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Date: 30.07.2025 07:50 AM

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ELECTRICAL ENGINEERING (POWER OPTION) LEVEL 6

ENG/OS/PO/CR/ 01 / 6

Perform Electrical Installation

July/August 2025

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

WRITTEN ASSESSMENT

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TIME: 3 HOURS

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INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**
2. Attempt **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

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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)

Attempt ALL questions in this section.

1. It is a requirement that a consumer's installation shall be controlled by a switch gear readily accessible to the consumer. State THREE IEE regulation requirements at the consumer's intake point of a single-phase supply. (3 marks)
2. Protection of installations is highly recommended for the safety of both the user and the installation. State THREE advantages of a cartridge fuse as a protective device. (3 marks)
3. A client reports frequent tripping in their electrical system. List FOUR possible causes of tripping of the protective device. (4 Marks)
4. The sequence of the equipment forming the switchgear required shall follow the consumer's terminals without the intervention of any other apparatus. Using a wiring diagram, draw a typical power supply system of a consumer's intake point for a single-phase installation. (5 marks)
5. List THREE common hand tools used while carrying out electrical installation. (3 marks)
6. In a parallel connection, all lamps are connected across the supply. State FOUR advantages of lamps connected in parallel. (4 marks)
7. Explain the difference between a schematic diagram and a working drawing in the context of electrical installations. (4 marks)
8. Diff when carrying out electrical installation work. State FOUR advantages of the trunking system. (4 marks)
9. Accessories form part of wiring systems in an electrical circuit. List FOUR electrical accessories used in the domestic wiring system. (4 marks)
10. A ring circuit is one in which ring are connected in a loop. State THREE IEE regulations requirements regarding ring socket outlets as one of the electrical final circuits (6 marks)

SECTION B (60 MARKS)

Attempt **THREE** questions in this section

11.

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- a) Jejali an electrical contractor firm, was tasked to install a new distribution board in a newly constructed Business Centre. Explain the key logistical considerations involved in planning the installation of a new distribution board in a commercial building. (8 marks)

- b) Draw a wiring diagram of a lighting circuit consisting of two lamps being controlled from three independent positions with a switch incorporated in the circuit. (8 marks)

- c) Ceiling rose has either two or three connection plates with washer for flexible wire connection. State TWO IEE regulations regarding ceiling roses. (4 marks)

12.

- a) Fuses are used as a means of protection against excess currents in conductors. Explain the following terms as used in fuses. (4 marks)

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07:50 AM i. Fusing current

ii. Fusing factor

- b) Electrical installations must be provided with a means of protection device to isolate the circuit in the event of a fault. With the aid of a diagram of a semi-enclosed fuse as a means of an overcurrent protection device. (8 marks)

- c) Before the commencement of any electrical installation, it is recommended to carry out an inspection on the installation. Describe FOUR essential tests that should be performed on a completed electrical installation before it is put into service. (8 marks)

13.

- a) Electrical installations are based on their purpose. Explain TWO types of electrical installations commonly encountered in buildings. (4 marks)

- b) Electrical cable joints vary according to the type of cable, type of connector and its use. Describe the steps used in making a through-married joint. (8 marks)

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- c) The choice of electrical cables determines the durability and performance of an electrical installation. Explain the key factors an electrician must consider when determining the appropriate size of cables for a specific electrical installation. (8 marks)

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14.

- a) An employee in an Electrical Engineering firm got an electric shock as a result of coming into contact with a live conductor. As a competent electrician, describe how you would perform the Cardiopulmonary resuscitation (CPR) method of artificial respiration to save the victim. (6 marks)
- b) A detailed inventory of materials is crucial before starting an electrical installation project. Explain the importance of a detailed inventory of materials. (7 marks)
- c) Survey report in an electrical installation project communication tool between the surveyor, designers, and installers. Outline information that a survey report should contain. (7 marks)