



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
(DICT/ M 10/S-EV)**

EIT 2309: DISTRIBUTED SYSTEMS

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 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 (COMPULSORY)** 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) Define distributed computing. (2 marks)
- b) What is the essence of a distributed system? (3 marks)
- c) Distinguish distributed operating system from network operating system. (2 marks)
- d) Define a distributed system algorithm (2 marks)
- e) What are the challenges in coming up with distributed system algorithms? (3 marks)
- f) Contrast a client from a server. (4 marks)
- g) Explain the various types of servers in distributed systems. (6 marks)
- h) Define:
 - (i) Distributed file systems
 - (ii) Clock synchronization
 - (iii) Inter process communication (IPC)
 - (iv) Remote Procedure Calls (RPC) (8 marks)

Question Two

- a) Explain deadlock in distributed systems (2 marks)
- b) How can you detect a deadlock? (4 marks)
- c) What are the design problems in distributed systems? (4 marks)
- d) Explain any **FIVE** types of transparency that exists in distributed systems. (5 marks)

Question Three

- a) List and explain distributed systems challenges and concerns. (10 marks)
- b) What are the disadvantages of distributed systems? (5 marks)

Question Four

- a) The main goal of a distributed system is to make it easy for the users (and applications) to access remote resources and to share them in a controlled and efficient way. Discuss. (5 marks)
- b) Describe any of the distributed systems models. (5 marks)
- c) With examples, discuss any **FIVE** failures that might occur in a distributed system. (5 marks)

Question Five

- a) What are the characteristics of a fault tolerant distributed system? (10 marks)
- b) With examples, discuss any **FIVE** failures that might occur in a distributed system. (5 marks)