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, DIT2K 9J
YR III SEM I

EIT 2302: DATA COMMUNICATION II

END OF SEMESTER EXAMINATIONS

SERIES: AUGUST/SEPTEMBER 2011

TIME: 2 HOURS

Instructions to Candidates:
This paper consist of **TWO** sections **A** and **B**
Answer question **ONE (COMPULSORY)** and any other **TWO** questions from the list of questions below
This paper consists of **THREE** printed pages
SECTION A COMPULSORY (30 MARKS)

Question 1

a) During an exercise to configure the computers to the internet use, the following terms were mentioned frequently by the configuration team. Explain each of the terms;

    (i)   Proxy server
    (ii)   Subnet address
    (iii)   IP address
    (iv)   Client computer   (8 marks)

b) Identify **FOUR** physical threats of computer networks that organizations need to safeguard
                                                    (4 marks)

c) Outline **TWO** security levels that can be applied in a network   (4 marks)

d) Outline the procedure for manually assigning a computer an IP address. Assume window based operating system environment   (4 marks)

e) The following are typical IP address for computers in a network

    (i)   129.15.4.8
    (ii)   192.110.103.22
    (iii)   122.117.100.21

    Identify the class of each IP address   (3 marks)

f) With the aid of a diagram, describe the use of a bridge and a router in a local area network
                                                      (7 marks)

SECTION B

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

Question 2 (20 marks)

a) Explain **FOUR** applications of integrated services digital networks (ISDN)   (8 marks)

b) Describe any **SIX** roles of protocols   (6 marks)

c) Explain the functions of the following protocols

    (i)   Hyper Text Transfer Protocols (HTTP)
    (ii)   File Transfer Protocol (FTP)
    (iii)   Simple Mail Transfer Protocol (SMTP)   (6 marks)

Question 3 (20 marks)

a) Giving **ONE** example for each, differentiate between;

    (i)   Connection oriented protocols and Connectionless protocols
    (ii)   Routable protocols and Non-routable protocols   (8 marks)

b) Outline the following **TWO** security levels that can be applied in a network

    (i)   User level

    (ii)   Share level   (4 marks)

c) With the aid of a diagram show the TCP/IP protocol model   (4 marks)

d) Giving advantage and disadvantage of each, differentiate between Dynamic and Static methods of assigning IP addresses   (4 marks)

Question 4 (20 marks)

a) During network configuration, a student used the commands ipconfig/all and traceroute. Distinguish between the TWO commands   (4 marks)

b) With the aid of a diagram, drawn on the same axis, describe the following encoding techniques
    (i)   Non-return-to zero(NRZ)
    (ii)   Manchester (Bi-phase)
    (iii)   Differential Manchester   (9 marks)

    Assume the bit pattern 0111000110

c) Using diagrams explain the operations of the FDDI networking technology   (7 marks)

Question 5 (20 marks)

a) Describe any **FOUR** limitations of Integrated Services Digital Network   (8 mark)

b) Explain the following fault tolerance techniques: (8 marks)

    (i)   Disk duplexing
    (ii)   Disk mirroring
    (iii)   Disk stripping
    (iv)   Hot fixing

c) Using diagram show how the TCP/IT protocol stack fits into the OSI 7 layers reference model   (4 marks)