MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

University Examinations 2011

Higher Diploma in Computer Studies- HDIP 10A

DISTRIBUTED SYSTEMS ECT 3109

INSTRUCTIONS

This paper contains five questions

Answer **Question ONE** and any other **TWO** questions

TIME: 2 HOURS

QUESTION ONE (30 Marks)

a)   Define the following terms as used in distributed system

a) Middleware

b) Marshalling

c) Process   (6 marks)

b)   Define transparency in a distributed system. Enumerate and explain three aspects of transparency.   (6 Marks)

c)   Explain the Lamport's algorithm   (5 Marks)

d)   Explain two examples of distributed systems   (2 Marks)

e)   Differentiate between synchronous and asynchronous communication   (4 Marks)

f)   Explain two advantages of distributed systems   (4 Marks)

g)   List three techniques employed to implement a scalable, fault tolerant directory service.

(3 Marks)

QUESTION TWO (15 Marks)

a)   With examples describe the client server model?   (5 Marks)
b)   Discuss three challenges in the design of distributed systems.   (6 Marks)
c)   Explain two ways to achieve mutual exclusion in Distributed system   (4 Marks)

QUESTION THREE (15 Marks)

a)   With examples illustrate the difference between passive and active replication.
(4 Marks)
b)   Explain three types of fault   (6 Marks)
c)   Explain three types of failure models   (5 Marks)

QUESTION FOUR (15 Marks)

a)   Explain any two features of good distributed file system   (4 Mark)

b)   Differentiate between mutable and immutable files   (4 Marks)

c)   Name three advantages of file replication   (3 Marks)

d)   Briefly explain four methods of handling deadlocks in distributed systems

                                                                      (4 Marks)

QUESTION FIVE (15 Marks)

a)   Define a **fault**   (1 Mark)

b)   With the help of a diagram, describe the Remote Procedure call steps   (10 Marks)

c)   Explain four goals of computer security   (4 Marks)