JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATION SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE COMPUTER SECURITY

2ND YEAR 1ST SEMESTER 2013/2014 ACADEMIC YEAR

KISUMU LEARNING CENTRE

COURSE CODE: IIT 3216

COURSE TITLE: TCP/IP NETWORK ADMINISTRATION

EXAM VENUE: **STREAM: (BSc. Computer Security)**

DATE: 16/04/14 **EXAM SESSION: 2.00 – 5.00 PM**

TIME: 2.00 HOURS

Instructions:

1. **Answer question 1 (Compulsory) and ANY other 2 questions**
2. **Candidates are advised not to write on the question paper.**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**

QUESTION 1[30 MARKS]

a) State basic Network standard services provided by TCP/IP. (4 Marks)

b) Briefly, describe the following layers as used in TCP/IP

i. Application layer (3 Marks)

ii. Transport layer (3 Marks)

c) (i) With suitable examples, state the purpose of the Internet layer in the TCP/IP protocol suite (2 Marks)

(ii) Describe the following Internet layer protocols (4 Marks)

(a) IP (Internet Protocol) –

(b) ARP (Address Resolution Protocol) –

(c) ICMP (Internet Control Message Protocol) –

(d) IGMP (Internet Group Message Protocol) –

d) What is the difference between a port address, a logical address, and a physical address? (6 Marks)

e) Define IP multicast. (2 Marks)

f) Discuss any THREE TCP/IP tools and utilities that are available for troubleshooting (6 Marks)

QUESTION 2 [20 MARKS]

a) (i) Define Domain Name Server (2 Marks)

(ii) Explain how names are translated (resolved) into IP address. (3 Marks)

b) (i) Describe how the multicast protocol works. (4 Marks)

(ii) When is it necessary to use multicasting? (4 Marks)

c) (i) Define IP Address (2Marks)

(ii) You can determine which class any IP address is in by examining the first 4 bits of the IP address. Describe. (5 Marks)

QUESTION 3 [20 MARKS

a) State the difference between TCP and UDP (4 Marks)

b) In cases where reliability is not of primary importance, UDP would make a good transport protocol. Give examples of specific cases. (4 Marks)

c) State how reliability is ensured using Transmission Control Protocol (TCP) (4 Marks)

d) An IP datagram is carrying a TCP segment destined for address 130.14.16.17/16. The destination port address is corrupted, and it arrives at destination 130.14.16.19/16. How does the receiving TCP react to this error? (4 Marks)

e) With the use of a diagram describe Three-Way Handshaking (4 Marks)

QUESTION 4[20 MARKS]

a) Clearly with appropriate examples, differentiate between routed protocol and routing protocol (4 marks)

b) Describe desirable properties of a router (5 Marks)

c) What are the key information a router needs (5 marks)

d) Describe the three types of routing (6 Marks)

QUESTION 5 [20 MARKS]

a) Define network management and state the significance of network management. (4Marks)

b) In large organizations that need to have dedicated expertise in certain areas, the staff can be divided into different groups. Describe. (6Marks)

c) Discuss the primary activities in maintenance (6 Marks)

d) List some of the possible issues that you might come across when troubleshooting a problem in your LAN (4 Marks)