



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT 13S - EV/FT)

EIS 2106: PRINCIPLES OF OPERATING SYSTEMS

END OF SEMESTER EXAMINATION
SERIES: APRIL 2014
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

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 **TWO** printed pages

Question One (Compulsory)

- a) Describe the structure of an operating system. (4 marks)
- b) Define the following terms:
(i) Process
(ii) Scheduler
(iii) Job
(iv) Interrupt
(v) Caching (10 marks)
- c) Describe the functions of operating systems. (6 marks)

Question Two

- a) Explain the following categories of files:
(i) Master file
(ii) Transaction file
(iii) Reference file (6 marks)
- b) Describe the different ways of recovering from a deadlock. (6 marks)
- c) Using an illustration, describe the different process states. (4 marks)
- d) Explain how a basic interrupt mechanism works. (4 marks)

Question Three

- a) State the purpose of scheduling. (2 marks)
- b) Briefly explain the following memory management techniques. (8 marks)
(i) Paging
(ii) Swapping
(iii) Overlay
(iv) Segmentation
- c) Describe the following strategies of selecting a free memory hole:
(i) First-fit
(ii) Best-fit
(iii) Worst-fit (6 marks)
- d) Explain the setbacks of compaction. (4 marks)

Question Four

- a) Explain how spooling works. (4 marks)
- b) Describe the round robin scheduling algorithm and state its advantages. (6 marks)
- c) Describe FIVE factors that affect the choice of file organization. (10 marks)

Question Five

- a) Using an illustration, explain how a deadlock occurs. **(4 marks)**
- b) Explain the different ways of preventing the occurrence of a deadlock. **(8 marks)**
- c) Differentiate between the following:
 (i) Pre-emptive scheduler and non pre-emptive scheduler
 (ii) Long-term scheduler and short term scheduler **(6 marks)**
- d) Explain the term “device controller” **(2 marks)**