



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN
MECHANICAL ENGINEERING

MED-PR 213: ENGINEERING METROLOGY & MEASURING TOOLS I

DATE: 30/5/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

Answer Question One and Any Other Two Questions

You require drawing instruments for this examination.

1.
 - a) List any six objectives of metrology in engineering field (6 marks)
 - b) Explain metrology as a means to achieve quality control (4 marks)
 - c) Explain what you understand by the term “interchangeability” (3 marks)
 - d) Sketch and explain what is meant by the length of the meter (7 marks)
 - e) State FIVE advantages of wavelength standards over other types of standards (5 marks)
 - f) List THREE functions of the Kenya bureau of standards. (5 marks)
2.
 - a) Sketch and explain the two basis system of fit (12 marks)
 - b) Explain with their causes two categories of errors in measurement (8 marks)

3. a) Describe the classification of standards (12 marks)
b) State FOUR characteristics of line standards (8 marks)
4. a) Define a comparator. (2 marks)
b) Describe THREE essential parts of a comparator (6 marks)
c) i Sketch and label parts of Johansson Mikrokator
ii Explain how Johansson Mikrokator works. (12 marks)
5. a) Sketch and label the elements of a machined surface texture (9 marks)
b) With the aid of sketch explain the working principle of the perthometer (11 marks)