TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BTIT Y3 S2/ BSIT Y4 S2)

ICS 2403/EIT 4312: DISTRIBUTED SYSTEMS

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

<u>**Instructions to Candidates:**</u>
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions.
Attempt 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. **(4 marks)**

d) What are the challenges in coming up with distributed system algorithms? **(3 marks)**

e) Contrast a client from a server. **(4 marks)**

f) Explain the various types of servers in distributed system. **(6 marks)**

g) Define: **(8 marks)**
  (i) Distributed file system

(ii) Clock synchronization
(iii) Inter process communication (IPC)
(iv) Remote procedure calls (RPC)

Question Two

a) Explain deadlock in distributed system. **(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 system. **(10 marks)**

Question Three

a) List and explain distributed systems challenges and concerns. **(10 marks)**

b) What are the disadvantages of distributed systems. Explain. **(10 marks)**

Question Four

a) The main goal of a distributed system is to make it easy for the users (and application) to access remote resources and to share them in a controlled and efficient way. Discuss. **(5 marks)**

b) Describe any of the distributed system models. **(5 marks)**

c) With examples, discuss any FIVE failures that might occur in a distributed system. **(10 marks)**

Question Five

a) What are the characteristics of a fault tolerant distributed system? **(10 marks)**

b) Discuss COBRA technic **(5 marks)**

c) Discuss distributed file system challenges **(5 marks)**