



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2013/2014

FIRST YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN ELECTRICAL  
ENGINEERING

### EEE 0204: ELECTRICAL INSTALLATION TECHNOLOGY II

DATE: APRIL 2014

TIME: 1 ½ HOURS

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**INSTRUCTIONS:** Answer question *one* and any other *two* questions

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#### QUESTION ONE – (30 MARKS)

- (a) Describe the following types of motor enclosures and give one application for each
- (i) Screen protected (4 Marks)
  - (ii) Totally enclosed (4 Marks)
  - (iii) Drip proof (4 Marks)
- (b) Mention three areas of installation where special installation is recommended. (3 Marks)
- (c) Give reasons with examples why special installations mention in (b) above. (4 Marks)
- (d) Explain briefly the following terms:
- (i) The standing costs (2 Marks)
  - (ii) The running costs (2 Marks)
- (e) State the factors that affect cable rating. (3 Marks)
- (f) A power consumer who has a fairly constant maximum demand throughout the year is offered the following tariff; Ksh1025 per of maximum demand per annum plus 0.00335 per unit. Given that his maximum demand is 250KW and his consumption is 350,000 units (KWh), calculate the annual cost and average price per unit. (4 Marks)

**QUESTION TWO – (20 MARKS)**

- (a) List two types of tariffs. (2 Marks)
- (b) A supply authority offers choice of three different domestic charged quarterly
- A flat rate of Ksh0.6per unit for heating and power and Ksh3.5 per unit lighting
  - A two part rate of Ksh150 per quarter plus Ksh0.7 for all units consumed.
  - A block rate of 120 units per quarter at Ksh3.5 per unit plus Ksh6 per unit for other units consumed

Calculate for each these tariffs the total cost and the average cost per unit, for a quarter in which 640 units were used for heating and 560 units were used for lighting.

(7 Marks)

- (c) Explain briefly how the power factor can be improved by capacitor method. (6 Marks)

**QUESTION TWO – (15 MARKS)**

- (a) State any four factors that affect the choice of an electric motor. (4 Marks)
- (b) Explain the purpose providing a starter for a d.c motor. (6 Marks)
- (c) Explain the basic requirements regarding electric motor final sub-circuits. (5 Marks)

**QUESTION FOUR – (15 MARKS)**

- (a) Define special installation. (2 Marks)
- (b) Explain why trailing of flexible cable is dangerous in temporary installations. (6 Marks)
- (c) Mention four areas of installation where special installation is recommended. (4 Marks)
- (d) Draw the circuit diagram of inductor start split phase motor. (3 Marks)