TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

YEAR 2 SEMESTER1

EIT 4109: OPERATING SYSTEMS

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Sep2018

Instructions to Candidates
You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

QUESTION ONE (30 MARKS)

a) Describe three components of an Operating System that enable it provide a platform for communication between the user and hardware.(6 Marks)

b) Define the following terms   (3 Marks)
   i. Process
   ii. Interrupt
   iii. Kernel

c) Describe three components of a process control block (PCB).(3 Marks)

d) Describe three Kernel-mode components of windows.   (3 Marks)

e) Briefly discuss the following terms   (6 Marks)

   i. Semaphore
   ii. Condition variable
   iii. Spinlocks

f) Describe TWO operations that can be performed on a semaphore(4 Marks)

g) Discuss how process control systems can be characterized (5 Marks)

QUESTION Two (20 MARKS)

a) Discuss the following terms in context of operating systems (6 marks)

  i. Paging
  ii. Overlay
  iii. Swapping

b) Discuss Context Switching as used in operating systems (4 Marks)

c) There various situations by which a context switch needs to occur. Explain any three ways (4 Marks)

d) Discuss the three memory placement algorithms used in Dynamic Partitioning. (6 marks)

QUESTION Three (20 MARKS)

a) Identify and explain four tables maintained by the operating system for a process in execution (8 Marks)

b) Discuss two file access strategies used by the operating system (4 Marks)

c) Different strategies are used to allocate space to processes competing for memory. Discuss the three of most popular strategies (8 Marks)

QUESTION Four (20 MARKS)

a) Describe the functions of the OS with respect to: (12 Marks)
  i. Memory management
  ii. Device management
  iii. Processor management

b) Explain the four main strategies for handling deadlocks (8 marks)

QUESTION Five (20 Marks)

a) Explain the four main characteristics of an operating system strategy. (8 Marks)

b) Outline the steps used in facilitating Remote Procedure Calls (RPC) between a server and a client. (10 Marks)

c) Differentiate a Monolithic kernel and Microkernel (2 Marks)