



# **MURANG'A UNIVERSITY OF TECHNOLOGY**

## **SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**UNIVERSITY ORDINARY EXAMINATION**

**2020/2021 ACADEMIC YEAR**

**SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN  
INFORMATION TECHNOLOGY**

**SIT 056 – 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 term Transmission media (2marks)
- b) Differentiate between (6marks)
  - (i) A baseband and broadband signal
  - (ii) A network server and a workstation
  - (iii) Logical and physical network topology
- c) List four network systems that are not computer- based networks. (4marks)
- d) Why is a network more reliable than stand alone computers. (4marks)
- e) Explain two advantages of fiber optic media (4marks)
- f) Distinguish between radio and microwave transmission. (2marks)
- g) Give one application area of infrared transmission. (2marks)
- h) Describe the following modes of data communication and give an example of where they are applied. (6marks)
  - (i) Half duplex Transmission.
  - (ii) Full duplex Transmission

**SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION**

**QUESTION TWO (20 MARKS)**

- a) Define the term network protocol (2marks)
- b) Highlight any three examples of protocols used in networking (3marks)
- c) How does each of the following networking models operates? (6marks)
  - (i) Centralized computer
  - (ii) Collaborative computing
  - (iii) Distributed computing
- d) Using appropriate diagrams, describe any three types of physical network topologies. (9marks)

**QUESTION THREE (20 MARKS)**

- a) Define the concept of Bound Transmission media (1marks)
- b) Explain the line of sight principle in wireless communication. (3marks)
- c) Give any two functions of network operating system (2marks)
- d) Explain each of the following network infrastructure devices. (8marks)
  - (i) Switch
  - (ii) Router
  - (iii) Bridge
  - (iv) Repeater
- e) Networks are classified using different criteria. Describe any three types of networks that are classified based by Geography. (6marks)

**QUESTION FOUR (20 MARKS)**

- a) OS1 model which as established by international standard organization consist of seven layers. Explain the role played by each layer. (14marks)
- b) Describe any three security requirements that must be met in network environment. (6marks)