

071306T4EEN

ELECTRICAL TECHNICIAN (POWER OPTION) LEVEL 6

ENG/OS/PO/CR/07/6

MAINTAIN ELECTRICAL EQUIPMENT AND SYSTEMS

July /August 2024

Time: 3 Hours



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

WRITTEN ASSESSMENT

3 HOURS

INSTRUCTIONS TO CANDIDATE:

1. This tool consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in section **A** and only **THREE** questions in **B** in the answer booklet provided
3. Marks for each question are indicated in brackets.
4. Do not write on this question paper.
5. Answer the questions in **English**.

This tool consists of FOUR (4) printed pages.

Candidate should check the tool 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. Preparation of the schedule is vital. Define the term maintenance schedule. (2 marks)
2. Maintenance has merits in equipment's and systems. Outline **three** advantages of corrective maintenance on a generator. (3 marks)
3. Various tools are used in maintenance. List **five** tools used during breakdown maintenances of an electrical machine. (5 marks)
4. Keeping of documented maintenance record requires efficient storage. State **five** records of information for a D.C motor. (5 marks)
5. Adhering to safety rules promotes a safe working environment during maintenance activities and minimizes the risk of accidents, injuries, and environmental harm associated with handling and disposing of waste materials. Highlight **four** safety rules in handling and disposing waste materials during maintenance. (4 marks)
6. When connecting a D.C motor across an AC supply it is essential to ensure proper electrical compatibility and adherence to manufacturer's specifications to avoid adverse consequences. Explain what happens when a D.C motor is connected across an A.C supply. (3 marks)
7. Knowledge of the key tests involved in electrical system maintenance is crucial for ensuring the reliability and performance of transformers. Identify **four** tests of electrical system maintenance as applied in transformers. (4 marks)
8. Understanding the main electrical systems involved in maintenance during motor inspection is crucial for ensuring the reliability and safety of motor operations maintenance. State the main electrical systems in maintenance on a motor during inspection. (4 marks)
9. After completing maintenance tasks in an electrical service, various waste materials may accumulate, requiring proper handling and disposal to ensure safety and environmental protection. List **four** waste materials after maintenance in any electrical service. (4 marks)
10. Ensuring the safety of personnel during the installation of a D.C generator requires the use of appropriate personal protective equipment (PPE). Outline **four** PPEs used while performing D.C generator installation. (4 marks)
11. Understanding the concept of maintenance inspection in the context of electrical machines is essential for ensuring their reliable operation and longevity. Define the term maintenance inspection as used in electrical machine. (2 marks)

SECTION B (60 MARKS)

Answer any **three** questions in this section.

12.

- a) Troubleshooting electrical equipment and systems involves a systematic approach to identify and resolve issues efficiently. Describe the troubleshooting procedure in electrical equipment and systems. (10 marks)
- b) As an Electrical Installation Technician, information of an equipment needs documentation. Outline **six** information's that should be included in the documentation of a maintained electrical equipment and system. (6 marks)
- c) An electrical technician is tasked with ensuring the safety and functionality of an electrical installation in a commercial building. List **four** common points of faults to be checked in an electrical installation. (4 marks)

13.

- a) Installing motors for machine drives requires careful consideration of various factors to ensure optimal performance and safety. List **seven** factors that need to be considered when installing motors for machine drives. (7 marks)
- b) As an Electrical Installation Technician, describe **three** important things to do when faced with equipment which is not functioning properly. (9 marks)
- c) You are managing maintenance operations for a manufacturing facility that produces electronic components and you noticed that the equipment downtime is affecting production efficiency. Differentiate between breakdown maintenance and timely maintenance. (4 marks)

14.

- a) During conduct system inspection on CCTV installation, you are tasked to be in-charge of perfective maintenance. Identify **four** types of faults during perfective maintenance. (4 marks)
- b) In power industry maintenance is key. Explain any **six** general procedures of routine maintenance. (12 marks)
- c) In the realm of electrical systems protection is key, differentiate between fuse and circuit breaker. (4 marks)

15.

- a) Nasimiyu is an electrical technician in charge of carrying preventive maintenance, discuss any **six** inspection procedures on a faulty transformer. (12 marks)
- b) Electrical machinery maintenance involves creating a checklist. State **five** components of maintenance checklist in electrical machine. (5 marks)
- c) A company dealing with electrical machines emphasize with documentation during maintenance Outline **three** documentation of test results of maintenance checklist in electrical machine. (3 marks)

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