



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR BSC. INFORMATION TECHNOLOGY & BTECH.
INFORMATION COMMUNICATION TECHNOLOGY

BSC. IT MAY 11/BTECH. ICT MAY 11

ICS 2202: OPERATING SYSTEM I

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 1

- a) Define an operating system (2marks)
- b) List and explain any **four** functions of an operating system (8marks)
- c) Briefly explain the evolution of modern operating systems (6marks)
- d) Briefly explain the following operating systems concepts. (12 marks)
- i. Catching.
 - ii. Interrupt.
 - iii. Spooling.
 - iv. Buffer.
 - v. System calls.
 - vi. Kernel.
- e) Name any **two** benefits of Multiprogramming. (2marks)

SECTION B ANSWER ANY TWO QUESTIONS (40 MARKS)

Question 2

- a) (i) Define a distributed system (2marks)
- (ii) Give **three** examples of distributed systems. (3marks)
- (iii) Explain **three** benefits of a distributed system. (3marks)
- b) (i) What is a distributed operating system? (2marks)
- (ii) Explain any **four** goals/ principals of a Distributed operating system. (8marks)
- (iii) What is a network operating system? (2marks)

Question 3

- a) (i) Enumerate and explain any **four** key challenges of distributed systems : (8marks)
- (ii) Define any **two** approaches used to improve file performance in a Distributed file system. (4marks)
- b) List and explain any **four** process execution states. (8marks)

Question 4

- a) What is a device controller? (2marks)
- b) List and explain the four types of registers in an Input/Out port (8marks)
- c) Explain the basic interrupt mechanism or how an interrupt handler works. (8marks)
- d) Define a Bus. (2marks)

Question 5.

- a) (i) What is a CUP scheduler. (2marks)
(ii) Explain the **two** types of CPU schedulers. (4marks)
(iii) List and explain any four objectives scheduling. (8marks)
- b) (i) Explain the Round robin scheduling algorithm. (2marks)
(ii) Consider the following set of processes, where each task is allocated time quantum of 4

<u>Process</u>	<u>Burst Time</u>
1	24
2	3
3	3

Schedule the processes using a Gantt chart to enable you calculate the average waiting time. (4marks)