TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT)

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) Why are networks necessary in day to day business activities? **(3 marks)**

b) Distinguish between physical and logical network topologies **(2 marks)**

c) What is a protocol? Mention THREE examples stating what each does **(5 marks)**

d) List and explain at least FIVE network hardware devices **(5 marks)**

e) Give the following IP address 172.25.200.89:
- **(i)** Give the network address of the IP address above **(1 mark)**
- **(ii)** Give the network address of the IP address above **(1 mark)**
- **(iii)** Give the subnet mask for the network it belongs to **(1 mark)**
- **(iv)** Give another IP address that belongs to the same network **(1 mark)**
- **(v)** Give the broadcast address of the network **(1 mark)**

f) Differentiate between intranet and extranet **(3 marks)**

g) Define the following metric terms:

(i) Bandwidth **(2 marks)**

(ii) Throughput **(2 marks)**

h) In what layer of the OSI model do the following operate? **(3 marks)**

(i) Ethernet

(ii) IP

(iii) TCP

Question Two

A large Kenyan Company with branches in Nairobi, Mombasa and Kisumu want to put up a network for its business operations. it wants a network to handle all its data which is backed up at the headquarter every night. The company does a lot of transactions in a day at all the branches and relies heavily on the data. You have been asked to design a network for the company. Justify your design.

Question Three

Describe FIVE physical network topologies and give their pros and cos. Diagrams are encouraged.

Question Four

Describe the OSI model and give the protocols operating at each layer of the model and what each protocol accomplishes.

Question Five

a) You have been hired as a network administrator; the owners of the company don't realize the need for a firewall and don't even know that it is in the first place. How would you explain and convince them that a firewall is necessary? **(8 marks)**

b) In what ways are network management tools useful to the network administration **(12 marks)**