



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY

ELECTRICAL ENGINEERING DEPARTMENT

UNIVERSITY EXAMINATION FOR:

CRAFT CERTIFICATE IN TECHNOLOGY ELECTRICAL ENGINEERING

EEP 1105 (CTEE): ELECTRICAL INSTALLATION TECHNOLOGY AND PRACTICE (II)

END OF SEMESTER EXAMINATION

SERIES: JULY 2025

TIME: 2 HOURS

DATE: Pick DateSelect Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** Questions; Attempt any **THREE** Questions.

Do not write on the question paper.

QUESTION ONE

- a) i) Define the term “Earthing” **(2marks)**
i) With the aid of a diagram, explain the earth fault loop path when an earth fault occurs. **(6marks)**
- b) i) state the conditions in which automatic protection become Necessary **(3marks)**
ii) Explain the following terms in conjunction with Earthing systems.
i) Equipotential Bonding
ii) Circuit protective conductor (CPC)
iii) conductor **PEN (9marks)**

QUESTION TWO

- a) i) Explain the action to be taken to save an electric shock victim still in contact with live parts (6marks)
 - ii) State **TWO** important points to be observed before you start working on a faulty circuit. (2marks)
- b) i) State any **FOUR** statutory regulations regarding Domestic Electrical installation. (4marks)
 - ii) State **THREE** protective devices that every consumer's installation is required to have according to I.E.E regulations. (3marks)
- c) Explain the procedure to be followed while working in the workshop. (5marks)

QUESTION THREE

- a) What an outlet is as defined in the IEE Regulations. (2marks)
- b) i) State **TWO** insulation resistance tests in an installation (2marks)
 - ii) With the aid of diagrams describe the two tests in b (i) above. (4marks)
- c) Describe the following types of cables.
 - i) Composite cables
 - ii) Overhead cables
 - iii) Flexible cord
 - iv) Electrical sign cables (8marks)
- d) At a temperature of 20°C, the resistance of copper is 0.0173×10^{-6} –ohms. Determine the resistance of the copper conductor whose length is 240M and a cross sectional area of 4mm² (4marks)

QUESTION FOUR

- a) State:
 - i) **FOUR** tests and their results for a healthy domestic installation (4marks)
 - ii) Why test instruments have to be calibrated. (3marks)
- b) Define:
 - i) A fuse

- ii) Fusing current
- iii) Fusing factor **(4marks)**
- c) Distinguish between inspection and Testing in an electrical installation and state the purpose of each. **(4marks)**
- d) Explain by use of a labeled diagram the operation of a single phase residual current device, Earth Leakage Circuit Breaker (ELCB) **(5marks)**

QUESTION FIVE

- a) i) Describe with the aid of a diagram the operation of trembler bell **(5marks)**
 - ii) Explain how a relay works and state where they are used **(3marks)**
- b) i) Describe with the aid of a diagram how a closed circuit alarm system operates **(5marks)**
 - iii) States the advantages of system in b (i) above over the open circuit type. **(3marks)**
- c) Explain the application of the indicator board in alarm systems stating its function and one example where it is commonly used. **(4marks)**