



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATIONS

**FOR THE AWARD
OF
DIPLOMA IN ENGINEERING**

COURSE CODE: DEE 083

COURSE TITLE: MICROPROCESSORS

DATE: Wednesday 5th Oct, 2022

TIME: 4.00p.m – 6.00P.m

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS.
QUESTION ONE CARRIES 30 MARKS AND ALL OTHERS 20 MARKS EACH.

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over. 

Question One

- a. Distinguish between the following terms; *kilobyte, megabyte, gigabyte, terabyte, long word* and *petabyte* [3 marks]
- b. Indicating the corresponding voltage levels explain the logic convention in RS 232C, hence explain how RS 232C is interfaced to TTL. [5 marks]
- c. Explain different types of registers in 8085 microprocessor architecture. [5 marks]
- d. Using relevant diagrams explain clearly the general purposes of data registers. [6 marks]
- e. Explain the instructions (i) LDS (ii) PUSHF (iii) TEST (iv) CLD [6 marks]
- f. Write down the steps, sequentially carried out by 8086 when an interrupt occurs. [5 marks]

Question Two

- a. Explain the meaning of the phrase *addressing mode* [0.5marks]
 - i. Name the three addressing modes of the 8086 [1.5marks]
 - ii. Outline the six memory addressing modes of the 8086 [3 marks]
 - iii. Using assembly language, give examples each of *immediate addressing* and *register addressing*. [4 marks]
- b. List all the flags in 8085 microprocessor. [2 marks]
- c. Give the two important reasons why although the 8086 is a 16-bit processor it deals with 8-bit memory. [2 marks]
- d. Enumerate any five advantages of memory segmentation. [6 marks]

Question Three

- a. Explain the concept of *instruction queue* in the 8086. [2 marks]
- b. Explain the terms as applied in microprocessors
 - i. Simplex transmission [1 mark]
 - ii. Duplex transmission [1 mark]
 - iii. Half-duplex transmission [1 mark]
- c. What is stack? Explain the use and operation of stack and stack pointer? [5 marks]
- d. Differentiate between microprocessor and microcontroller. [6 marks]
- e. Compare isolated I/O and memory mapped I/O [4 marks]

Question Four

- a. Differentiate between;
- i. a compiler and an interpreter [2 marks]
 - ii. a compiler/interpreter and an assembler. [3 marks]
- b. Using a cross-sectional drawing briefly explain the construction of a USB cable. [4 marks]
- c. List any four tasks that a microcomputer is capable of doing. [4 marks]
- d. With the aid of a well labeled diagram, mention the total number of registers of 8086 and show how they are grouped. [7 marks]