TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING (DME 115)

EEP 2151: ELECTRICAL INSTALLATION II

END OF SEMESTER EXAMINATION

SERIES:APRIL2016

TIME:2HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of four questions. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

(a) Define the term **fusing factor**. **(1 mark)**

(b) State the arc-quenching medium in:

(i) fuses
(ii) miniature circuit-breakers

(2 marks)

(c) Describe the following:

(i) Overhead line
(ii) Armoured cable
(iii) Mineral-insulated, metal-sheathed cable

(6 marks)

(d) With the aid of a labelled wiring diagram, show four socket-outlets connected in ring plus a spur. Include fuse rating and conductor size. **(10 marks)**

(e) Explain how

(i) type of building
(ii) working environment

are factors to be considered during installation design.

(11 marks)

Question TWO

(a) Describe the following types of emergency lighting systems:

(i) Maintained
(ii) Non-maintained

(4marks)

(b) An incandescent lamp having a luminous intensity of 100 candela in all directions gives an illuminance of 40 lux at the surface of a bench vertically below the lamp. Calculate

(i) the height of the lamp above the bench
(ii) the illuminance received at the bench if the lamp was lowered by 0.58m.

(7 marks)

(c) Explain how **stroboscopic effect** in fluorescent lamps can be overcome.

(9marks)

Question THREE

With the aid of a labelled diagram, explain the principle of operation of a nurse-call system in a hospital. **(20 marks)**

Question FOUR

Explain the most suitable wiring system to be used in:

(i) petrol stations
(ii) desert environment
(iii) cold rooms
(iv) quarries

(20 marks)

Question FIVE

(a) Distinguish between **inspection** and **testing.** **(2 marks)**

(b) State any **THREE** visual checks to be performed on a power circuit. **(3 marks)**

(c) Explain the importance of performing the following tests:

(i) Continuity
(ii) Insulation resistance
(iii) Polarity
on a completed electrical installation.

(15marks)