TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN
MATHEMATICS & COMPUTER SCIENCE

BIT 2116: NETWORK DESIGN & MANAGEMENT

EIT 4201: NETWORK DESIGN & IMPLEMENTATION

END OF SEMESTER EXAMINATION
SERIES: APRIL 2013
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** 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) Explain the following terms:
    (i) Network design
    (ii) Bus topology
    (iii) User datagram protocol (UDP)
    (iv) Address resolution protocol
    (v) IP address   **(10 marks)**

b) Explain the difference between the following terms:
    (i) "Static IP address" and "Dynamic IP address"
    (ii) "Router" and "Switch"
    (iii) "Broadcast address" and "Network Address: **(12 marks)**

c) Explain the difference between the following terms:
    (i) "Internet" and "Extranet"

(ii) "Firewall" and "Intrusion Detection System" **(8 marks)**

Question Two

a) Explain the application of computer networks in the following areas:
  (i) Socialization
  (ii) Business application
  (iii) Mobile user
  (iv) Home application **(8 marks)**

b) State any **TWO** advantage and any **TWO** disadvantage of ring topology,. **(4 marks)**

c) Explain the difference between:
  (i) Network address and broadcast address
  (ii) Cable tester and crimping tools **(8 marks)**

Question Three

a) Explain the following network performance terms:
  (i) HP count
  (ii) Bandwidth
  (iii) Latency **(6 marks)**

b) Explain the layers of TCP/IP protocol stack **(10 marks)**

c) Explain the following terms:
  (i) Frame
  (ii) Segment **(4 marks)**

Question Four

Discuss the **SIX** stages of the network design and implementation management cycle. **(20 marks)**

Question Five

a) Explain any **THREE** factors to be considered when choosing a network topology. **(6 marks)**

b) Explain any **THREE** factors to be considered when choosing a transmission media. **(6 marks)**

c) Explain the following IP addressing schemes.

  (i) Variable length subnet masking
  (ii) Intermediate Routing Protol **(4 marks)**

d) Explain the following terms:
  (i) Repeaters
  (ii) Bridge
  (iii) Access point
  (iv) Micro-cell **(4 marks)**