(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS 2021/2022 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER EXAMINATIONS

FOR DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE CODE: DEE 083

COURSE TITLE: MICROPROCESSORS

DATE: Wednesday 20th April, 2022 **TIME:** 12.00 p.m – 2.00 p.m

INSTRUCTIONS TO CANDIDATES

ANSWER ALL QUESTIONS IN SECTION A AND TWO QUESTIONS IN SECTION B.
TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

MASINDE MULIRO UNIVERSITY OF SCIENCE & TECHNOLOGY

DEE 083: Microprocessors

SECTION A (30 MARKS): Answer ALL questions

1. Define the term microprocessor. (2 marks)
2. Differentiate between CISC and RISC. (4 marks)
3. Define the following terms:
   a) Bit (2 marks)
   b) Nibble (2 marks)
   c) Byte (2 marks)
   d) Word (2 marks)
4. Convert 10110101_2 to decimal value. (3 marks)
5. Convert 333_8 to decimal value. (3 marks)
6. State any two advantages of assembly language programming over high level language programming. (2 marks)
7. Find the value of the following using 2's complement arithmetic:
   a) $55 + 27$ (2 marks)
   b) $-55 + 27$ (2 marks)
   c) $55 - 27$ (2 marks)
   d) $-55 - 27$ (2 marks)

SECTION B: Answer any TWO questions

8. a) Draw the block diagram of a basic computer system and state the functions of each block. (8 marks)

   b)Using appropriate diagrams, differentiate between the Von Neumann architecture and the Harvard architecture. (12 marks)

9. a) Describe the instruction cycle of a processor. (9 marks)
   b) Using an appropriate diagram, explain the 8085 bus structure. (11 marks)
10. a) Explain the Program Development Life Cycle. (12 marks)
    b)Write a program to add two 8-bit numbers and store 8-bit result in register C. Explain the program with the aid of a flow chart. (8 marks)
11. (i) Draw the block diagram of a microprocessor unit and state the functions of each block. (14 marks)

    (ii) State the function of the following registers:

    (I) Program Counter (PC) (2 marks)
    (II) Stack Pointer (SP) (2 marks)
    (III) Instruction register (2 marks)