



**TECHNICAL UNIVERSITY OF MOMBASA**

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

DIPLOMA IN MEDICAL ENGINEERING

**EEP 2150: ELECTRICAL INSTALLATION I**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: SEPTEMBER 2018**

**TIME: 2HOURS**

**DATE:** Pick Date Sep 2018

**Instructions to Candidates**

You should have the following for this examination

*-Examination pass and student ID*

This paper consists of five questions. Attempt any THREE questions.

**Do not write on the question paper.**

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### QUESTION ONE

- a) Distinguish between **electrocution** and **electric shock** (2marks)
- b) Compare and contrast **double insulation** and **all-insulated** equipment (3marks)
- c) Explain the procedure for handling a victim of electric shock who is still in contact with **live** wires. (10marks)
- d) (i) State any **five** contents of a First – Aid Box  
(ii) Describe the contents in (i) (15marks)

### QUESTION TWO

- a) Distinguish between **overhead line** and **underground cable** (2marks)
- b) State  
(i) **two** advantages of overhead lines  
(ii) **two** disadvantages of underground cables (4marks)
- c) Describe the following control equipment for a domestic installation  
(i) Cut-out  
(ii) Energy meter  
(iii) Consumer control unit (6marks)
- d) With the aid of a labelled diagram, explain the construction of PVC-sheathed, MIMS cable. (8marks)

### QUESTION THREE

- a) State any **two** building services that should be bonded to earth (2marks)
- b) With the aid of a labelled diagram, explain the following types of earth electrodes:-  
(i) Plate  
(ii) Mesh  
(iii) Strip (18marks)

#### QUESTION FOUR

- a) Describe the following wiring systems:-  
(i) MICS  
(ii) MIAS. **(4marks)**
- b) Compare and contrast  
(i) **ducting** and **cable trench** wiring systems  
(ii) **surface wiring** and **concealed wiring** **(6marks)**
- c) Explain the following wiring systems:-  
(i) catenary  
(ii) cleated **(10marks)**

#### QUESTION FIVE

- a)  
(i) State any **four** wiring accessories needed for a complete conduit Installation.  
(ii) Describe any **three** of the wiring accessories in (i) **(10marks)**
- b) Explain any **two** IEE wiring Regulations regarding  
(i) socket-outlets  
(ii) Lighting switches **(10marks)**