

061006T4ICT

ICT TECHNICIAN LEVEL 6

IT/OS/ICT/CR/7/6

Manage Database System

March/April 2025



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

WRITTEN ASSESSMENT

TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. Marks for each question are indicated in the brackets.
2. The paper consists of **TWO** sections: **A** and **B**.
3. Candidates are provided with a separate answer booklet
4. **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
pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. Define each of the following terms as used in database management system.
 - a) Attribute (1 Marks)
 - b) Domain (1 Marks)
2. A bank installed MySQL Server to manage the company's data. Outline FOUR benefits they will realize from the use of this server. (4 Marks)
3. Ken created a database with some records set to have a null value.
 - a) Define the term null value (1 Marks)
 - b) List THREE characteristics of a null value in a database. (3 Marks)
4. Identify FOUR database-testing techniques (4 Marks)
5. With the aid of a symbol, differentiate between composite attribute and multivalued attribute. (6 Marks)
6. List FOUR examples of database management systems you can use to manage a company's data. (4 Marks)
7. Differentiate between Data and Data Definition Language in SQL. (4 Marks)
8. In a database practical session, students added constraints to a relational database. List FOUR constraints they could have added. (4 Marks)
9. Outline FOUR characteristics of a network database model. (4 Marks)
10. Highlight FOUR factors that may influence the choice of a database management system in an organization. (4 Marks)

SECTION B (60 MARKS)

Answer Any *THREE* Questions in This Section

11. a) Online database systems are an emerging technology embraced by many business enterprises. Explain **THREE** advantages of this technology. (6 Marks)
- b) A Computer Science student, wanted to connect two tables in a database. Explain **FIVE** types of joins he could use to achieve his objective. (10 Marks)
- c) Explain **TWO** advantages of an ER diagram. (4 Marks)
12. a) Macho LTD recently expanded its operations and the management has noticed that most employees are experiencing challenges of data redundancy while accessing the database. Explain **FIVE** such challenges (10 Marks)
- b) Lily advised her company's Management to adopt an Object-Orient database management system in developing their database. Explain **FIVE** reasons why she chose the above system. (10 Marks)

13. Table 1 shows details of farmers from the FARMERS table stored in a company's database. Use it to answer the questions that follow:

FARMERID	FARMERNAME	PHONE	LOCATION
F001	Sharon Tare	012345678	Kilgoris
F002	Rukia Hamisi	019876543	Kwale
F003	Agnes Mwendu	012378938	Kibwezi
F004	Allan Munga	013278903	Rabai

Table 1

- a) Write SQL statements that would help you perform each of the following:
- i) extract details of all farmers whose *FARMERNAME* starts with letter A; (2 Marks)
- ii) extract the *FARMERID* and *FARMERNAME* of all farmers without a phone number; (2 Marks)
- iii) extract all details of farmers whose *LOCATION* is 'Kwale' and their phone numbers end with 8; (2 Marks)

iv) sort the records according to FARMERNAME in ascending order

(2Marks)

v) delete the record whose *FARMERID* is 'F003';

(2Marks)

b) Students want to normalize an existing database during a practical lesson.

Describe THREE types of normalization they are likely to use. (6 Marks)

c) Explain the following terms as used in databases. (4 Marks)

i. Views

ii. Triggers

iii. Select

iv. Update

14.

a) Describe THREE characteristics of a relational database. (6 Marks)

b) Differentiate between entity integrity and referential integrity. (4 Marks)

c) You have been contracted by a certain ICT company to perform database testing for their Kenyan branches. Explain FIVE reasons why those branches would require testing (10 Marks)