



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

P.O. Box 62157

00200 Nairobi - KENYA

Telephone: 891601-6

MAIN EXAMINATION

JANUARY – APRIL 2019 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND LIBRARY SCIENCE

REGULAR PROGRAMME

DIT 005: FUNDAMENTALS OF OPERATING SYSTEMS

Date: APRIL 2019

Duration: 2 Hours

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

- Q1. a) Explain the term operating systems **(2 Marks)**
- b) A computer system has many resources which may be required to complete a task. Name **at least** four commonly required resources **(4 Marks)**
- c) Explain **at least** two views of operating systems **(4 Marks)**
- d) Give a brief description of three types of operating systems **(6 Marks)**
- e) What do you understand by the term kernel in operating systems **(2 Marks)**
- f) Explain how a bootstrap program works **(2 Marks)**
- g) Explain two reasons why a parent process may terminate a child process **(2 Marks)**
- h) What is meant by context switching in operating systems **(2 Marks)**

- Q2. a) With the aid of a well labelled diagram, describe the process states (10 Marks)
- b) Briefly explain atleast three goals of operating systems (6 Marks)
- c) Explain atleast four functions of an operating system (4 Marks)
- Q3. a) Differentiate the following terms as used in operating systems
 a) Pre-emptive and non-pre-emptive scheduling
 b) process and program (4 Marks)
- b) Explain atleast three types of schedulers as used in operating systems (6 Marks)
- c) Explain atleast two major operations performed on a process (4 Marks)
- d) What is meant by CPU scheduling (2 Marks)
- e) Explain convoy Effect (2 Marks)
- f) Differentiate between cache and buffer as used in operating systems (2 Marks)
- Q4. a) Give a brief description of the following operating system concepts
 i) Deadlock
 ii) Process
 iii) Multiprogramming
 iv) Interprocess communication
 v) Mutual Exclusion (10 Marks)
- b) Write short notes on at least two ways in which operating systems can be defined (4 Marks)
- c) Explain three advantages of First Come First served Scheduling algorithm (6 Marks)
- Q5. a) There are many different criterias to check when considering the “best” scheduling algorithm. Explain atleast five of these criterias. (10 Marks)
- b) Explain four CPU scheduling algorithms as used in operating systems (8 Marks)

c) What is meant by the term thread

(2 Marks)

END