MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

THIRD YEAR, **FIRST** SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE, IN MATHEMATICS AND COMPUTER SCIENCE

SIT 104: COMPUTER NETWORK FUNDAMENTALS

DURATION: 2 HOURS

DATE:

TIME:

Instructions to Candidates:

1. Answer all questions in **Section A** and **Any Other Two** questions in **Section B**.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A – ANSWER ALL QUESTIONS IN THIS SECTION (30 Marks)

QUESTION ONE

a) Define the following terms in relation to computer networking. (5 Marks)

(i) Converged Network

(ii) Logical topology

(iii) FTP

(iv) Content Switch

(v) 10 BASE 5

b) Explain three advantages and three disadvantages of wireless LAN (6 Marks)

c) Describe the purpose of the following networking equipments.

(i) Switch (2 Marks)

(ii) Router (2 Marks)

(iii) Gateway (2 Marks)

(iv) Network Interface Card (2 Mark)

d) Explain the function of the following types of servers.

(i) Web server (1 Mark)

(ii) File server (1 Mark)

(iii) Print server (1 Mark)

e) With aid of a diagram, describe the data communication model. (5 Marks)

f) List three advantages of star topology over bus topology. (3 Marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) With aid of diagrams, describe three types of wired media. (9 Marks)

b) There are various types of networks that are currently implemented. Explain the following networks.

i) PAN (2 Marks)

ii) LAN (2 Marks)

iii) WAN (2 Marks)

c) DHCP servers assign an IP address to a network device. Define the term DHCP and list the four steps that it follows to assign IP addresses to nodes over the network.

(5 Marks)

QUESTION THREE (20 MARKS)

a) Explain the term Ethernet as used in networking. . (2 Marks)

b) Differentiate between radio, microwave and infrared types of wireless transmission.

(6 Marks)

c) A standard is a group of rules that a group agrees to following. In the networking world we have several types of standards. For example an OSI Standardizes the communication functions of telecommunication or computing system. With aid of a diagram, describe the functionality of ISO/OSI standard. (12 Marks)

QUESTION FOUR (20 MARKS)

a) Explain the circuit, packet, and message switching techniques. (9 Marks)

b) Describe client/server and peer to peer network. Clearly indicate three advantages of client/server over peer to peer networks. (7 Marks).

c) Explain any four threats against computer networks. (4 Marks)