

061006T4ICT

ICT TECHNICIAN LEVEL 6

IT/OS/ICT/CR/01/6

PERFORM COMPUTER NETWORKING

July/August 2024



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL
(TVET CDACC)**

WRITTEN ASSESSMENT

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. This paper consists of two sections; **A** and **B**
2. Answer **ALL** the question as guided in each section
3. Marks for each question are as indicated in the brackets
4. You are provided with a separate answer booklet to answer the questions
5. Do not write in this question paper

This paper consists of FIVE (5) printed pages

**Candidates should check the question paper to ascertain that
all pages are printed as indicated and that no questions are missing.**

SECTION A: (40 MARKS)

Answer ALL the questions in this section.

1. Computer networking allows computers to communicate and share resources. Define the following terms as used and applied in the networking and networking essentials **(4 Marks)**
 - i. Network
 - ii. A topology
2. Data communication devices can be divided into data terminal devices and data communication devices. What's the name of a device that can be used to link several computers together in a local area network (LAN)? **(1 Marks)**
3. John has just purchased a new router for his office. Explain TWO functions of a router as a networking device **(4 Marks)**
4. Jane, an ICT administrator at XYZ college wants to change the topology of the institution's network. Name FOUR factors that influence the choice of network topology **(4 Marks)**
5. Most organizations prefer keeping their networks private to limit users and third parties. State the organization's private network that connects to third parties like vendors, customers and partners in a secure and controlled way. **(1 Marks)**
6. Networks are designed to cover different geographical areas as explained by Mr. Mwaniki. Which type of network covers a limited geographic area, typically a university, business park or large institution? **(2 Marks)**
7. Wireless transmission is vastly used in telecommunication. Explain two modes of transmission used in wireless communication **(4 Marks)**
8. A bridge is a very important device in computer networking. Explain two functions of a bridge in a computer network **(4 Marks)**
9. Routing and packetization play a crucial role in the initial preparation of a message to be transmitted. Differentiate between Routing and packetizing as used in computer networking **(4 Marks)**
10. Systems are best when the security detail is observed, you have just completed installing a network and interconnected with the internet. Explain TWO security measures you can apply to ensure the network is secure. **(4 Marks)**

11. Alice a network technician was asked to install a network in her organization, her instructor advised her that WAN is not appropriate in that scenario. Differentiate between LAN and WAN as used in networking.
(4 Marks)
12. Kennedy a network administrator at VIG enterprises noticed that most users were complaining that the network was inaccessible. Explain two tools that he can use to monitor the network connectivity.
(4 Marks)

SECTION B: (60 MARKS)

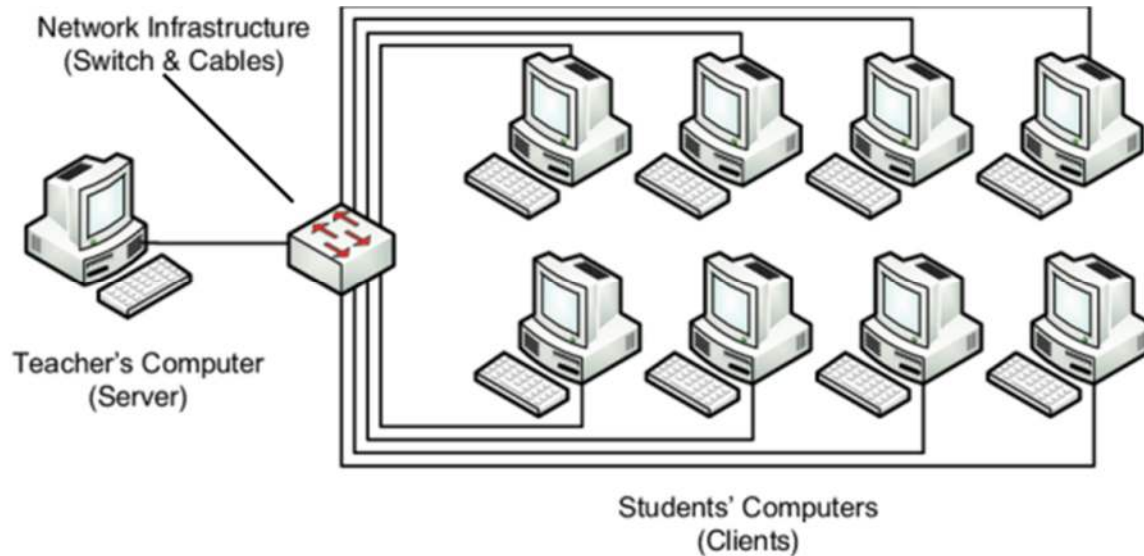
Answer any THREE questions in this section.

- 13.
- a. You are required to network a cyber-shop. Differentiate between the networking devices and internetworking devices you are going to use, giving examples where necessary **(6 Marks)**
 - b. Routing is a very important task that takes place at the network layer of the OSI reference model.
 - i. Describe a routing table **(2 Marks)**
 - ii. Explain the difference between static routing and Dynamic routing **(4 Marks)**
 - c. ABC company has recently serviced its premises with a public network from ICT Authority. Describe basic architecture of the network security environment **(8 Marks)**
- 14.
- a. Utumishi primary school intends to network all computers in the institution. Discuss FOUR advantages of networking a school environment. **(8 Marks)**
 - b. There are several ways we employ in classifying the networks, briefly describe the classification according to Network Geography **(6 Marks)**
 - c. Network topology describes the logical and physical organization of devices in a network. Draw as a means of description three network topologies and briefly explain how each works **(6 Marks)**
- 15.
- a. Oliver a network security analyst noticed that the network was under constant threat of attack. Describe **THREE** common network security problems **(6 Marks)**
 - b. Network monitoring is important to ensure the network keeps running smoothly. This can only be achieved through the right updated network operating system installed.
 - i. Define network operating system **(1 Marks)**
 - ii. Explain 4 common network operating system Functions **(8 Marks)**
 - c. A network Admin is tasked to report on the security of the recently installed network at Agile Company, what can prove that the network has a good security system? **(5 Marks)**
- 16.
- a. During an academic visit to Liquid telecoms, trainees from ATVC were shown several networking devices. Explain what the following networking devices do

- i. The switch **(2 Marks)**
- ii. The hub **(2 Marks)**
- iii. The router **(2 Marks)**

b. Jesca noticed that her WIFI was very slow, state any FIVE factors that affect the performance of a computer network **(5 Marks)**

c. Refer to the diagram below and answer the questions that follow:



- i. Identify the type of network in the diagram above. Give two reasons **(3 Marks)**
- ii. Identify the network topology used on the network in the diagram above. Give two reasons **(3 Marks)**
- iii. Identify the network architecture used in the diagram. Give two reasons **(3 Marks)**