TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BSIT 11M)

BIT 2116/EIT 4201: NETWORK DESIGN & IMPLEMENTATION

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2013
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** 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 differences between the following terms:
   (i)   Physical and logical network topologies **(4 marks)**
   (ii) Network address and broadcast address **(4 marks)**
   (iii) Latency and bandwidth **(4 marks)**

b) Explain THREE factors that will affect a network design **(6 marks)**

c) Most operating system provides a series of tools that can be used to verify or determine the host addressing. Name TWO such kinds of tools **(2 marks)**

d) Explain THREE goals of a network design. **(6 marks)**

e) What is meant by the term "redundancy" and what is a drawback of building redundancy into a network? **(4 marks)**

Question Two

a) The International Organization for Standardization (ISO) Network management forum divided network management into five functional areas. Describe the FIVE functional areas of network management **(10 marks)**

b) Differentiate between user datagram protocol (UDP) and Transmission control protocol (TCP) protocols **(4 marks)**

c) Name ONE advantage and ONE disadvantage of a star topology **(2 marks)**

d) Highlight any FOUR likely causes of a network connection failure **(4 marks)**

Question Three

a) Explain the following network hardware **(4 marks)**
    (i) Repeater
    (ii) Bridge

b) Using a well labeled diagram, explain the role of each OSI reference model layer in network administration **(16 marks)**

Question Four

a) Explain THREE factors to consider when choosing transmission media **(6 marks)**

b) Differentiate between the following terms as used in computer networking
    (i) Backbone and segment **(2 marks)**
    (ii) A node and a packet **(2 marks)**

c) A certain student had connected two hosts A and B directly through their Ethernet Interfaces using a straight though cable. Host A had an IP address 192.168.1.20 with mask ID 255.255.255.240 and host B hard an IP address 192.168.1.201 with mask ID 255.255.255.240. Ping attempts between the hosts are unsuccessfully. Explain two ways that can be done to provide connectivity between the hosts? **(4 marks)**

d) It is important to choose the right topology for how the network will be used. Explain THREE factors one should consider when choosing a network topology. **(6 marks)**

Question Five

a) A company is the process of designing a computer network, knowing you as an expert in this area; they approach you to assist in deigning. Describe how you will take them through a Network Design and Implementation cycle. **(14 marks)**

b) Explain the command for identifying the physical address of a PC **(2 marks)**

c) Outline FOUR common network tools **(4 marks)**