MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

FIRST YEAR **SECOND** SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

SIT 102– OPERATING SYSTEM

DURATION: 2 HOURS

DATE: 15/4/2019

TIME: 9-11 A.M.

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Define the following terminologies as used in operating systems.　　　　(6 marks)

    i.   Program

    ii.   Process

    iii.   Interrupt

    iv.   Thread

    v.   Memory fragmentation

    vi.   Scheduling.

b) Operating systems exists from the first computer generation and they keep evolving with time. Discuss at least FOUR of the important types of operating systems which are most commonly used.　　　　(6 marks)

c) An operating system provides services both to the users and to the programs. Explain Six common services provided by an OS.　　　　(6 marks)

d) Described THREE different principles which must be considered while selecting schedule Algorithm.　　　　(6 marks)

e) Security refers to providing a protection system resource. Discuss at least THREE security concepts provided by operating systems citing example of each.　　　　(6 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO　　(20 MARKS)

a) With an aid of a diagram explain scheduling queue.　　　　(8 marks)

b) Based on the factor of wasting time, draw a comparison between round robin and priority based scheduling.　　　　(4 marks)

c) What is the difference between external and internal fragmentation in memory. (4 marks)

d) List example of operating system used in computers including microcomputer.　　(4 marks)

QUESTION THREE (20 MARKS)

a) Explain different states that exist in regard to process management. (6marks)

b) File access mechanism refers to the manner in which the records of a file may be accessed. Explain the three ways to access files. (6 marks)

c) Deadlock is the phenomenon that arises when a number of concurrent process all become blocked waiting for another thread to make available resources, but it can only be released by a thread that is till blocked. Discuss four conditions required for deadlock and four strategies for testing with deadlock. (8 marks)

QUESTION FOUR (20 MARKS)

a) A process to be assigned to the CPU based on particular scheduling algorithms, Explain popular process scheduling algorithms. (10 marks)

b) Discuss FIVE important functions of an operating system. (10 marks)