

**UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF GEOINFORMATICS, PLANNING & BUILDING**

PROGRAMS **Graduate Certificate in Building & Planning**

COURSES: **05469 Building Structures & Geomechanics 1 (CIVE 5030)**
For distance education students only

EXAMINATION: **Semester 1, 2003**

DURATION: **2 Hours of Exam time preceded by 10 minutes of Reading
time, a total of 2 Hrs 10 Mins.**

EXAMINER: John Mazzarolo 0419 817 243

INSTRUCTIONS TO CANDIDATES:

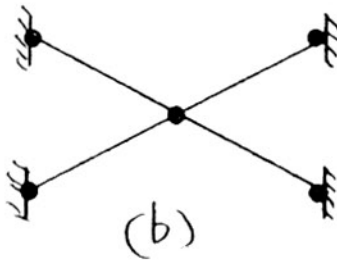
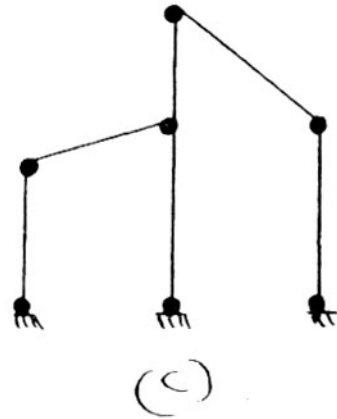
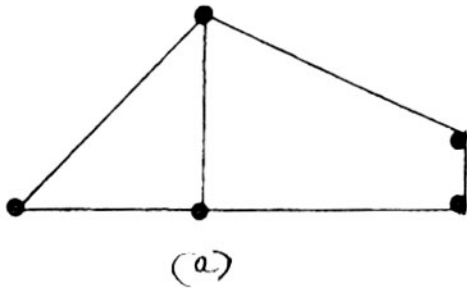
- Answer all questions.
 - There are four questions.
 - The value of each question is noted adjacent to the question.
 - Commence each question on a new page.
 - This is an open book exam. Any references are permitted.
 - There are five pages in this exam paper, including this cover sheet.
 - State any assumptions made
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Question 1

(6 marks)

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

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



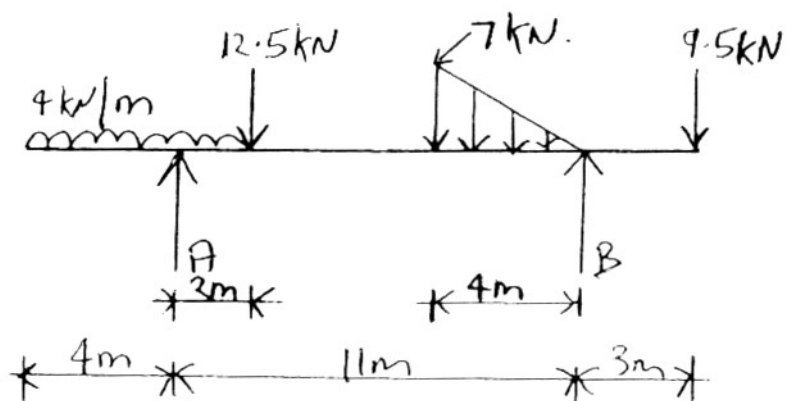
- b) For (a) above, draw the frames and show the location of the bracing which will ensure the structures will become perfect.

(2 marks)

Question 2

(7 marks)

Find the reactions at A and B for the simply supported beam shown.



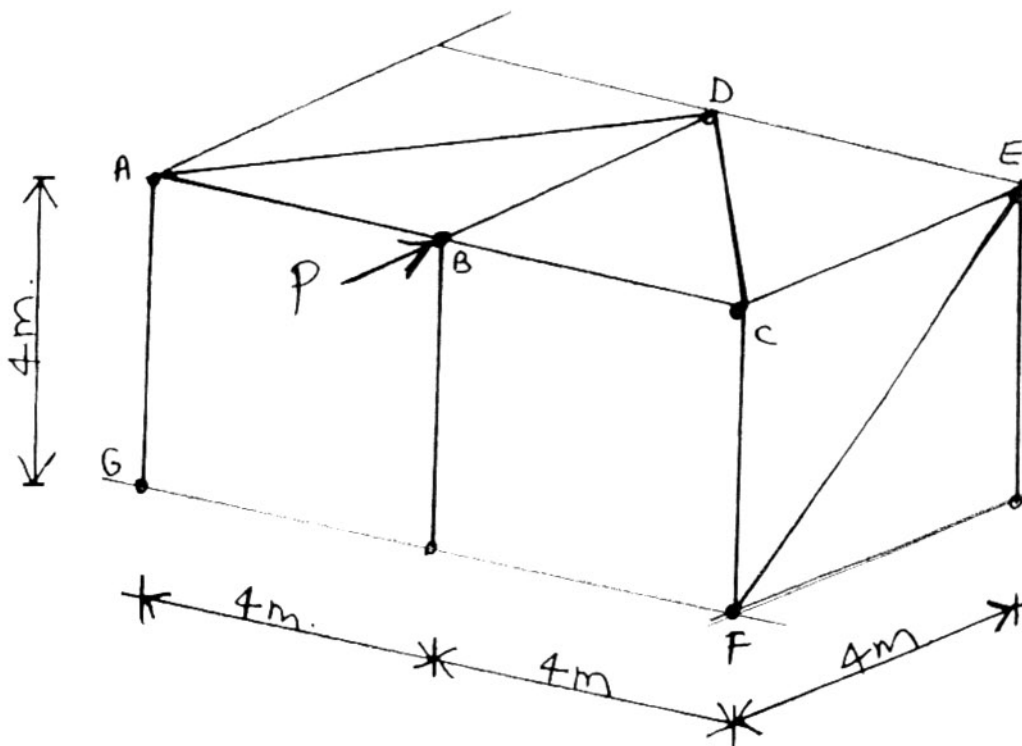
Question 3

(15 marks)

ABCFG is the end wall of an industrial building.
The wind load acting on this wall is 0.65 kPa.

Determine:

- (a) The force P .
- (b) The forces in all the members of the truss ABCD. Indicate whether the members are in tension or compression.
- (c) The force in member EF. Is this force in tension or compression ?



Question 4

(20 marks)

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

