

06130T4CSC

COMPUTER SCIENCE LEVEL 6

ICT/OS/CS/CR/07/6/A

ICT/OS/CS/CR/07/6/B

Understand Networking and Distributed Systems

July/August 2025



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

PRACTICE

ASSESSMENT

DURATION: TO RUN

TO COMPLETE THE TRAINING

INSTRUCTIONS TO CANDIDATES

1. In this practical assessment, you are required to perform the following tasks:
 - i. *Perform network configuration and security*
 - ii. *Perform Network Monitoring*
 - iii. *Troubleshoot a Network*
 - iv. *Design a network topology*
2. You have been provided with the following resources:
 - i. *Two working computers (Computer A and Computer B) with Ethernet network adapters.*
 - ii. *Two Ethernet cables*
 - iii. *RJ45 connectors*
 - iv. *RJ45 crimping tool*
 - v. *Cable tester*

vi. *Plain papers*

Task 1: Perform Network Configuration and Security

You are a network technician tasked with setting up a small local network (direct connection) for two staff members. Your goal is to configure the network for file sharing and secure communication, while adhering to specific network parameters and security policies.

i. Ethernet Cable Preparation

- i. Prepare two Ethernet cables using the T568B wiring standard.
- ii. Test the cables for connectivity.

ii. Network Configuration

Configure the IPv4 address, subnet mask, and default gateway on both computers according to the following addressing scheme:

- i. Network Address: 192.168.10.0/20
- ii. Computer A: IP Address: 192.168.10.10, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.10.1
- iii. Computer B: IP Address: 192.168.10.2, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.10.1
- iv. Verify network connectivity using the `ping` command.

iii. File Sharing

- i. Share the "Documents" folder on both Computer A and Computer B so that it is accessible to the other computer on the network.
- ii. Create a word document file called 'Test1' and save it in the shared 'Documents' in Computer A
- iii. Access the shared document from computer B
- iv. Ensure that users on the network have read and write permissions for the shared folders.
- v. Verify you can create, modify, and delete files from the shared folders from both computers.

iv. User Account Security

- i. Set up strong user account passwords on both Computer A and Computer B to enhance network security.

- ii. Passwords must contain a mixture of uppercase and lowercase letters, numbers, and symbols.

Task 2: Perform Network Monitoring

- i. Using the Wireshark software capture the network traffic for about 1 minute
- ii. Take a screenshot and save it on the desktop of Computer A.

Task 3: Troubleshoot a Network

As an ICT technician, you've received a report from an office user stating they cannot access the internet, while other network users are unaffected. The user's computer connects to the network via an Ethernet cable to a switch. Outline the steps you would take to diagnose and resolve this connectivity issue for the individual user.

Task 4: Design a network topology

You are tasked with designing the network infrastructure for a small office with the following equipment available:

- One (1) Router
- One (1) Ethernet Switch
- Five (5) Desktop Computers
- Sufficient Ethernet Cables (RJ45)

Draw a diagram representing the network topology you would implement using all the provided equipment. Clearly label each device (Router, Switch, Computer 1, Computer 2, etc.) and the connections (cables).