

University of Swaziland
Faculty of Science
Department of Computer Science
Supplementary Examination, 2009

Title of Paper: Operating Systems

Course Number: CS442

Time Allowed: Three (3) hours

Instruction: Answer five (5) 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. [20]

Define an *operating system*. Use as examples the PIO, onion and bus diagrams. Show how the explanations have developed over the years.

Question 2. [20]

a) Is a *monitor* (VDU) purely an "output" device? Justify your answer.

b) *Busy waiting* is, in general, bad. In what circumstances can it be used effectively?

c) Write brief notes on the *Linux schedulers*.

d) Why is *double buffering* used?

e) Which is the best file system to use with Linux? Why?

Question 3. [20]

a) Compare and contrast *fdisk* and a GUI implementation of a partitioner of your choice.

b) How would you partition a disk for use as a web server using the Linux Apache web server? Envisage there are half a dozen web developers.

Question 4. [20]

Describe the *inconsistent analysis* problem. Give two different examples of each of the *lost update*, *uncommitted dependency*, and *inconsistent analysis* problems.

Question 5. [20]

Compare and contrast the *Unix* and *Windows* series of operating systems.

Question 6. [20]

Describe an approach to explaining *Input / Output software and hardware* in an operating system.

End of examination paper.