THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

MAIN EXAMINATION

JANUARY – APRIL 2015 TRIMESTER

FACULTY OF SCIENCE

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

REGULAR PROGRAMME

CMT 413: NETWORK DESIGN AND MANAGEMENT

Date: APRIL 2015	Duration: 2 Hours
Instructions: Answer Question ONE and any other TWO Questions.	

Q1. a)   Describe what Network Management entails.

(3 marks)

b)   How would you describe optimal network performance?

(3 marks)

c)   Assume that you are the network administration of a given organization. You are stationed at the headquarter of thy organization.   A member of staff has called you from one of the branches away for the headquarter complaining that they are not able to send emails like they would want to.

i)   As an administration of this network state three questions that you need to able yourself in order to provide a way in solving this problem.

(3 marks)

ii)   One of the things you will need to offer this solution is a solid understanding of protocols and model in your network. Clearly explain how this understanding will help you.

(3 marks)

iii)   Suggest any four vulnerable parts through which malicious entry can be made into this network.

(4 marks)

d)   Using a diagram describe the structural composition of a network management system.

(5 marks)

e)   Use a diagram to explain how a packet filtering router works.

(4 marks)

ISO 9001:2008 Certified by the Kenya Bureau of Standards

f) State from design goals of a firewall.

(4 marks)

Q2. a) Briefly explain the difference between web-based network management system and other network management systems.

(4 marks)

b) Using a diagram, clearly describe how the simple network management protocol works.

(5 marks)

c) Explain the relationship between the simple network management protocol and the TCP/IP Protocol Suite.

(3 marks)

d) Discuss the three Network Management System Architecture. In each case give one advantage.

(8 marks)

Q3. a) List four features of a NETWORK MANAGEMENT PLATFORM

(4 marks)

b) Assume that a user within your network has complained of the absence of a certain service from within the networks. From a fault management perspective.

i) State the steps you would follow to solve the problem.

(3 marks)

ii) Explain any five activities that you will undertake in such a case.

(5 marks)

iii) Why would documentation be important in such a case.

(8 marks)

c) One of the things expected of a network manager is being sensitive to the elements that affect the organization in which he/she is employed. Highlight any five such elements and explain how each may affect the performance of the network manager.

(5 marks)

Q4. a) What is ubiquitous computing?

(3 marks)

b) With respect to networking, state and explain any THREE changes that can be brought about as a result of ubiquitous computing.

(3 marks)

c) What is configuration management?

(2 marks)

d) Configuration management is considered to be the foundation of network management. How is this so?

(4 marks)

e) Discuss four levels at which relink security can be looked at.

(8 marks)

Q5.   a)   You have heard of a network administrator complaining that his users are complaining that the network is not functioning like it was functioning last week. He suspects that someone tampered with configuration settings. Explain in which way this could cause problems in the network.

(5 marks)

        b)   Describe you understanding of compute security.

(3 marks)

        c)   Explain these activities carried out in a network to enhance security in a network.

(3 marks)

        d)   Briefly explain how encryption works as a method of securing data on transit.

(3 marks)

        e)   Explain each of the following forms of attack in the network. Give a clear example in each case.

(6 marks)

END