



MURANG'A UNIVERSITY OF TECHNOLOGY
SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2020/2021 ACADEMIC YEAR

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR, BACHELOR OF
SCIENCE IN SOFTWARE ENGINEERING, BACHELOR OF EDUCATION MATH'S
&COMPUTING, BACHELOR OF SCIENCE IN CS, BA DEVELOPMENT WITH IT,
BACHELOR OF CT, BSC MATH'S AND COMPUTER SCIENCE, BSC IT AND
BBIT.**

SIT 104 – FUNDAMENTALS OF COMPUTER NETWORKS

DURATION: 2 HOURS

Instructions to candidates:

1. Answer question One and Any Other Two questions.
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

QUESTION ONE (30 MARKS)

- a) Define the following terms are used in computer networks (5marks)
 - i. Latency
 - ii. Attenuation
 - iii. Protocol
 - iv. Band width
 - v. Data rate
- b) Differentiate between the following terms (6marks)
 - i. CSMA/CD and token ring access method
 - ii. physical topology and logical topology
 - iii. Half duplex and full duplex
- c) Explain how Domain ... (DNS) is implemented and how DNS questions are resolved in the DNS systems (4marks)
- d) i. Discuss factors that a SME company may consider before choosing a particular transmission medium. (6marks)

ii. Explain the reasons an SMA would have for setting up a computer network (6marks)
- e) Explain how ISDN works (3marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

- a) A variety of devices are used in networking and internet works, Give one clear difference in the following set of devices.
 - i) Bridge and Router
 - ii) Hub and switch (4marks)
- b) i) Use a diagram to illustrate the seven layers of the OSI model. Indicating specific functions for each layer (7marks)
ii) Describe how token ring topology work (3marks)
- c) Explain six network related functions performed by a network operating systems (6marks)

QUESTION THREE (20 MARKS)

- a) Contrast the OSI model with a TCP/IP reference model using a diagram, Show the correspondence between relevant protocol layers in the two models. (5marks)
- b) Describe the relevant merits of each of these models in the context modern network (6marks)
- c) Compare and contrast client server and peer to peer networks and suggest suitable application of each (5marks)

- d) Illustrate comparison and contrast between circuit switch and packet switch networks
(4marks)

QUESTION FOUR (20 MARKS)

- a) Explain the difference between the de-facto standard and de- jure standards in networks (4mark)
- b) Discuss any four functional areas of network management (8marks)
- c) Describe the use of the following interfacing devices as used in networks.
- i) 50 ohm termination
 - ii) Rj45
 - iii) T connector
 - iv) BNC
 - v) Vampire tap connector (8marks)