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**MODULE I**

**ELECTRICAL INSTALLATION TECHNOLOGY**

**ENG/OS/EI/CR/03/3/MB**

**INSTALL CONDUIT SYSTEM**

**SEPTEMBER-NOVEMBER 2025**

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

# PRACTICAL ASSESSMENT

## INSTRUCTIONS TO THE ASSESSOR:

1. This assessment is to take place in the prescribed order as arranged in the tool.
2. Capture clear **photographs** and/or **videos** of each candidate's work at critical points as they perform the tasks and label all media files with: Candidate Registration Number, Unit Code, Practical Session Number, and Date.
3. Record candidate scores and assessor remarks in the observation checklists for each session.
4. Store all completed checklists, media files, and candidate drawings in a secure digital/physical folder per candidate.

**CANDIDATE & ASSESSOR DETAILS**

| | |
|---|---|
| **Candidate Name:** | **CDACC Reg. No.:** |
| **Assessor Name:** | **Assessor ID Number:** |

**PRACTICAL BRIEF**

In this practical, you will be required to demonstrate competence in installing a conduit system based on the provided drawing. The assessment will involve hands-on sessions and an oral assessment.

**SESSION 1 (3 HOURS): PREPARE CONDUIT WORK PIECES**

| | |
|---|---|
| **Assessment Date:** | |
| **Assessment Venue:** | |

**PRACTICAL CHECKLIST**

| No. | Items of Evaluation | Max Marks | Awarded |
|---|---|---|---|
| 1. | Wore Personal Protective Equipment<br>• Dustcoat/Overall *(Award 1 or 0)*<br>• Safety boots *(Award 1 or 0)*<br>• Safety gloves *(Award 1 or 0)* | <br>1<br>1<br>1 | |
| 2. | Applied good housekeeping practice<br>• Ensured clean working area before beginning working. *(Award 1 or 0)*<br>• Tidy working area arrangement *(Award 1 or 0)*<br>• Proper Waste disposal *(Award 1 or 0)* | <br><br>1<br>1<br>1 | |

| | | | |
|---|---|---|---|
| 3. | Cut metallic conduit<br>• three equal parts *(Award 1 x 2)*<br>• Strain cut *(Award 1 x 2)*<br>• Clean cut *(Award 1 x 2)* | <br>2<br>2<br>2 | |
| 4. | Made 90-degree and 45-degree bends<br>• Smooth 90-degree bend *(Award 3 x 2)*<br>• Smooth 45-degree *(Award 3 x 2)* | <br>6<br>6 | |
| 5. | Carried out threading *(Award 3 x 3)* | 9 | |
| 6. | Fitted a tee joint<br>• Firm joints *(Award 2 x 3)*<br>• Neat joints *(Award 1 x 3)* | <br>6<br>3 | |
| | **TOTAL** | **33** | |
| **REMARKS:** | | | |

**NB: Photos and videos should be taken as the candidate performs items 4 and 6.**

**SESSION 2 (3 HOURS): MOUNT CONDUIT WORK PIECES, INSTALL CIRCUIT AND PERFORM TESTS ON ELECTRICAL INSTALLATION**

| | |
|---|---|
| **Assessment Date:** | |
| **Assessment Venue:** | |

**PRACTICAL CHECKLIST**

| No. | Items of Evaluation | Max Marks | Awarded |
|---|---|---|---|
| 1. | Wore Personal Protective Equipment<br>• Dustcoat/Overall *(Award 1 or 0)*<br>• Safety boots *(Award 1 or 0)*<br>• Safety gloves *(Award 1 or 0)* | <br>1<br>1<br>1 | |
| 2. | Applied good housekeeping practice<br>• Ensured clean working area before beginning working. *(Award 1 or 0)*<br>• Tidy working area arrangement *(Award 1 or 0)*<br>• Proper Waste disposal *(Award 1 or 0)* | <br><br>1<br>1<br>1 | |
| 3. | Observed colour code *(Award 1 or 0)* | 1 | |
| 4. | Drew wiring diagram as per layout diagram<br>• Cooker *(Award 3 or 0)*<br>• Lighting *(Award 4 or 0)*<br>• Sockets in ring *(Award 3 or 0)* | <br>3<br>4<br>3 | |
| 5. | Performed conduit bend and connection<br>• 90º Bend *(Award 3 x any 3)*<br>• 45º Bend *(Award 3 x 6)*<br>• Connection with Male and female bushes *(Award 2 or 0)* | <br>9<br>18<br><br>2 | |
| 6. | Installed and wired the final circuits correctly. | | |

| | | | |
|---|---|---|---|
| | • Good utilization of the installation board *(Award 2 or 0)*<br>• Measurements ± 2mm *(Award 1 x any 6)*<br>• Fixed components firm and level *(Award 1 x any 6)*<br>• Uniform spacing of open saddles vertical and horizontal *(Award 2 or 0)* | 2<br>6<br>6<br><br>2 | |
| 7. | Terminated Cables (Twisted, Folded, Firm and not necked)<br>• C.C.U *(Award 3 or 0)*<br>• Sockets *(Award 1 x 3)*<br>• Switches *(Award 1 x 3)*<br>• Lamps *(Award 1 x 3)*<br>• *Cooker (Award 1 x 2)* | <br>3<br>3<br>3<br>3<br>2 | |
| 8. | Performed correct wiring at; (with correct cable size)<br>• Sockets *(Award 4 or 0)*<br>• Switches *(Award 3 or 0)*<br>• Cooker *(Award 3 or 0)*<br>• CCU *(Award 3 or 0)* | <br>4<br>3<br>3<br>3 | |
| 9. | Performed;<br>i. Visual inspection *(Award 2 or 0)*<br>ii. Polarity test *(Award 3 or 0)*<br>iii. continuity test *(Award 3 or 0)*<br>iv. Insulation Resistance *(Award 3 or 0)* | <br>2<br>3<br>3<br>3 | |
| | **TOTAL** | **100** | |
| **REMARKS:** | | | |

**NB: Photos and videos should be taken as the candidate performs items 5, 7 and 8.**

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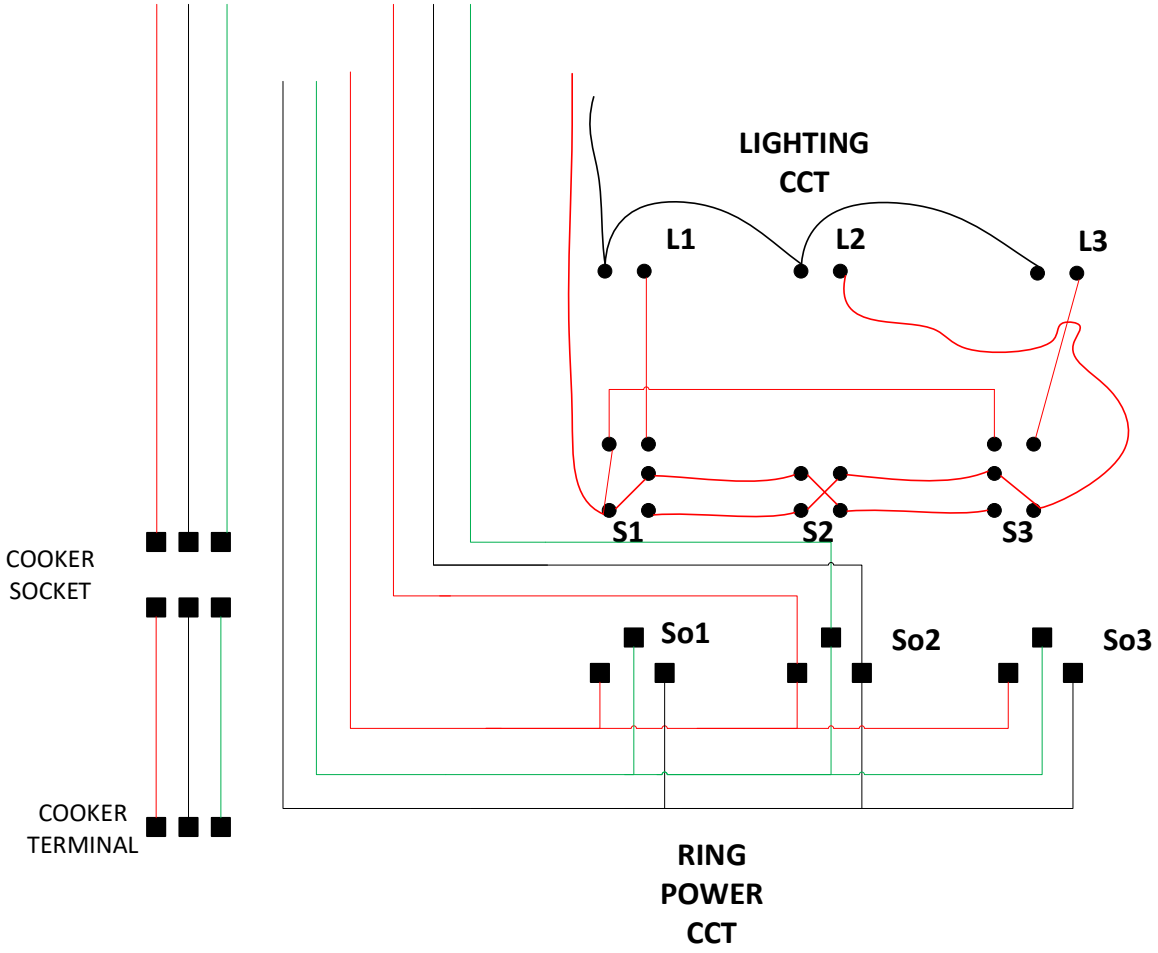
**WIRING DIAGRAM**



**SECTION 3: ORAL ASSESSMENT (25 MARKS)**

Assessor to award marks for each correct response by the candidate in the table below:

| Q# | Question | Expected Key Points | Max Marks | Awarded |
|---|---|---|---|---|
| 1 | State three factors to consider when selecting conduit types for different installations. | Material type (PVC, metallic, flexible); mechanical protection needs; cost and durability; compliance with IEC standards. *(Award 1 mark each or zero)* | 3 | |
| 2 | Mention three potential hazards when installing conduit systems. | Electrical shock; sharp edges and cuts; falling objects. *(Award 1 mark each or zero)* | 3 | |
| 3 | Name three common conduit sizes used in domestic installations in Kenya. | • $20mm^2$<br>• $25mm^2$<br>• $32mm^2$<br>*(Award 1 mark each or zero)* | 3 | |
| 4 | State the recommended cable sizes for domestic lighting, cooker, and radial socket circuits. | Lighting: 1.5 $mm^2$; Cooker: 6 $mm^2$ (or per rating); Radial Socket: 2.5 $mm^2$ – all as per IEC standards *(Award 1 mark each or zero)* | 3 | |
| 5 | State the recommended circuit breaker ratings for domestic lighting, cooker, and radial socket circuits. | Lighting: 6 A; Cooker: 32–45 A; Radial Socket: 20–32 A – as per IEC standards *(Award 1 mark each or zero)* | 3 | |
| 6 | Explain four advantages of metallic conduit over PVC conduit. | Better mechanical protection; fire resistance; grounding capability; durability *(Award 1 mark each or zero)* | 4 | |
| 7 | Explain why testing should be carried out after installation. | Confirms safety; checks for faults; ensures compliance with standards; prevents hazards | 2 | |

| | | | | |
|---|---|---|---|---|
| | | *(Award 1 mark each or zero)* | | |
| 8 | Explain the importance of adhering to colour codes for electrical cables. | Safety; standardization; ease maintenance and troubleshooting *(Award 1 mark each or zero)* | 2 | |
| 9 | Mention two common types of conduit accessories and their uses. | Couplings; elbows; tee-joints; saddles; locknuts *(Award 1 mark each or zero)* | 2 | |
| | | | | |
| | **Total Oral** | | **25** | |

**SUMMARY OF ASSESSMENT**

| **SECTION** | **Total Marks** | **Marks Awarded** |
|---|---|---|
| Assessment 1 | 33 | |
| Assessment 2 | 100 | |
| **TOTAL** | **133** | |
| **Percentage %** | | |
| **ORAL ASSSESMENT** | | |
| **Oral assessment** | **25** | |
| **Percentage %** | | |

**ASSESMENT OUTCOME**

The candidate was found to be:

Competent ☐ Not yet Competent ☐

*(Please tick as appropriate)*

The candidate is competent if the candidate obtains at least 50%