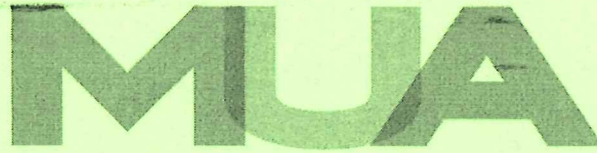


The
Management
University
of Africa



Sponsored by the Kenya Institute of Management

CERTIFICATE UNIVERSITY EXAMINATIONS
SCHOOL OF MANAGEMENT AND LEADERSHIP
CERTIFICATE IN INFORMATION COMMUNICATION
TECHNOLOGY

CIT 104: INTRODUCTION TO COMPUTER NETWORKING

DATE: 3RD APRIL 2025

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **FOUR** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **10 MARKS** each.
7. **Write all your answers in the Examination answer booklet provided.**

QUESTION ONE

Read the Case Study below carefully and answer the questions that follow:

You have just landed your first real world job from college. It is a fledgling ICT consultancy and solutions company seeking to make its mark in the industry. A kind of startup that provides ICT infrastructure solutions to clients in private, public and government sectors. Both the rank and file and its founders are a young blood, learning the ropes in this industry. The clients trust this company. They trust the young people seeing technology is their thing.

One of these clients is a foreign fintech company setting shop in Nairobi. It has branches all over the world. They have considered Kenya its gateway to East Africa and Africa at large. They have contacted your company to setup an ICT infrastructure for its 3 new offices in Nairobi. They want the offices networked. Some of their sensitive infrastructure runs on the cloud. They would need seamless network connectivity to their cloud infrastructure. Some employees will be working from home, especially the developers. These will also need remote access to the resources in the THREE offices. While within the offices, they need both wired and wireless connectivity to their cool gadgets.

Required:

- a) Propose the best network topology for the Local area network inside the buildings. [2 Marks]
- b) Identify the type of network that will interconnect the THREE (3) offices. [2 Marks]
- c) Discuss the best network cable to interconnect the buildings of this client. [2 Marks]
- d) Critique THREE (3) reasons for not installing a hub in this network. [6 Marks]
- e) Identify 4 network devices you would use in this network. [4 Marks]
- f) Propose the network device you would use to block unwanted traffic in this network. [2 Marks]
- g) Assess FOUR (4) advantages of having a wireless network (Wi-Fi) in some areas as opposed to wired connections. [8 Marks]
- h) List two examples of cloud services providers the company could be using. [2 Marks]

- i) Evaluate TWO (2) reasons for having a good network in enterprises. [2 Marks]

QUESTION TWO

- a) Identify THREE (3) examples of wireless networks. [3 Marks]
- b) Differentiate between a Local Area Network (LAN) and a Wide Area Network (WAN). [4 Marks]
- c) Define encapsulation as used in computer networking. [3 Marks]

QUESTION THREE

- a) Identify THREE (3) examples cloud service providers [3 Marks]
- b) Arrange the SEVEN (7) layers of the OSI reference model [7 Marks]

QUESTION FOUR

- a) List TWO (2) common TCP ports used in the Internet today [2 Marks]
- b) Identify FOUR (4) emerging trends in the field of computer networks. [4 Marks]
- c) Assess the use of wireless as a medium of connectivity in computer networks as opposed to wired media. [4 Marks]

QUESTION FIVE

- a) Describe the four (4) layers of the TCP/IP networking models [8 Marks]
- b) Define the term Internet of Things (IoT) [2 Mark]

QUESTION SIX

- a) Define the following terms
- i. Internet [2 Marks]
 - ii. Intranet [2 Marks]
- b) Define the term computer networks [2 Marks]
- c) Identify the main reasons that led to the development of computer networks. [4 Marks]

