



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING
Faculty of Engineering and Technology

**DIPLOMA IN TECHNOLOGY
ELECTRICAL POWER ENGINEERING**

EEP 2105: ELECTRICAL INSTALLATION TECHNOLOGY AND PRACTICE I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. You should have the following for this examination
 - Answer booklet
 - Electronic calculator
 - Student ID
 - Examination pass
 2. This paper consists of FIVE questions.
 3. Answer ANY THREE questions.
 4. All questions carry equal marks.
 5. Do not write on the question paper
- This paper consists of THREE printed pages

PAPER TWO

QUESTION ONE

- a. (i) Define a wiring system (2mks)
- (ii) Explain **FOUR** factors considered in determining a suitable wiring system to be adopted. (4mks)
- b. Explain the following wiring systems:
- (i) Conduit (3mks)
- (ii) Trunking (3mks)
- (iii) Sheathed (3mks)
- c. State:
- (i) **FOUR** areas where bare conductors are used in electrical installations (3mks)
- (ii) Any **TWO** advantages of the national grid system. (2mks)

QUESTION TWO

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

QUESTION THREE

- a. (i) State **THREE** factors to be considered when designing an electrical installation. (3mks)
- (ii) Explain the term “class of excess current protection” and how it affects cable rating. (5mks)

- b. (i) State **TWO** factors to be considered when selecting the type and size of control gear to be used in a particular installation. (4mks)
- (ii) Explain the term “diversity factor” and state how its application affects installation design. (4mks)
- c. Explain these factors normally considered when designing electrical installation.
- (i) Working environment
- (ii) Flexibility (4mks)

QUESTION FOUR

- a. (i) Explain **THREE** properties required of protective devices.
- (iii) Explain the significance of inverse the current characteristics for protective devices (10mks)
- b. (i) State the name and purpose of the powdered filling in the HBC fuse cartridge Barrel.
- (ii) Explain back up protection.
- (iii) State **THREE**
- i. Advantages of HBC fuses
- ii. Disadvantages of rewirable (10mks)

QUESTION FIVE

- a. Explain **FOUR** factors to be considered in the selection of a wiring system.(8mks)
- b. State:
- (i) **FOUR** areas of application of bare conductors. (2mks)
- (ii) **THREE** areas of application of flexible conduits. (3mks)
- (iii) **THREE** advantages of trunking over conduit (3mks)
- c. State the function of the following in a PILC SWA cable.
- (i) Jute bedding
- (ii) Lead sheathing
- (iii) Steel wire armour (6mks)