



# TECHNICAL UNIVERSITY OF MOMBASA

## INSTITUTE OF COMPUTING AND INFORMATICS

### DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

#### UNIVERSITY EXAMINATION FOR:

#### BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY

#### EIT 4209: NETWORK SYSTEM ADMINISTRATION

#### END OF SEMESTER EXAMINATION

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Select Month Pick Year

#### Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

#### **Question ONE**

a) By citing an example in each case, differentiate between the following terms:

i) Network address and Broadcast address (4 marks)

ii) Loop back address and auto – configuration range (4 marks)

b) Differentiate between the following terms: (12 marks)

i) Workgroup and Domain

ii) Administrator account and guest account

iii) A local account and a domain account

c) Active Directory uses a hierarchical database model, which groups items in a tree-like structure. Explain the meaning of the following important Active Directory terms. (6 marks)

i) Object

ii) tree

iii) forest

d) Highlight any four reasons why network administrators use network analyzers. (4 marks)

#### **Question TWO**

a) Explain any two types of a user profile. (4 marks)

b) The system administrator can choose various password options to protect access to a domain. Describe two such options. (4 marks)

c) Explain two Importance of a Client-Server Model (4 marks)

- d) Highlight four challenges of systems administration. (4 marks)
- e) Briefly describe the procedure of joining a computer to a domain. (4 marks)

### Question THREE

- a) User profiles automatically maintain desktop settings for Windows users. By default, user profiles are stored on each user's local computer. State and explain three items that are stored as part of the user profile. (6 marks)
- b) The DHCP server assigns or leases a client an IP address for a predetermined period of time. In most cases, the IP address is automatically renewed when a client logs into a network and in some other cases, a network administrator releases and renews an IP address by manually typing certain TCP/IP commands in the command prompt.
- i) Explain two guidelines of lease duration in a DHCP server. (4 marks)
- ii) Write down the command that can be used to release and renew IP address. (4 marks)
- iii) Write down the command that can be used to display the basic IP configuration of the computer. (2 marks)
- iv) Write down the command that can be used to display a variety of statistics about a computer's active TCP/IP connections. (2 marks)
- v) Write down the command that can be used to diagnose DNS problems. (2 marks)

### Question FOUR

- a) Explain two methods that can be used to sniff on a switch. (8 marks)
- b) The organization has purchased an IP address of 170.50.0.0 and would like to use it to create five networks. Use this information to answer the following questions. (12 marks)
- i) What is its new subnet mask in decimal dotted notation?
- ii) What is the network address of the second range?
- iii) What is the broadcast address of the third range?
- iv) What is the range of the valid IP addresses in the fourth range?
- v) Write one useable IP address in a slash notation in the second range

### Question FIVE

- a) State and explain any four components of a network analyzer. (8 marks)
- b) Every user account has a number of important account properties that specify the characteristics of the account. State and explain the three most important account properties. (6 marks)
- c) Explain three benefits of Windows server 2008 Active directory. (6 marks)