

University of Swaziland

**Faculty of Science
Department of Computer Science**

Supplementary Examination, 2006/07

Title of Paper: Operating Systems

Course Number: CS442

Time Allowed: Three (3) hours

Instruction: Answer all questions. Every question carries the same maximum mark.

You are reminded that in assessing your work, account will be taken of the accuracy of the material, of the language used and the general quality of expression, together with the layout and presentation of your answer. Remember full answers will usually *define, explain and exemplify*.

Special Requirement:

Calculators are prohibited.

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

Question 1.

In order to copy files between a Windows system at your new place of work and your Linux box at home, you have purchased a flash drive. Unfortunately, for some reason, the accompanying documentation refers only to Windows.

- a) Do you format this disk? If so, how is it done?
- b) Do you partition the disk? If so, how is it done?
- c) What is your partitioning scheme?
- d) What is a boot loader?

Question 2.

- a) Explain the lost update problem.
- b) What complications arise if three processes are involved?
- c) Explain the relationship between granularity and concurrency in database accesses.

Question 3.

One solution of the producer-consumer problem uses TSLs.

- a) Explain the operation of TSLs.
- b) Give, in pseudo-code, the design of the abstract data type 'TSL'.

Question 4.

- a) Explain the first-come, first-served scheduling algorithm.
- b) What are the advantages of this algorithm?
- c) Explain the disadvantage of this algorithm.

Question 5.

Suppose you were a salesperson selling the Bochs simulator to a university department. What would be your sales pitch?

Question 6.

- a) Contrast, including diagrams, the pipelining of the Pentium II with a superscaler pipeline.
- b) Compare and contrast precise and imprecise interrupts.

End of examination paper.