

061206T4CYB

CYBER SECURITY TECHNICIAN LEVEL 6

SEC/OS/CS/CR/03/6

Perform Computer Networking

March/April 2026



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

WRITTEN ASSESSMENT

Time: 2 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. Attempt **ALL** questions in section **A** and **ANY THREE** Questions in section **B**
3. Marks for each question are indicated in the brackets.
4. Candidates are provided with a separate answer booklet
5. Do not write on the question paper.

*This guide consists of **THREE (3)** printed pages.*

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

SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. During a pre-installation site survey, a technician identifies devices responsible for learning traffic paths, preventing collisions, and directing frames efficiently. State FOUR responsibilities of Network switches. (4 marks)
2. Computer networks can be organized and connected in different ways depending on requirements. Differentiate between the following networks. (4 marks)
 - (a) Local Area Network (LAN) and Wide Area Network (WAN).
 - (b) Point-to-Point and Multipoint connections.
3. An enterprise wants to control how users, servers, and printers communicate without installing additional physical infrastructure. Outline FOUR operational improvements achieved by logically organizing users into separate network groups. (4 marks)
4. After network installation, tests are carried out to ensure proper operation. Outline TWO tests used to confirm cable stability and connectivity. (4 marks)
5. During network operation, continuous monitoring is required to ensure acceptable performance. State FOUR network monitoring tools commonly used to assess network performance. (4 marks)
6. A network administrator must remotely configure infrastructure devices over the internet during system maintenance. Explain TWO reasons why secure communication mechanisms are essential during remote configuration activities. (4 marks)
7. Different network devices perform different functions within a computer network. State FOUR advantages of a network switch over a network hub. (4 marks)
8. A non-governmental organization allows staff to securely access internal resources while working in remote rural areas. Outline TWO reasons why protected communication channels are critical in such remote access arrangements. (4 marks)
9. Write the following abbreviations in full as used in computer networking:
 - a) ICMP (1 mark)
 - b) PAN (1 mark)
 - c) QoS (1 mark)
 - d) POP3 (1 mark)
10. Before connecting its internal network to external partners, a company evaluates several perimeter protection solutions. State FOUR criteria that should guide the selection of an appropriate network security gateway. (4 marks)

SECTION B (60 MARKS)

Answer ANY THREE Questions in this Section

11. A training institution has been allocated the address 10.120.32.14/19 for its internal network. The network administrator must plan addressing to support growth while maintaining efficient utilization.
- a) Determine the network address, broadcast address, and total number of usable hosts for the given subnet. (10 marks)
 - b) Explain FIVE administrative practices that ensure effective control, documentation, and sustainability of IP address usage. (10 marks)
12. A digital content company upgrades its core network to support real-time collaboration, large file transfers, and centralized storage, while allowing employees to use personal devices for work (BYOD).
- a) Explain THREE reasons why modern high-capacity backbone technologies are suitable for data-intensive organizational environments. (6 marks)
 - b) Describe FOUR security weaknesses that may be introduced when personal devices are granted access to organizational networks. (8 marks)
 - c) Recommend THREE controls that can be implemented to securely support BYOD in an enterprise network. (6 marks)
13. Proper documentation is essential for accountability and future reference in network management
- a) Describe FIVE steps followed when preparing a network report. (10 Marks)
 - b) Explain FIVE methods used to store and share network reports. (10 Marks)
14. You have been assigned to design, deploy, and maintain a network for a newly formed organization with a headquarters, satellite offices, and mobile users.
- a) Describe FIVE network layout approaches that may be adopted during the planning and design phase. (10 marks)
 - b) Explain FIVE operational challenges that may arise during LAN deployment. (10 marks)