

Faculty of Science
Department of Computer Science

Supplementary Examination, 2005

Title of Paper: Data Structures
Course Number: CS342
Time Allowed: Three (3) hours
Instruction: Answer all questions
Special Requirement: none

This examination paper should not be opened until permission has been granted by the invigilator.

1. [15]

Give at least five definitions or descriptions of a computer.

2. [13]

Differentiate between information and data. Are the following items data or information to the people involved:

- a) a person counting cars as they pass on the road
- b) the car count from (a) when given to the consultant statistician
- c) what the statistician gives the government transport minister

3. [11]

- a) What is a graph?
- b) Draw the graph defined by:

	A	B	C
A	0	1	1
B	1	0	0
C	1	0	0

- c) Find the matrix for a trapezium with vertices labelled clockwise: A, B, C and D.

4. [28]

- a) Define a binary tree in natural language.
- b) Define a binary tree in the pseudo language of the course.
- c) Draw an example of a binary tree.

5. [6]

A forward linked list is defined with a number in the only data field in its node. Write an algorithm, using the conventions of the course, to print the square of these numbers in list order.

End of examination paper