THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY

DIT11M\DIT2K11M\DICT11M\DICT2K11M

ECT 2105: PRINCIPLES OF OPERATING SYSTEM

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY/MARCH 2012
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions in **TWO** sections **A** & **B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

QUESTION ONE (30 MARKS)

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 (5marks)

SECTION B (Answer any two questions)

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 **TWO** 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