



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY
(DIT11M/DIT2K11M/DICT11M/DICT 2K 11M)

EIT 2109: PRINCIPLES OF OPERATING SYSTEM

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: MAY/JUNE 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

Answer any **THREE** questions. Question **ONE** is compulsory

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One (Compulsory)

- a) Explain the following schedulers
- i) Short term scheduler
 - ii) Intermediate level
 - iii) First in First out (FIFO)
 - iv) Round Robin
 - v) Priority Scheduling
- (10 marks)
- b) Calculate the waiting time for process 4 and 2 below using SJF algorithm
- (5 marks)

Process	Burst time	Arrival time
1	12	0
2	6	1
3	7	2
4	2	3

- c) Get the average waiting time of the processes shown below using SJF algorithm with preemption
- (5 marks)

Process	Burst Time	Arrival Time
1	11	0
2	13	1
3	7	2
4	8	3
5	2	4

- d) State **FIVE** factors considered when purchasing an operating system
- (5 marks)
- e) Explain **FIVE** functions of an operating system
- (5 marks)

Question 2

- a) Discuss the following memory management techniques
- i) paging
 - ii) segmentation
 - iii) swapping
 - iv) overlay
 - v) partitioned allocations
- (20marks)

Question 3

- a) Give the function of the IRQ and how interrupts are handled 6marks
- b) Discuss **THREE** memory recovery techniques 4marks
- c) Outline the steps to perform the following Windows operations
- i) Disk Defragmentation (2 Marks)
 - ii) Check available Disk space (2 Marks)
 - iii) Change the system time and Date (2 Marks)
 - iv) Sending the computer to sleep mode (2 Marks)
 - v) Cancel Print jobs (2 Marks)

Question 4

- a) Schedule the jobs below using round robin algorithm with a time quantum of 4 seconds and calculate the average waiting time (10 marks)

Process	Burst time	Arrival time
1	20	0
2	9	1
3	3	2
4	15	3

- b) Explain the layered structure and monolithic structures of an operating system 10marks

Question 5

- a Define deadlock and explain **FOUR** conditions that lead to deadlock 9 marks
- b explain **THREE** deadlock preventive measures 4marks
- c define virtual memory and discuss how the following strategies are used to implement it 7 marks
- i Overlay
 - ii Segmentation
 - iii Paging