

**UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF NATURAL AND BUILT ENVIRONMENTS**

PROGRAM: **Graduate Certificate in Building & Planning**

COURSE: **BUILDING STRUCTURES 5 (BUIL 5008)**

EXAMINATION: **Exam, June 2005**

DURATION: **10 minutes of Reading time plus 3 Hours of Exam time, a total of 3 Hrs 10 Min. For ENTEXT students 10 min of Reading time plus 3.5 Hrs of Exam time, a total of 3 Hrs 40 Mins.**

EXAMINER: **Stefan Hornlund, Tel 08 – 8302 2228**

INSTRUCTIONS TO CANDIDATES:

- This exam is worth 40% of the total course marks
- Attempt all questions
- Maximum marks for each question are noted below.
- Calculator and any reference materials are allowed.
- State any assumptions made

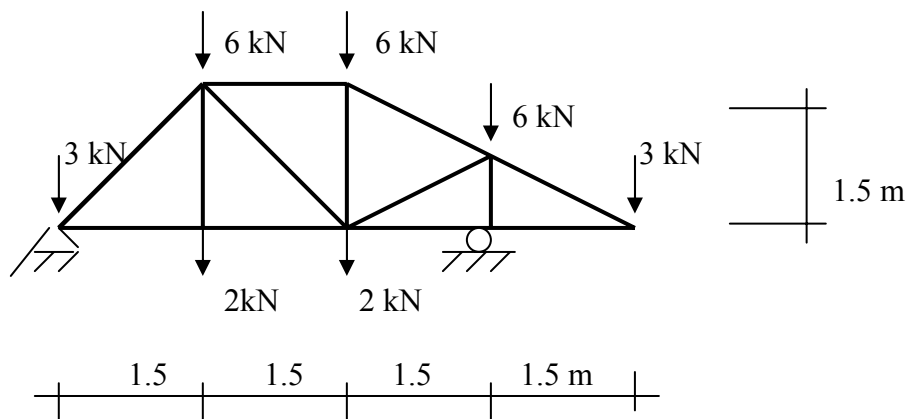
NOTES FROM EXAMINER:

Please excuse some of the inaccuracies in the drawings and use the dimensions provided.

Question 1

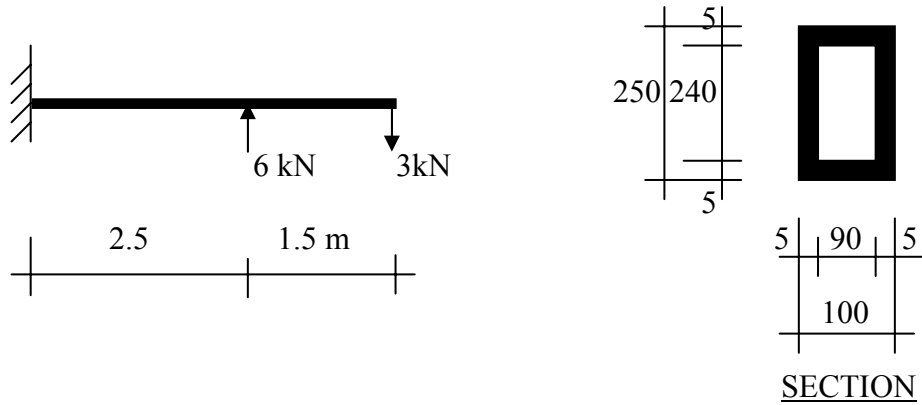
(15 Marks)

Determine the forces in all members of this loaded truss.

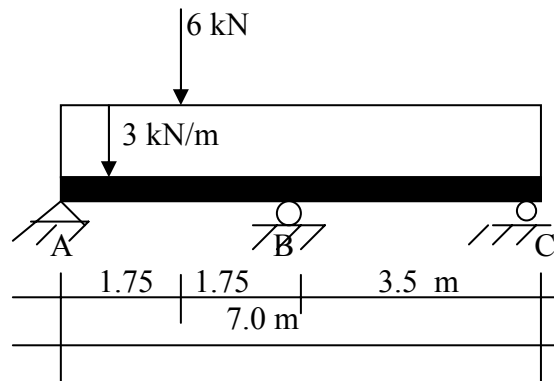


Question 2**(12 Marks)**

Calculate and draw the Shear Force and Bending Moment diagrams for this loaded cantilever beam. Also calculate the amount of deflection at the free end of the beam if the beam cross section is a rectangular steel tube (on edge), as per the section drawing below, with an E-value of $200\,000\text{ N/mm}^2$.

**Question 3****(13 Marks)**

a) Calculate and draw the Shear Force and Bending Moment diagrams for this loaded beam. Include all extreme values and any points of contra-flexure.



b) If this beam arrangement was changed to consist of two separate beams A-B and B-C, how would that effect the Bending Moment diagram? Sketch the new BMD and comment on the main differences. No calculations are required.

END OF QUESTIONS