SOUTH EASTERN KENYA UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR

OF SCIENCE IN BACHELOR OF SCIENCE IN COMPUTER SCIENCE

CSC 317 / CSC 322: NETWORK AND DISTRIBUTED PROGRAMMING

DATE: 19TH APRIL, 2017   **TIME: 1.30 -3.30 PM**

INSTRUCTIONS TO CANDIDATES

a) **Answer <u>ALL</u> questions from section A(Compulsory)**

b) **Answer <u>ANY TWO</u> questions from section B**

SECTION A: *ANSWER ALL QUESTIONS*   *{30 MARKS}*

QUESTION 1

a) Define the following commands as used in network programming
   - i. Bind
   - ii. Nslookup
   - iii. Port address
   - iv. RARP

                                                        (4 Marks)

b) i) Describe the a Thread and its elements   **(2 Marks)**

     ii) write a simple program for creation of a process   **(4 Marks)**

c) Explain the concept of an object reference in a distributed system.   **(4 Marks)**

d) Write a code in java that will give as output the IP address for local Machine **(4 Marks)**

e) Differentiate the implementation process for CORBA and RMI   **(4 Marks)**

f) Using a diagram Describe how Remote Method invocation call works   **(7 Marks)**

SECTION B: ANSWER ANY TWO QUESTIONS {20 MARK EACH}.

QUESTION 2

a) Threads are important constructs for facilitating concurrent programming , describe **Three**
   Approaches deployed thread implementation **(6 Marks)**

b) Write Java code for Mutual exclusion implementing Semaphore **(6 Marks)**

c) Using an illustration describe the steps followed in a connection –oriented client server
   (8 Marks)

QUESTION 3

a) i) Elaborate on the concept of transparency as used in distributed system **(2 Marks)**

   ii) Describe two from of transparency in distributed systems **(4 Marks)**

b) Using Java write a code that implement a Server Echo program **(7 Marks)**

c) Differentiate between Remote procedure call (RPC) and Remote method invocation (RMI)
   (4 Marks)

d) Using Diagram Explain the implementation of way handshake procedure in TCP communication
   (3 marks)

QUESTION 4

a) Using the an illustration explain the CORBA architecture for implementing a client – server communication **(4 Marks)**

b) Write a java code that can be used to display the IP address associated with a given Website **(6 Marks)**

c) Using C , Identify Two Primitives associated with Socket and their specific structure
   (4 Marks)

d) Discuss two approaches that DNS servers use to resolve IP address **(6 Marks)**