MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION AND TECHNOLOGY

MAIN CAMPUS

CIT 212: COMPUTER NETWORKS LAB I

Date: 8th June, 2017 Time: 12.00 - 3.00 pm

INSTRUCTIONS:

- Answer ALL questions in SECTION A and any other TWO from SECTION B
- Write your registration number on all sheets of the answer book used.
- Use a NEW PAGE FOR EVERY QUESTION attempted, and indicate number on the space provided on the page of the answer sheet.
- Fasten together all loose answer sheets used.
- Mobile phones and PDAs are NOT allowed in the examination room.

SECTION A: COMPULSARY ATTEMPT ALL QUESTIONS {30 MARKS}

a) Explain factors that may compel a network administrator to logically segment a network.

(8 Marks)

b) Describe any **THREE** fundamental differences between a hub and a switch. **(6 Marks)**

c) Explain why a network administrator may choose to implement extended access control lists over standard access control lists. **(6 Marks)**

d) State the "**ALEX ZENIN**'s **THREE** rules of IP packet routing and explain the implication of each rule in the routing of IP packets. **(6 Marks)**

e) Differentiate between **Classless** and **Classful** routing protocols, giving an example of each.

(4 Marks)

SECTION B: ANSWER ANY TWO QUESTIONS {20 MARKS EACH}.

QUESTION 2

a) Describe the structure of the routing table, pointing out the function of each entry. **(8 Marks)**

b) Discuss the process of configuring VLANs in layer 2 switches. **(8 Marks)**

c) Discuss the reasons that necessitated the migration form RIP version 1 to RIP version 2.

(4 Marks)

QUESTION 3

a) Explain with the aid of a suitable diagram how data is moved from one computer in one LAN to another computer in another LAN, where the two LANs are connected to the same router through different interfaces. **(8 Marks)**

b) Discuss **FOUR** ways of logically securing switches and routers. **(8 Marks)**

c) Describe with the aid of a suitable diagram how static routing is implemented. **(4 Marks)**

QUESTION 4

a) Discuss the network address translation; why it is necessary, how it is implemented and how it works. **(8 Marks)**

b) Describe the concept of **inter-VLAN** routing and how it is configured. **(8 Marks)**

c) Explain why OSPF protocol presents a better option compared to RIP version 1 protocol. **(4 Marks)**

QUESTION 5

a) Describe the router boot process, highlighting key phases and what these phases accomplish **(8 Marks)**

b) Discuss the OSPF protocol; its attributes and configuration. **(8 Marks)**

c) Highlight reasons why an administrator may choose to implement dynamic routing over static routing. **(4 Marks)**