

071304T4EIN

ELECTRICAL INSTALLATION LEVEL 4

ENG/OS/EI/CR/02/4/A

Perform Electrical Installation Testing

March/April 2025



**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** the questions in each section.
3. Marks for each question are indicated in the brackets.
4. You are provided with a separate answer booklet to answer the questions.
5. **DO NOT** write on the question paper.

This paper consists of SIX (6) 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 (10 MARKS)

Attempt all questions in this section. Each question carries one mark

1. Visual inspection is a critical process in assessing the condition of components, or systems by examining them for any visible defects. However, not all activities are part of a standard visual inspection. Consider the following options and identify which one does NOT belong to this process.
 - A. Checking for wear and tear on wiring
 - B. Identifying signs of overheating or damage on equipment
 - C. Confirming that connections are secure and correctly fitted
 - D. Verifying the correctness of the electrical diagram
2. Firmness of an installation is essential for safety and functionality. Which of the following explains the methods used to assess installation firmness?
 - A. Turning the system on and off multiple times
 - B. Physically testing connections for looseness
 - C. Reviewing maintenance records
 - D. Comparing it to the original design
3. A test parameter is a measurable component. Which of the following is an example of a test parameter?
 - A. Expected values of insulation resistance
 - B. The total length of cables
 - C. The color coding of wires
 - D. The installation's physical condition
4. Several tests performed on an electrical installation are done in a certain sequence. Which of the following is a factor to consider when deciding the test sequence.
 - A. The difficulty of each test
 - B. The availability of test equipment
 - C. The specifications of the test standards
 - D. The number of workers on-site

5. To ensure the well-being of personnel, and maintaining the integrity of the testing process it is crucial to adhere to safety precautions, what is the primary purpose of adhering to safety precautions during testing?
 - A. To ensure accurate results
 - B. To minimize risks to personnel and equipment
 - C. To speed up the testing process
 - D. To prevent data collection errors
6. A wiring certificate is issued after which of the following actions?
 - A. Testing and confirming the installation meets required standards
 - B. A visual inspection is completed
 - C. All components are installed
 - D. A risk assessment is conducted
7. Testing electrical installations involves performing various tests to ensure safety and functionality of a system. Identify an activity which is NOT part of the tests.
 - A. Insulation resistance testing
 - B. Earth continuity testing
 - C. Visual inspection for wiring
 - D. Testing the color of the electrical insulation
8. Following OSHA safety precautions during testing is essential to protect workers from hazards and ensure safe working environment. Which of the following explains the importance of adhering to safety guidelines?
 - A. To ensure the test is completed faster
 - B. To maintain a safe working environment for all personnel involved
 - C. To reduce the cost of the testing process
 - D. To comply with customer preferences
9. An electrical contractor is supposed to issue a test certificate after performing the tests, which of the following information is included in a test certificate?
 - A. The location of the testing site and the weather conditions
 - B. A detailed description of all electrical components used
 - C. The test parameters, results, and any deviations from standards
 - D. The names of all workers present during the testing

10. Test results are determined by the efficiency of the testing instrument, which of the following is a key requirement when preparing test equipment for use?
- A. Test equipment must be calibrated only once per year
 - B. Test equipment should be checked for functionality and specifications before use
 - C. Test equipment must be used without checking its specifications
 - D. Test equipment is stored without any specific order

SECTION B (40 MARKS)

Attempt ALL questions in this section.

11. Physical condition of an electrical installation is vital for ensuring safety, aesthetics and proper performance. List FOUR significances of checking the physical condition of an installation.
(4 Marks)
12. For approval by Kenya Power to supply electricity to a customer, several tests must be performed to ensure compliance and safety of the user. Identify FOUR types of tests commonly performed on electrical installations.
(4 Marks)
13. Electrical cables are the main carrier of electric current. Several tests must be done to ensure the insulation is healthy to carry the intended current. With the aid of a diagram explain how the insulation resistance test is performed on a cable
(5 Marks)
14. Performing electrical tests requires strict adherence to safety precautions to prevent accidents and ensure a secure working environment. Identify FOUR safety precautions to adhere to while performing electrical tests.
(4 Marks)
15. An electrician of a certain company is tasked to perform an insulation resistance test on a completed electrical installation work. You are invited to guide the electrician on the procedure to perform the test. List FIVE main a lighting circuit.
(5 Marks)
16. You are provided with a list of tests to be performed on an electrical installation to prepare the required test instruments. Complete **Table 1** by filling in the test instruments required for the given test.
(4 Marks)

Table 1

	Type of test	Instrument used
a)	Effectiveness of earthing	
b)	Ring circuit continuity	
c)	Insulation resistance	
d)	Verification of polarity	

17. Accidents during electrical installations can occur due to various factors, often related to improper procedures or unsafe conditions. Identify FOUR main causes of accidents when performing electrical installation work.
(4 Marks)

18. Personal protective equipment is mandatory when performing any electrical installation work.

Name any THREE PPEs that are essential to wear when carrying out tests. (3 Marks)

19. Electrical installation testing is crucial and should be done at various stages to ensure safety and proper functioning of electrical installation. List FOUR recommended situations when tests should be performed. (4 Marks)

20. A company engaged an electrician to perform electrical installation tests of an existing building to ensure safety of the users and to comply with regulatory body guidelines. List the acceptable reading, or result to the following tests to be performed. (3 Marks)

- a) Earth fault loop impedance test
- b) Insulation resistance test
- c) Earth electrode resistance test