MURANG'A UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY)

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT: ELECTRICAL AND ELECTRONIC

LEVEL:	**DIPLOMA**
CLASS:	**KNEC/EEP/14DS**
MODULE:	**1**
ACADEMIC YAER:	**2014/2015**
UNIT:	**ELECTRICAL INSTALLATION TECHONOLOGY**
UNIT CODE:	**EE1107**

DATE: 23RD MARCH 2015 **TIME: 2 HOURS**

Instructions to candidates

- This paper contains SEVEN (7) questions
- Answer any five of the seven questions
- No mobile phone in examination room
- You should have the following for this examination;
    - Drawing instruments
    - Scientific calculator

a) State any THREE effects of voltage drop in electrical installation (3mks)

b) State any FIVE factors that may affect the size of a cable for a particular installation (5mks)

c) Explain the following terms as used in protection

(i) Coarse excess current protection

(ii) Close excess current protection

(iii) Diversity factor
(iv) Single phasing (12mks)

Q2(a) Define the terms

(i) Accessory
(ii) Appliance (4mks)

b) Explain any two IEE regulations concerning
(i) Ceiling roses in lighting circuits
(ii) 13 A socket outlets and plus in power circuits (8mks)

c) Using a labeled wiring diagram , show two lamps connected in parallel and controlled by two –way switches and two intermediate switches (8mks)

Q3

a) Define the following terms
(i) Final sub circuits
(ii) Fuse (4mks)

b) State three requirements' recommended by IEE regulations for consumers intake point. (3mks)

c) Using a labeled diagram explain the sequence of control at the consumer intake point of a single phase two wire installation. (9mks)

d) Explain the procedureof determining the actual value of the current flowing in circuits feeding discharge lamps (4mks)

Q4

a) Define the following terms used in protection
(i) Discrimination
(ii) Current rating
(iii) Fusing current (6mks)

b) Differentiate between close excess current protection and coarse excess current protection.
(4mks)

c) Using a labeled diagram describe the operation of a current operated earth leakage circuit breaker. (10mks)

Q5

a) Describe the following terms used in instruments
(i) Shunts
(ii) Multipliers (4mks)

b) Explain the difference between analogueinstruments and digital type. (4mks)

c) Using labeled diagram describe the following concerning instruments
   (i) Spring control
   (ii) Eddy current damping (12mks)

Q6

a) State THREE effects of voltage drop in electrical installation. [3mks)
b) Outline the procedure of
   (i) Installing a 3-core paper insulated, lead sheathed, steel wire armoured underground cable.
   (ii) joining and restoring to service the cable in (b)i (11mks)
c) Draw a labeled single-line diagram of a typical transmission system in Kenya, indicating standard voltages at every stage. (6mks)

Q7

a) Explainany two factors that affect the choice of a wiring system. (4mks)
b) (i) Describe Catinery wiring system, giving two suitable cables used in this types of wiring

   (ii)State any three precautions to be observed when installing the wiring system in b(i)(7mks)

(c) (i) With the aid of a diagram, distinguish between ring and radial final circuits;

(ii)Outline the procedure of determining the correct cable size for a particular load (9mrks)