



(University of Choice)
**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

SECOND YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DIPLOMA
IN
MECHANICAL ENGINEERING**

COURSE CODE: DME 075

COURSE TITLE: METROLOGY

DATE: 26/04/2022

TIME: 3:00-5:00 PM

INSTRUCTIONS TO CANDIDATES

Answer question ONE and any other two questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

QUESTION ONE**(30 marks)**

- a) Define the term measurement (2 marks)
- b) State the **TWO** main requirements of measurement (2 marks)
- c) State and explain **FIVE** methods of measurement (10 marks)
- d) Distinguish between static and dynamic responses. (2 marks)
- e) Discuss the following terms (5 marks)
 - i. Sensitivity
 - ii. Accuracy
 - iii. Readability
 - iv. Interchangeability
 - v. Standard
- f) Explain **THREE** errors of measurement (3 marks)
- g) State **SIX** characteristics of a good comparator (6 marks)

QUESTION TWO**(20****marks)**

- a) Explain the construction and working principle of a mechanical comparator. (10 marks)
- b) State and explain **FIVE** characteristics of a good comparator (10 marks)

QUESTION THREE**(20 marks)**

- a) With the aid of neat sketches explain the working principle of an interferometer (10 marks)
- b) Discuss the generalized measuring system and all its elements (10 marks)

QUESTION FOUR**(20 marks)**

- a) With the aid of a well labelled diagram discuss the working principle of a sine bar **(10 marks)**
- b) List **FIVE** types of gears **(5 marks)**
- c) Define the following terms used in gears and threads **(5 marks)**
- i. Dedendum
 - ii. Addendum
 - iii. Pitch
 - iv. Lead
 - v. Pitch diameter

