

UNIVERSITY OF SOUTH AUSTRALIA
DIVISION OF INFORMATION TECHNOLOGY, ENGINEERING
AND THE ENVIRONMENT

SCHOOL OF GEOINFORMATICS, PLANNING
AND BUILDING

Semester 2,2002

Building Structures & Geomechanics 1

(CIVE 4011)

Duration: 2 Hours of exam time preceded by 10 minutes of Reading Time, a total of 2 hours 10 minutes.

Examiner: John Mazzarolo 0419 817 243

INSTRUCTIONS TO CANDIDATES:

Answer all questions.

There are four (4) questions.

The value of each question is noted adjacent to the question.

Commence each question on a new page\

This is an open book exam.

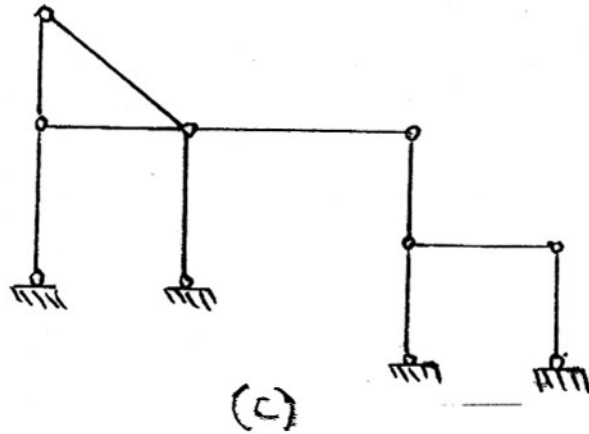
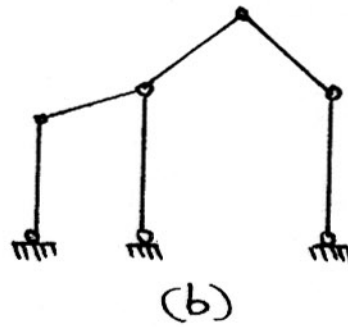
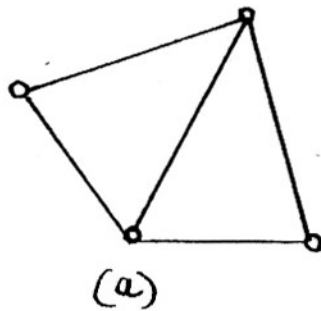
There are four pages in this exam paper, including this cover sheet.

State any assumptions made.

Question 1

- a) Determine whether the following frameworks are perfect, mechanisms, or hyperstatic. (9 marks)

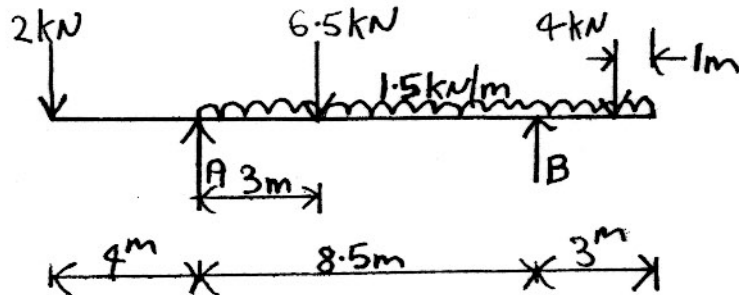
Formulas: $m = 2j - 3$
 $m = 2(j - s)$



- b) For (a) above, draw the frames and show the location of the bracing which will ensure the structures will become perfect. (3 marks)

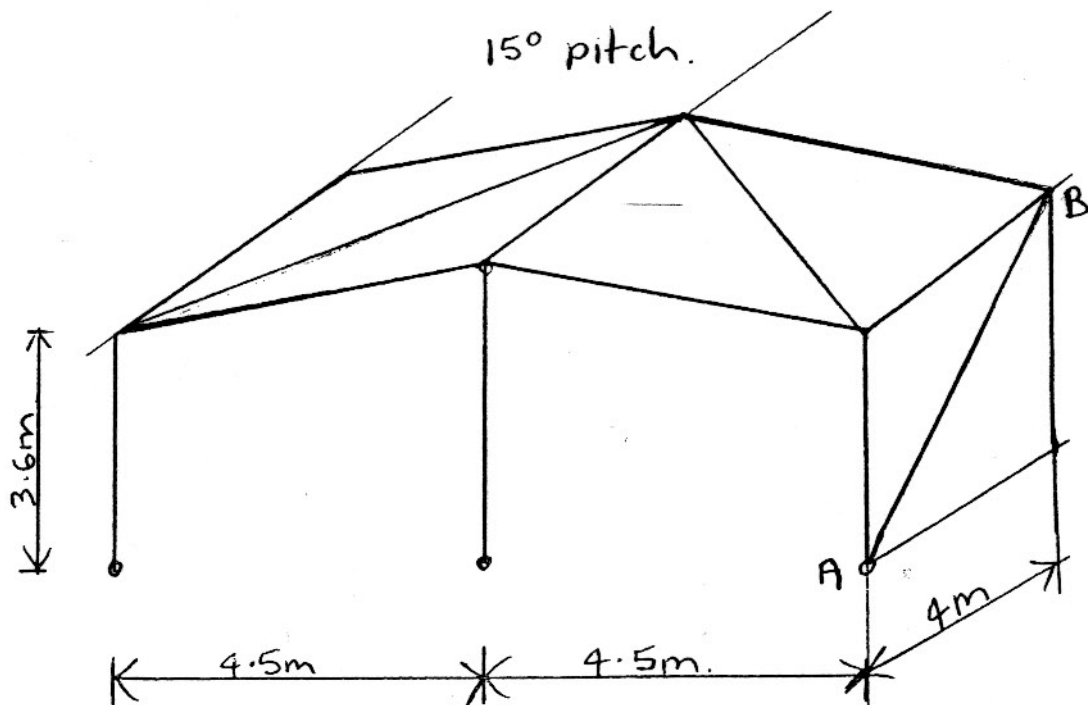
Question 2

Find the reactions at A and B for the simply supported beam shown. (8 marks)



Question 3

For the following industrial building, determine the force in member AB. The member is to be designed considering a wind load of 0.35 kPa acting on the end wall of the building. (10 marks)



Question 4

(25 marks)

Determine the approximate axial forces, shears and bending moments in the frame due to the lateral loads shown.

