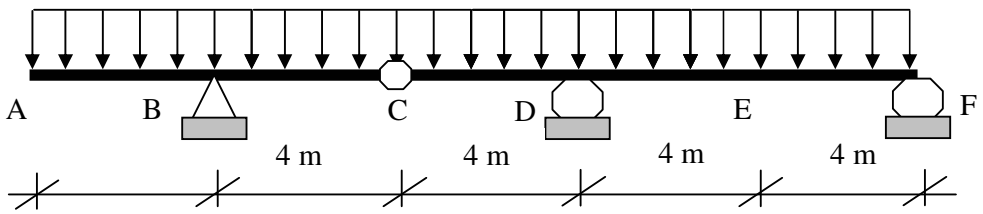
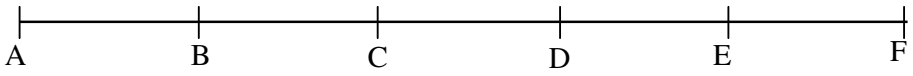


Figure I

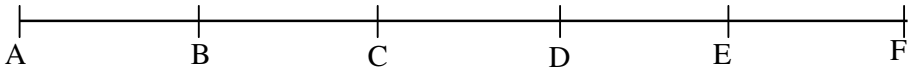
For the beam shown in Figure I, the own weight is neglected.
Your diagrams/sketches should include any feature/value you think is relevant or important.

Let ***w*=20 kN/m**
Draw the ***shear*** and bending ***moment*** diagrams and sketch the ***deflected shape***. *(35 points)*

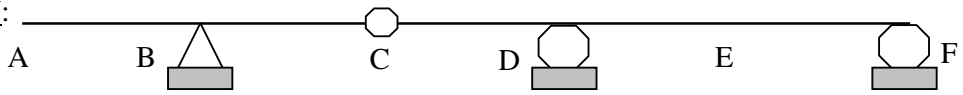
SHEAR:



MOMENT:



DEFLECTION:



Calculations and/or Diagrams (cont'd):

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Problem II: *(65 points)*

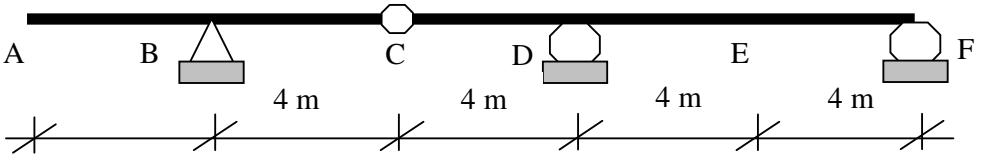


Figure II

1. Referring to Figure II, draw the influence lines for $\boldsymbol{R_B}$, $\boldsymbol{R_F}$, $\boldsymbol{V_B}$, $\boldsymbol{V_C}$, $\boldsymbol{M_C}$, $\boldsymbol{M_D}$, and $\boldsymbol{M_E}$. *(40 points)*

   Calculations and Diagrams:

Calculations and Diagrams (cont'd):

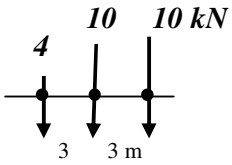
Calculations and Diagrams (cont'd):

2. Let w_D**=20 kN/m** (dead load); w_L**=10 kN/m** and P**=20 kN** (live loads)
   - Compute the maximum absolute value for R_F. *(10 points)*
   - Compute R_F for dead load only and compare with Problem I. *(5 points)*

   Calculations and Diagrams:

Calculations and Diagrams (cont'd):

3. Compute the maximum absolute value for M_E for the following truck moving load, which can travel in either directions. *(10 points)*



Calculations and Diagrams:

EXTRA SHEET: Continued from page _____

Name: _____ **ID#:** _____

Calculations and/or Diagrams:

EXTRA SHEET: Continued from page _____

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