



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**(A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

**DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**(DICT J12EV/DIT J12EV)**

**ECT 2105/EIT 2109: PRINCIPLES OF OPERATING SYSTEM**

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: OCTOBER 2012**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

Answer 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

**SECTION A (COMPULSORY)**

**Question One (20 marks)**

- a) Define operating system. (2 marks)
- b) State and describe the types of operating system. (4 marks)
- c) State and describe the **THREE** categories of files. (6 marks)
- d) State the memory management functions. (4 marks)
- e) State the advantages and disadvantages of fixed partition. (4 marks)

**SECTION B (Answer Any Two Questions)**

**Question Two (20 marks)**

- a) State the goals of operating system. (4 marks)
- b) Why would shortest job first scheduling algorithm not be preferred to first come first served scheduling algorithm? (3 marks)
- c) State and describe the different ways of recovering from deadlock. (6 marks)
- d) Define compaction and state its advantage. (3 marks)
- e) Briefly describe the monoprogramming concept. (4 marks)

**Question Three (20 marks)**

- a) State and describe the techniques used in memory management. (10 marks)
- b) Differentiate between pages and frames. (2 marks)
- c) Give the disadvantages of monoprogramming concept. (4 marks)

**Question Four (20 marks)**

- a) Differentiate between status registers and controller registers. (4 marks)
- b) Use diagram to illustrate how the processor give commands and data to controller to accomplish an I/O transfer. (6 marks)
- c) Describe the following types of file organization. (6 marks)
  - i) Serial files
  - ii) Sequential files
  - iii) Random/Direct files
- d) Define deadlock. (2 marks)
- e) Describe how best fit strategy works in memory management. (2 marks)

**Question Five (20 marks)**

- a) Describe the different ways of preventing the conditions for deadlock. (8 marks)
- b) Differentiate between first-fit and worst-fit. (2 marks)
- c) Briefly explain the concept of virtual memory. (4 marks)
- d) Describe the significance of managing processors. (2 marks)
- e) State the benefits of multiprogramming concept. (4 marks)