



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.must.ac.ke Email: info@must.ac.ke

University Examinations 2013/2014

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA IN ELECTRICAL
ENGINEERING

EEE 0228: ELECTRICAL MEASUREMENT AND TESTING II

DATE: APRIL 2014

TIME: 1 ½ HOURS

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

QUESTION ONE – (30 MARKS)

- (a) Why are magnetic measurements more inaccurate than other types of measurements? (3 Marks)
- (b) What is a ballistic galvanometer (BG) and what are its special features? In which field does the B.G find its use? (9 Marks)
- (c) Describe the construction of a flux meter and show that the deflection is proportional to the change of flux linkage in the search coil to which the flux meter is connected. (6 Marks)
- (d) How can the range of a ballistic galvanometer be increased? (3 Marks)
- (e) Explain how you can measure iron losses using Maxwell's bridge for iron loss measurements. (5 Marks)
- (f) What are the various methods used for measuring iron losses? (4 Marks)

QUESTION TWO – (15 MARKS)

- (a) What are the errors introduced in a dynamometer type watt meter due to resistance of current and pressure coils respectively? How is the error compensated automatically. (4 Marks)
- (b) Describe the three ammeter method for measurement of power and power factor meter in a single phase circuit. Derive the expressions for power and power factor. (5 Marks)

- (c) Explain with neat diagram as to how are watt meter tested. (6 Marks)

QUESTION THREE – (15 MARKS)

- (a) Describe the working of a frequency meter which depends on mechanical resonance for its action. (7 Marks)
- (b) What is the difference between a wattmeter and energy meter. (3 Marks)
- (c) Describe a method of determining B-H curve of a specimen. (6 Marks)

QUESTION FOUR – (15 MARKS)

- (a) Explain the following:
- (i) What do you mean by, low medium and high resistances. (4 ½ Marks)
- (ii) Why is the voltmeter – ammeter method unsuitable for the precise measurement of low resistance? (3 Marks)
- (iii) How the difficulties associated with the measurement of low resistance and show it is suited for the job