

061206T4CYB

CYBERSECURITY TECHNICIAN LEVEL 6

SEC/CU/CS/CR/05/6

Develop Computer Software

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. Answer **ALL** questions in section A and **ANY THREE** (3) 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 this question paper.

This paper consists of FOUR (4) printed pages.

*Candidates 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)

Attempt ALL questions in this section

1. A college with limited ICT infrastructure plans to adopt new software. Outline THREE criteria that should guide the selection of the software. (3 marks)
2. An organization considers using off-the-shelf software. Identify THREE advantages of this choice over custom-built software. (3 marks)
3. During requirement analysis, a developer documents functional and non-functional requirement. State THREE key software specifications that should be determined to guide system development. (3 marks)
4. Control structures determine the flow of execution in a program. Differentiate between while and do while loop. (2 marks)
5. After installing a system, users report it is slow. State FOUR system resource requirements that should be assessed before installation. (4 marks)
6. A technician needs to install the same software on Windows and Linux machines. State THREE factors that determine the source of software installation files. (3 marks)
7. A programmer is developing a system to store, search, and update student records efficiently. Identify FOUR suitable data structures that could be used for this system. (4 marks)
8. A developer is designing a system that stores confidential student records. State FOUR security considerations that should be included in the software design. (4 marks)
9. Six months after deployment, new features are required and security vulnerabilities are discovered. State THREE software maintenance activities that should be carried out. (3 marks)
10. A web application crashes during peak usage. Outline FOUR debugging techniques that help identify and resolve the problem. (4 marks)
11. An e-learning platform is expected to support many concurrent users during examinations. State THREE objectives of performing performance testing. (3 marks)
12. Multiple versions of a system are deployed across different departments. State FOUR benefits of proper software configuration management. (4 marks)

SECTION B (60 MARKS)

Answer ANY THREE Questions in This Section.

13. Peter, a software developer, is designing a login module for a government e-services web portal. Users must enter a username and password. The system should follow these rules:
- i. If both username and password are correct, access is granted;
 - ii. If either username or password is incorrect access is denied;
 - iii. If any field is left empty it prompts user to fill all fields;
 - iv. After three failed attempts, the account is temporarily locked;
 - v. The username is: “**Admin**” and the password is: **Secure@123**.
- a) Write a pseudocode for the login module logic. (10 marks)
- b) Draw a flowchart to represent this logic. (10 marks)
14. A government parastatal deploys a financial management system across departments. After deployment updates, performance monitoring, and new features are required.
- a) Describe FOUR activities involved in software implementation phase. (8 marks)
- b) Explain FOUR software maintenance activities that should be carried out. (8 marks)
- c) Analyze TWO ways in which continuous software monitoring improves software security. (4 marks)
15. Ujuzi Enterprises has been using a financial management system for the past three years. The vendor recently released a software upgrade and patches to fix bugs and add new features. The IT team is tasked with applying the upgrades and ensuring proper system functioning.
- a) Describe EIGHT steps the IT team should take to apply the software upgrades. (16 marks)
- b) Explain TWO potential risks that might occur during the upgrade. (4 marks)
16. A government ministry plans to deploy a National Human Resource and Payroll Management System (N-HRPMS) that integrates with external systems (national ID, tax authority, and e-banking). Previous audits revealed security weaknesses.
- a) Explain FIVE security design principles to protect sensitive payroll data.

(10 marks)

- b) For each principle explain how it mitigates a specific security risk. (10 marks)

THE END