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TELECOMMUNICATION ENGINEERING TECHNICIAN LEVEL 6

ENG/OS/TLE/CR/01/6/A

PERFORM ELECTRICAL INSTALLATION

July/August 2024



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

WRITTEN ASSESSMENT

3 HOURS

INSTRUCTIONS TO CANDIDATE:

*The paper consists of **TWO** sections; **A &***

You are provided with a separate answer

Marks for each question are as indicated

DO NOT write on the question paper

This paper consists of FOUR 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 questions from this section.

1. Applying environmental health and safety standards in the design of specific electrical installations as stipulated in the OSHA act is a requirement at work place in Kenya. List FOUR Occupational Health and Safety Act (OSHA) requirements for an occupier at a work place in Kenya. (4 marks)
2. Kenya power standards and procedures govern different types of installation. State the THREE types of installation. (3 marks)
3. Cleat wiring system is made up of the normal VIR OR PVC wires that are insulated, braided and compounded on the ceilings by use of porcelain cleats, wood or plastics. State THREE advantages of cleat wiring system. (3 marks)
4. Conduit wiring involves use of pipes enrooted electrical wiring in construction. List THREE factors to consider in designing electrical installation. (3 marks)
5. In electrical power systems, there is need to transmit power from generation to the users using power supplies. State any THREE types of electrical power supplies. (3 marks)
6. Electrical circuits are likely to develop the THREE circuit conditions requiring protection devices. (3 marks)
7. In order to deal with any circuit condition in an electrical circuit, there are typical circuit protective devices common in electrical installation designs. List any FOUR types of circuit protective devices. (4 marks)
8. The purpose of team building is to increase trust, improve communication, increase collaboration and increase or maintain motivation. Outline FOUR steps of the team formation process. (4 marks)
9. During electrical installation, cables are joined in different ways at the joint box. State any FOUR types of electrical joints (4 marks)
10. Final circuits form the last stage of power outlets to connected loads. State FOUR types of standard final circuits (4 marks)
11. Cables are typically connected to a device or equipment from the end of the cable. List TWO types of cable terminations. (2 marks)
12. Threading and cutting of cables and conduits during electrical installation requires different types of tools. State any THREE suitable tools for threading and cutting steel conduit. (3 marks)

SECTION B (60 MARKS)

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

13. Fire can be start due to ignition of different types of materials.

- a) In any workplace, fire accidents can occur if safety measures are not put in place. State THREE common causes of electrical fire accidents. (3 marks)
- b) In case of a fire accident, different types of fire extinguishers with different contents are used depending on the cause of the fire. List FIVE fire extinguishers that can be used to put out fire. (5 marks)
- c) Fires are typically grouped according to some characteristics. Explain the composition of the SIX classes of fire. (12 marks)

14. During building works there is usually an interrelation between professionals.

- a) Explain the role of each of the following professionals who interacts with an electrician during electrical installation in a building works. (8 marks)
 - a) The quantity surveyor
 - b) Specialist Engineer
 - c) The Architect
 - d) The client
- b) Draw a graphical representation relationships between the professionals in part (a) above. (12 marks)

15. Wiring system can either be single phase or three phases.

- a) When performing single phase wiring installation, outline the procedure of installing a single phase main distribution board (9marks)
- b) A number of accessories and materials are employed during three phase system installation. List the accessories needed for the installation of a three phase system. (11 marks)

16.

- a) Installation works involves laws which ensure that work is done as stipulated in the law to avoid shoddy work that can cause accidents and inefficiency. They impose duties on parties who enter into an agreement. State the difference between the law of tort and contract law. (6 marks)
- b) In installation works, the law requires that the parties involve sign an agreement. This is done through contracts being signed depending on the scope of the electrical work to be done. State and explain THREE types of contracts. (6 marks)
- c) In case of an electrical project or contract, there is usually a process of inviting bid from various suppliers or contractors to place formal requests that are then evaluated to select the

most suitable one. State and explain FOUR main processes in tendering in electrical works contracts. (8 marks)

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