

061006T4ICT

ICT TECHNICIAN LEVEL 6

ICT/OS/IT/CR/12/6

Perform System Analysis and Design

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 the question paper.

This paper consists of FOUR (4) printed pages
Candidate 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 questions in this section

1. A bakery has a system where a sensor checks the oven heat. If it gets too hot, the system sends a signal to turn down the fire. Outline FOUR elements of a system that are responsible for checking the heat and making changes to keep the system safe. (4 Marks)
2. A school wants to build a new computer system to track student marks. Outline FOUR roles of a system developer in a school system development. (4 Marks)
3. A company plans to develop a mobile application for its customers. Identify TWO personnel involved in the development of the application. (2 Marks)
4. A CEO of a software company needs a report that shows how much money the company might make over the next 5 years so he can decide whether to buy a new factory. Outline TWO information system category the CEO will use to make an informed decision. (2 Marks)
5. A payroll system is being designed where Employee and Salary are treated as distinct objects. Suggest TWO properties of Object-Oriented Design that would allow these objects to be reused in a different Human Resource (HR) system. (4 Marks)
6. A developer is writing a document that lists the precise response time, security encryption standards and user capacity for a new airline booking portal. Identify TWO specific sections of the SRS document where these would be placed (2 Marks)
7. An ICT technician has been hired to check a mobile app and retrieve a specific user's profile picture instantly without scanning the entire database of 10 million users. Propose TWO most suitable file access method for this requirement. (2 Marks)
8. A software startup releases a working version of their app to a small group of users every two weeks to get feedback before adding more features. Identify TWO current trends/methodologies being applied. (2 Marks)
9. During a site visit to a busy retail store, a system analyst spends the day watching how cashiers handle payment transactions to identify delays in transaction processing. Identify the fact-finding technique being used and state THREE advantages it has over a questionnaire. (4 Marks)
10. A company decides to turn off its old manual ledger on Friday evening and start using the new ERP system on Monday morning. Mention FOUR benefits associated with direct changeover method. (4 Marks)

11. An analyst creates a diagram showing the relationship between Customer, Order and Product using lines and symbols. Identify TWO data modeling tools being used. (2 Marks)
12. A modern company wants to store its data on the Cloud and use the latest software standards. Outline FOUR advantages of cloud computing to the company. (4 Marks)
13. A SACCO is developing an information system to store members' personal and financial records. During the system analysis stage, the management raises concerns about intentional and unintentional threats that could lead to data loss or misuse. As the systems analyst differentiate between a hacker and a cracker in relation to how each may pose a risk to the SACCO's information system. (4 Marks)

SECTION B: 60 MARKS

Answer any THREE questions in this section.

14.
 - a) A pharmacy intends to automate its medicine stock management process by developing an appropriate information system. Describe FIVE activities the analyst will perform during the system analysis phase for this pharmacy. (10 Marks)
 - b) The pharmacy chooses parallel running to switch systems after automation. Explain FIVE reasons this is safer than a direct changeover method. (10 Marks)
15.
 - a) A factory has finished building a system to track parts of their computers They are now ready to put it into use. They intend to use integration testing in this factory set up. Explain FIVE characteristics of integration testing. (10 Marks)
 - b) Explain FIVE reasons that makes training staff critical to the successful use of the new information system. (10 Marks)

16. A small clinic intends to start using a computer system to store and track patients' records.

- a) Explain the FOUR elements of a system for this clinic. (8 Marks)
- b) Describe FOUR fact-finding methods the analyst can use to learn how the clinic operates. (8 Marks)
- c) Outline FOUR challenges the clinic may face when implementing the computerized patient records system. (4 Marks)

17.

- a) A bank is developing a database system to manage its members, savings contributions, and loan records. Each member can make multiple savings contributions and may apply for more than one loan. Each loan is approved by one staff member, and each staff member can approve many loans. Draw an Entity Relationship Diagram (ERD) to represent the bank database system, clearly showing: Entities, Primary keys, Relationships and Cardinalities. (8 Marks)
- b) Describe the system development life cycle phases in system analysis and design. (12 Marks)