



TECHNICAL UNIVERISTRY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 14S/S-EV – Y2 S1)

EIT 4201: NETWORK DESIGN & IMPLEMENTATION

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** 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) Compare the TCP/IP model and OSI model | (4 marks) |
| b) Differentiate between IPV4 and IPV6 | (6 marks) |
| c) Highlight the uses of computer networks | (4 marks) |
| d) Describe the steps involved in Network Design and Implementation | (12 marks) |
| e) Highlight FOUR goals of Network Design. | (4 marks) |

Question Two

a) Explain the following terms:

- (i) Network
- (ii) Subnet
- (iii) Segment
- (iv) Internetwork

(8 marks)

b) What is the purpose of DNS when we can directly use an IP address

(3 marks)

c) In what way is ARP similar to RARP? In what way do they differ?

(4 marks)

d) Differentiate between classful classless IP addressing

(3 marks)

e) What is Network Design

(2 marks)

Question Three

a) In a class A subnet; we know the IP address of one of the hosts and the mask as given below:

IP address: 126.134.112.66

Mask; 255.255.224.0

What is the first and last IP address in this subnet

(4 marks)

b) Explain the functions of the 7 layers of the OSI model

(14 marks)

c) Write any TWO strengths of the OSI model

(2 marks)

Question Four

a) An organization has a class network 192.168.1.0 and wants to form subnets for 4 departments w, x, y and z. Each will hold the following number of hosts:

w: 72 hosts X: 35 hosts Y: 20 hosts Z: 18 hosts

(i) Give the first, last and subnet mask of each of subnets w, x, y and z

(16 marks)

(ii) If subnet Z was to grow to 50 hosts, suggest what the organization should do.

(4 marks)

Question Five

a) Describe the functions of the following network protocols:

- (i) TCP
- (ii) Telnet
- (iii) DHCP
- (iv) FTP
- (v) SMTP

(10 marks)

b) Identify THREE physical characteristics of fiber optic cable that makes it more suitable for high speed digital transmission than copper cables.

(6 marks)

c) In terms of Quality of Service (QOS) the internet is described as having offering a best effort service. What is meant by this description

(4 marks)