



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology

**DEPARTMENT OF MEDICAL ENGINEERING
DIPLOMA IN MEDICAL ENGINEERING (DME 115)**

**EEP 2150
ELECTRICAL INSTALLATION I**

SPECIAL SUPPLEMENTARY EXAMINATIONS

YEAR 1 SEMESTER 1

SERIES: DECEMBER, 2015

TIME: 2 HOURS

INSTRUCTIONS:

1. You should have the following for this examination:

Answer Booklet

2. This paper consists of **FIVE** questions

3. Question **ONE** is **COMPULSORY**; attempt any other **TWO** Questions.

4. Do not write on the question paper.

5. This paper consist of **THREE** printed pages.

Question ONE

(a) Describe any **FIVE** contents of a First-Aid box.

(10 marks)

(b) Explain how electrical safety is ensured by:

(i) Effective earthing

- (ii) Lightning arrestor system
- (iii) Having fire-extinguishers at strategic locations
- (iv) Fitting emergency-stop buttons.

(20 marks)

Question TWO

(a) Compare and contrast **fuse** and **circuit-breaker**.

(3 marks)

(b) Describe the following with regards to the fuse:

- (i) Current rating
- (ii) Fusing current
- (iii) Fusing factor.

(6 marks)

(c) Explain how electrical installation is protected against:

- (i) Overcurrent
- (ii) Mechanical damage
- (iii) Corrosion.

(11 marks)

Question THREE

(a) Distinguish between **earthing** and **bonding**.

(2 marks)

(b) State:

- (i) The standard colour code for earthwire
- (ii) **FIVE** types of earth electrode.

(6 marks)

(c) With the aid of labelled diagrams, describe the earth electrodes in (b)(ii). **(12 marks)**

Question FOUR

(a) State the recommended mounting heights for:

- (i) Switch
- (ii) Socket outlet.

(2 marks)

(b) Distinguish between **flexible cable** and **flexible cord**. (2 marks)

(c) Describe the following:

- (i) Lighting circuit
- (ii) Power circuit.

(4 marks)

(d) Draw wiring diagrams to show:

- (i) Two sockets connected in radial
- (ii) Four sockets connected in ring plus a spur
- (iii) Two lamps controlled by two 2-way switches and an intermediate switch.

(12 marks)

Question FIVE

(a) State **TWO** types of lampholders. (2 marks)

(b) Distinguish between **switchplate** and **switchbox**. (2 marks)

(c) Describe the following in electrical installations:

- (i) Joint
- (ii) Termination.

(4 marks)

(d) Describe the following wiring accessories:

- (i) Cord-grip switch
- (ii) Ceiling rose
- (iii) Biscuit ring
- (iv) Buckle clip
- (v) Intermediate switch
- (vi) Float switch.

(12 marks)