



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN ELECTRICAL ELECTRONICS ENGINEERING (DEEE 2)

ELECTRICAL INSTALLATION TECHNOLOGY & PRACTICE 1

EEP 2105

END OF SEMESTER EXAMINATION

SERIES: MAY 2016

TIME: 2 HOURS

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.

PAPER 2

QUESTION ONE

- a) i) Define the term “Earthing” (2marks)
ii) 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. (9marks)
i) Equipotential Bonding
ii) Circuit protective conductor (CPC)
iii) PEN conductor

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. (8marks)
i) Composite cables
ii) Over head cables
iii) Flexible cord
iv) Electrical sign cables
- d) At a temperature of 20°C, the resistance of copper is 0.0173×10^{-6} –meters. 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 health 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)**