

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCES
COMPUTER SCIENCE
MAY EXAMINATIONS 2011

SUBJECT: OPERATING SYSTEMS CONCEPTS
CODE: SCS1103

INSTRUCTION TO CANDIDATES

Answer any four questions. The paper contains five questions.

Time: 3 hours

QUESTION ONE

- a. In relation to Operating System concepts, discuss the two different types of threads clearly demonstrating their differences. [10]
- b. Explain the concept of context switching. [5]
- c. State and explain the algorithms used in dead lock prevention. [10]

QUESTION TWO

- a. How is virtual addressing different from physical addressing? [10]
- b. What advantage is there in having different time-quantum sizes on different levels of a multilevel queuing system? [5]
- c. Explain the following file operations
 - I. Seek [2]
 - II. Read [2]
 - III. Close [2]
 - IV. Write [2]
 - V. Delete [2]

QUESTION THREE

- a. Outline the differences between a Real time operating system and Batch processing operating system, giving an appropriate example for each type. [10]
- b. Why is it necessary to schedule processes? [5]

- c. Write a C language code to create a child process in a LINUX operating system environment. [10]

QUESTION FOUR

- a. A concerned parent has donated a computer for the School Development Association use only. As a computer science teacher, you have been tasked to identify and install the necessary software. Justify your choice of the software. [15]
- b. Explain in detail how system calls are processed in LINUX. [10]

QUESTION FIVE

- a. Explain how a thread is similar to a process. [10]
- b. Evaluate any five major functions of an operating system. [5]
- c. With the aid of a diagram, discuss the layered architecture of an operating system. [10]

END OF QUESTION PAPER

