JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION AND COMMUNICATION TECHNOLOGY

3RDYEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ICT 3316

COURSE TITLE: DISTRIBUTED SYSTEMS

EXAM VENUE: **STREAM: ICT**

DATE: DECEMBER 2018   **EXAM SESSION:**

TIME: 2.00 HOURS

INSTRUCTIONS; ANSWER QUESTION 1(30 MARKS) AND ANY OTHER 2

QUESTION ONE (30 MARKS)

a) What is a distributed system?   (4 marks)

b) Identify and explain any four transparency in distributed system   (8 marks)

c) What is marshalling in inter-process communication?   (4 marks)

d) Explain the following protocol in client-server communication   (6 marks)

    i.   DoOperation
   ii.   GetRequest

iii.   SendReply

e) Identify and explain four reasons why Multicast messages are useful for constructing Distributed Systems   (8 marks)

QUESTION TWO (20 MARKS)

a) Using well labeled diagrams discuss the following file system models:

  i.   Upload/download model of file services   (10 marks)
  ii. The remote Access model of file services   (10 marks)

QUESTION THREE (20 MARKS)

a) In RMI name and explain the three common invocation semantics and the fault tolerance measures, if any, used to realize them.   (12 marks)

b) State the main components of Distributed operating system.   (8 marks)

QUESTION FOUR (20 MARKS)

Discuss the main issues in designing a distributed operating system.
                                                      (20 marks)

QUESTION FIVE (20 MARKS

a) Explain how process creation in a distribution environment differs from creation in a non-distributed environment. With regard to the distributed environments explain location policy and the considerations that might influence it.   (10 marks)

b) Outline the operation of a system in which multithreaded web browsers(clients) access a multithreaded web server. Assume that the latter employs the worker pool architecture. Highlight the advantage of this system over one where single threaded clients access a single threaded server.   (10 marks)