



TECHNICAL UNIVERISTRY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING

CERTIFICATE IN ELECTRICAL POWER ENGINEERING
(CEPE I)

EEP 1102: ELECTRICAL INSTALLATION TECHNOLOGY I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2014

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (Compulsory)

- a) (i) State FOUR types of generating stations
(ii) Describe with the aid of a diagram, the typical supply system from generating station to the domestic consumer. **(9 marks)**
- b) (i) Describe the THREE phase FOUR wire system of supply.
(ii) State FOUR advantages of the grid supply system
(iii) State THREE areas where bare conductors are permissible **(11 marks)**

Question Two

- a) (i) Describe with the aid of a diagram the operation of a trembler bell.
(ii) Explain how a relay works and state where they are used **(8 marks)**
- b) (i) Describe with the aid of a diagram how a closed circuit alarm system operates.
(ii) State the advantage of the system in b(i) above over the open circuit type **(7 marks)**
- c) Explain the application of the indicator board with alarm systems stating its function and one example where it is commonly used **(5 marks)**

Question Three

- a) Explain:
(i) Lighting stroke
(ii) Effects of a lighting stroke **(7 marks)**
- b) (i) State the meaning of “flame proof fitting”
(ii) State the THREE types of hazards to be considered under flame proof installations **(7 marks)**
- b) (i) Explain why building structures need protection against lightning discharges.
(ii) State parts of a building lightning protection system **(6 marks)**

Question Four

- a) (i) State THREE factors to be considered when designing an electrical installation.
(ii) Explain the term “class of excess current protection” and how it affects cable rating. **(7 marks)**
- b) (i) State TWO factors to be considered when selecting the type and size of control gear to be used in a particular installation.
(ii) Explain the term “diversity factor” and state how its application installation designs. **(8 marks)**
- c) State the supply control switch gear required at the supply intake to an electric installation. **(5 marks)**

Question Five

- a) State:
(i) FOUR sensing elements used as a fire detectors.
(ii) The instances in which heat and smoke detectors give false alarms **(7 marks)**

- b)** (i) Describe with the aid of a diagram the operation of a continuous ringing bell.
(ii) State where this bell in (b) (i) above is commonly used. **(7 marks)**
- c)** (i) Explain the operation of an Automatic fire alarm system
(ii) State the advantage of the system in (c) (i) above over the manual type of system **(6 marks)**