Seat no.

King Mongkut's University of Technology Thonburi

Final Examination
Semester 2 Academic Year 2012

CVE 237: Structural Analysis I

Date: 16th May 2013 Time 13:00 – 16:00

Instructions :

1. The exam has **4** questions in **10** pages. Total points are **45** points with each question not of equal points.
2. Read the questions carefully and strictly follow instruction.
3. Textbooks and written materials **are not allowed** in the examination room.
4. A calculator is allowed.
5. Write your name on every page.
6. Perform your work in the examination paper.

Examiner: Dr. Aphinat Ashakul
Tel. 02-470-9140

This examination paper has been approved by the Department of Civil Engineering

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Professor Dr. Chai Jaturapitakkul
Head of the Civil Engineering Department

Student Name & I.D. _____

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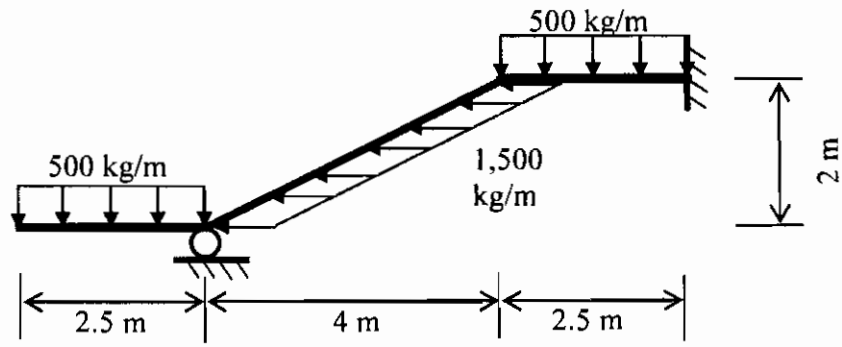
1. The structure shown is part of the retaining wall to sustain lateral earth pressure from soil. The pressure can be treated as a uniformly distributed load to simplify preliminary calculation. You are required to analyze this structure to obtain **all vertical reactions, and maximum positive and negative bending moment** of the structure. **(13 Points)**



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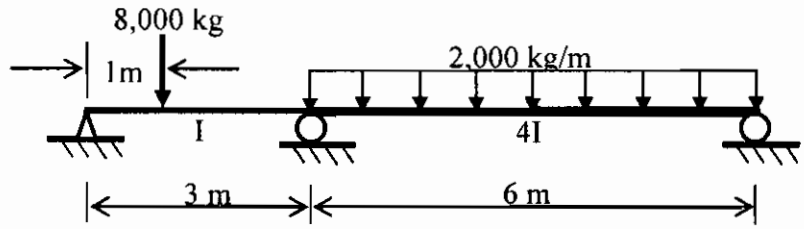
2. Draw shear force and bending moment diagrams of the structure shown. A complete shear force diagram should include locations where shear is zero; and a complete bending moment diagram should include values for max. positive and negative moments including its locations, and locations of points of inflection. (**18 Points**)



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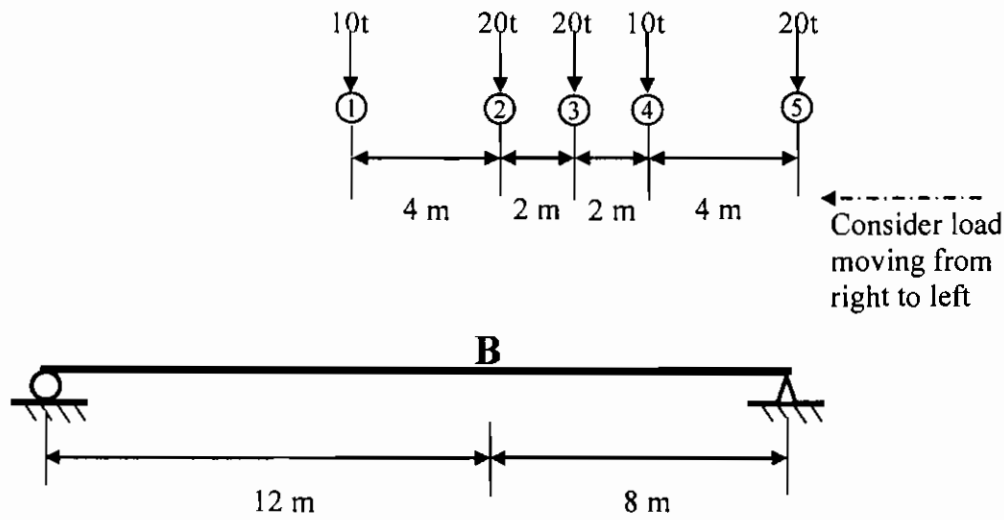
3. From the load group and the beam shown, solve the following problems



a) Use the "**increase-decrease**" method to check the change of shear force at B of the beam shown when load no.2 moves to replace load no.1 at B. Using other methods will result in zero credit. **(4 Points)**

b) What is the maximum positive bending moment that this load group will generate? **(4 Points)**

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4. What is the influence line of R_a, R_c, and M_b of the beam shown? **(6 Points)**