



Kasarani Campus
Off Thika Road
Tel. 2042692 / 3
P. O. Box 49274, 00100
NAIROBI
Westlands Campus
Pamstech House
Woodvale Grove
Tel. 4442212
Fax: 4444175

**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2016/2017 ACADEMIC YEAR
SECOND YEAR, FIRST SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)**

Date: 16th August, 2016.
Time: 8.30am –10.30am

KCS 202 - INTRODUCTION TO OPERATING SYSTEMS

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Define an Operating System, and give three examples. (2 Marks)
- b) Describe the following types of operating systems; (2 Marks)
- i) Real time (2 Marks)
 - ii) Time sharing (2 Marks)
 - iii) Network operating system (2 Marks)
- c) Explain six contents of a Process Control Block. (6 Marks)
- d) Explain six objectives of file management. (6 Marks)
- e) Describe five characteristics of an Operating System (10 Marks)

QUESTION TWO (20 MARKS)

- a) Explain any three features of NTFS. (3 Marks)
- b) Suppose a process requests 16KB of memory and you have free memory partitions of size 10KB, 18KB, 23KB, 15KB and 17KB. Explain how it will be allocated using the following placement algorithms;
- i) First-fit (2 Marks)
 - ii) Best-fit (2 Marks)
 - iii) Worst-fit (2 Marks)
- c) Explain the following terms as used in Operating Systems;
- i) Internal fragmentation (2 Marks)
 - ii) Demand segmentation (2 Marks)
- d) With the aid of a diagram, explain the process state transition. (7 Marks)

QUESTION THREE (20 MARKS)

- a) Explain five process scheduling goals. (5 Marks)
- b) Describe the Round Robin scheduling policy. (5 Marks)
- c) Briefly explain the meaning of the term deadlock. (2 Marks)
- d) Briefly discuss four methods of deadlock prevention. (8 Marks)

QUESTION FOUR (20 MARKS)

- a) Distinguish between cold boot and warm boot. (2 Marks)
- b) Describe the booting process of Windows XP. (8 Marks)
- c) With the aid of diagrams, describe the following operating system structures;
- i) Layered (5 Marks)
 - ii) Microkernel (5 Marks)

QUESTION FIVE (20 MARKS)

- a) State and explain two registers found in DMA controller. (2 Marks)
- b) Describe three categories of I/O devices, giving examples. (6 Marks)
- c) Describe three key objectives of computer security. (6 Marks)
- d) Explain the basic elements of access control, giving examples in each case. (6 Marks)