THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY – DIT 9M
DIPLOMA IN INFORMATION & COMMUNICATION TECHNOLOGY – DICT 9M
YR III SEM I

ECS 2301/EIT 2301: DATA COMMUNICATION I

END OF SEMESTER EXAMINATIONS

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

<u>Instructions to Candidates:</u>
This paper consist of **TWO** sections **A** and **B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions from the list of questions below
Calculator and SMP tables can be used
This paper consists of **THREE** printed pages

SECTION A COMPULSORY (30 MARKS)

Question 1

a) Differentiate between frequency division multiplexing (FDM) and Time Division multiplexing (TDM) (4 marks)

b) Briefly explain the following terms as used in networking (8 marks)

(i) Full duplex
(ii) Broadband
(iii) Half duplex
(iv) Asynchronous transmission

c) Describe the **THREE** common media access methods used to regulate the usage of transmission media in networking. (9 marks)j

d) Describe the attributes of the following Ethernet network standards

(i) 10 base 2
(ii) 10 base 5
(iii) Gigabit Ethernet (9 marks)

SECTION B

This section consists of FOUR questions 20 marks each.
Choose any two questions

Question 2 (20 marks)

a) State the functions of the following specialized servers
(i) File and print server
(ii) Application server (4 marks)

b) Explain the advantages of implementing server based as opposed to peer-to-peer network. (4 marks)

c) With the aid of diagrams, show how token ring network can be implemented as a physical star, logical ring using multi stations access unit (MUA/MSAU). (4 marks)

d) State and explain the functions of the upper most **TWO** layers of the OSI reference model (4 marks)

Question 3 (20 marks)

a) State the **THREE** major tasks of a network administrator (3 marks)

b) Explain the functional differences between the following networking devices
i) Bridge and switch (6 marks)

ii) Passive hubs and intelligent hubs (4 marks)

c) Explain the functions and application of the following devices as used in networking.
i) Firewall (3 marks)
ii) Router (4 marks)

Question 4 (20 marks)

a) With the aid of a diagram, describe the components of an Ethernet frame format (10 marks)

b) Stating application for each, explain the following terms
   (i) Packet switching
   (ii) Circuit switching (4 marks)

c) Define the following terms as used in networking
   (i) Interoperability
   (ii) Throughput
   (iii) Data packets
   (iv) Cross talk
   (v) Protocol
   (vi) Attenuation (6 marks)

Question 5 (20 marks)

a) Describe the procedures of configuring a computer to be part of a Network using Windows XP (10 marks)

b) Compare bus and ring topologies under the following topics
   (i) Cost
   (ii) Data communication
   (iii) Scalability
   (iv) Fault tolerance (10 marks)