



Kasarani Campus
Off Thika Road
P. O. Box 49274, 00101
NAIROBI
Westlands Campus
Pamstech House
Woodvale Grove
Tel. 4442212
Fax: 4444175

KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2019/2020 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATIONS
BACHELOR OF SCIENCE IN COMPUTER SCIENCE

KCS 202 - INTRODUCTION TO OPERATING SYSTEMS

Date: 8th April, 2019
Time: 8.30am – 10.30am

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Define the following terms as used in Introduction to Operating Systems.
- i) Semaphores
 - ii) Fork
 - iii) Context switch (6 Marks)
- b) List the two basic operations in dynamic memory management. (2 Marks)
- c) List at least four pieces of information contained in a process control block. (4 Marks)
- d) Differentiate between preemptive and non-preemptive scheduling. (4 Marks)
- e) List four ways of deadlock prevention. (4 Marks)
- f) List TWO ways through which the security of an operating systems may be improved. (2 Marks)
- g) Give the two main goals of paging. (2 Marks)
- h) Define contiguous allocation and give at least one of its advantages. (2 Marks)
- i) Explain the process of CPU scheduling. (4 Marks)

QUESTION TWO (20 MARKS)

- a) Describe the five types of Kernels available today. (10 Marks)
- b) While giving appropriate examples, explain the different types of operating systems. (10 Marks)

QUESTION THREE (20 MARKS)

- a) Describe in details at least four goals of CPU scheduling. (8 Marks)
- b) Describe the four scheduling discipline used for CPU scheduling. (8 Marks)
- c) List the four conditions for a deadlock to occur. (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Describe the two methods of handling dynamic allocation in details. (Use clearly labeled diagrams to reinforce your points). (8 Marks)
- b) Explain the three aspects to a protection mechanism that can be used in protecting an operating system. (6 Marks)
- c) Explain the basic mechanism of encryption as a method of improving the security of operating systems. (6 Marks)

QUESTION FIVE (20 MARKS)

- a) List and explain three methods of disk scheduling. (9 Marks)
- b) List three common addressing patterns in disk management. (3 Marks)
- c) Explain the four main problems addressed by modern file systems. (8 Marks)