

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**P.O. Box 972-60200 – Meru-Kenya.**

**Tel: 020-2069349, 061-2309217. 064-30320 Cell phone: +254 712524293, +254 789151411**

**Fax: 064-30321**

**Website:** [**www.mucst.ac.ke**](http://www.mucst.ac.ke) **Email:** [**info@mucst.ac.ke**](mailto:info@mucst.ac.ke)

**University Examinations 2014/2015**

SECOND YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN ELECTRICAL ENGINEERING

**EEE 0230: ELECTRICAL INSTALLATION TECHNOLOGY IV**

**DATE: DECEMBER 2014 TIME: 1 HOURS**

**INSTRUCTIONS:** *Answer questions* ***on****e**and any other* ***two*** *questions from section B*

**SECTION A**

**QUESTION ONE (30 MARKS)**

1. Outline the purpose of earthing (3 marks)
2. Define the following terms as used in relation to earthing
3. Earth leakage (2 marks)
4. Earth-loop impedance (2 marks)
5. Earth has many failings as a conductor. Explain (4 marks)
6. State two possible causes of the following electrical fault
7. Electric shock (2 marks)
8. Fire/burning (2 marks)
9. Complete loss of supply (2 marks)
10. An electric heater is fitted to a copper kettle of mass 0.5 kg containing 1.5 litres of water. Determine the amount of heat needed to raise the temperature of the water 200c to boiling point (3 marks)
11. Explain the classification of hazards areas (6 marks)
12. State the procedures to observe whenever an electrical fault occurs (4 marks)

**SECTION B**

**QUESTION TWO (15 MARKS)**

1. Define commission (2 marks)
2. Explain briefly the purpose of issuing a test certificate of a completed installation or additional of installation work. (5 marks)
3. State how negligence, misuse of abuse by the installer or user may result in electrical faults (3 marks)
4. With aid of a circuit diagram, describe high voltage direct current testing of cables. (5 marks)

**QUESTION THREE (15 MARKS)**

1. Outline the purpose of protective multiple earthing (3 marks)
2. With aid of diagrams, explain the procedures of carrying out soil resistivity tests

(7 marks)

1. Explain briefly why the earth electrodes must be situated outside the resistance area of any other electrode (3 marks)
2. State two method used for prevention of earth leakage (2 marks)

**QUESTION FOUR (15 MARKS)**

1. Explain briefly the following conditions which limit the choice of electrical machines
2. Supply available (2 marks)
3. Rating (2 marks)
4. Describe the following types of motor enclosures
5. Pipe-ventilated (2 marks)
6. Drip-proof (2 marks)
7. Petrol service pumps is a hazardous area, explain briefly the conditions required for its constructions and in station (7 marks)