



THE TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT 12S)

ECS 2103: PRINCIPLES OF OPEATING SYSTEMS

END OF SEMESTER EXAMINATION

SERIES: APRIL 2013

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One (Compulsory)

- a) Define the following terms: (7 marks)
- (i) Buffering
 - (ii) Interrupt
 - (iii) Process
 - (iv) Multiprogramming
 - (v) Operating system
 - (vi) System call
 - (vii) Caching
- b) Using the table below schedule the processes on a gantt chart using round Robin algorithm (Time quantum = 4) and calculate the average waiting time. (8 marks)

Process	Burst Time	Arrival Time
A	12	0
B	7	1
C	3	2
D	5	3

- c) Describe **FIVE** process states (5 marks)
- d) State **FOUR** functions of memory manager (4 marks)
- e) Discuss layered structure of operating system. (6 marks)

Question Two

- a) Discuss **FIVE** functions of operating systems. (10 marks)
- b) Discuss **FIVE** types of operating systems. (10 marks)

Question Three

- a) Describe **FOUR** methods used in deadlock recovery. (16 marks)
- b) Differentiate between logical and physical file system. (4 marks)

Question Four

- a) Discuss the following memory allocation techniques. (10 marks)
- (i) Paging
 - (ii) Swapping
 - (iii) Segmentation
 - (iv) Partitioned allocations
 - (v) Overlay
- b) Define the following terms as used in I/O management (3 marks)
- (i) Device controllers
 - (ii) Direct memory access

(iii) Inrupt handlers

c) Discuss the following disk operations stating their importance. **(4 marks)**

- (i) Formatting
- (ii) Partitioning

d) Describe **THREE** factors to classify or differentiate operating system. **(3 marks)**

Question Five

a) Discuss **FIVE** reasons for multiprogramming. **(10 marks)**

b) Discuss **FOUR** file organization techniques giving **TWO** advantages and **TWO** disadvantages of each. **(10 marks)**