Reg. No.: [redacted]

Name : [redacted]

# VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act 1956)

## Continuous Assessment Test I – January 2023

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|---|---|---|---|---|---|
| Programme | : B.Tech (CSE) | Semester | : | WS 2022-23 |
| Course | : Microprocessors and Microcontrollers | Code | : | BECE204L |
| | | Slot | : | G2+TG2 |
| Faculty | : Dr. A BHARATHI SANKAR,<br>Dr. BALA MURUGAN M S<br>Dr. LUCKY AGARWAL<br>Dr. B PRASHANTH KUMAR<br>Dr. S SELVENDRAN<br>Dr. IDAYACHANDRAN G<br>Dr. E. SATHISH<br>Dr. SOURABH PAUL<br>Dr. GIRIJA SHANKAR<br>Dr. BHARATH SREENIVASULU V<br>Dr. DHEEREN KU MAHAPATRA<br>Dr. ILAVARASAN T<br>Dr. GNANA SWATHIKA | Class Nbr | : | CH2022235001389<br><br>CH2022235001394<br>CH2022235001395<br>CH2022235001396<br>CH2022235001397<br>CH2022235001398<br>CH2022235001400<br>CH2022235001401<br>CH2022235001402<br>CH2022235001403<br>CH2022235001404<br>CH2022235002457 |
| Time | : 90 Minutes | Max. Marks | : | 50 |

**Answer ALL the questions**

| Q.No. | Sub. Sec. | Questions | Marks |
|---|---|---|---|
| 1. | | Explain in brief about interconnection of components in a microprocessor for communicating data, address and control information. (three boy lines) | 5 |
| 2. | | Explain the various types of addressing modes of the used in the following program and explain about the purpose of this program with every instruction<br>CLD<br>MOV AX,1000H • direct<br>MOV DS,AX — register<br>MOV AX,2000H •<br>MOV ES,AX —<br>MOV [5030H], 1122H<br>MOV [5032H], 3344H<br>MOV [5034H], 5566H } indirect<br>MOV [5036H], 7788H<br>MOV SI, 5030H index<br>MOV DI, 5100H index<br>MOV CX,0006H •<br>REP MOVSB Repeat | 10 |
| 3. | a | Explain the following instruction with an example<br>a) PUSH and POP instruction<br>b) ADC and SBB Add w carry, sub w borrow<br>c) JMP and LOOP<br>d) AAA and DAA ASCII<br>e) TEST and ROL | 10 |

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| | | Assume 8086 microprocessor needs to be interfaced with another processor; in which mode it should be operated? List the control signals used for communication between the processors. | 2 |
| | | Assume the values of Registers AX, BX, CX and DX contain 1001H, 2002H, 3003H and 4004H. Determine the contents of each register after the following instruction sequence has been executed.<br>PUSH AX<br>PUSH CX<br>PUSH BX<br>PUSH DX<br>POP AX<br>POP CX<br>POP BX<br>POP DX | 3 |
| | | Write an ALP code to find the mean value from the given array of 5 numbers. Array - 0F, FF, 23, 56, BC | 10 |
| | | Interface an 8255 chip with 8086, in which Port A and Port B should be configured as input port and output port respectively. Assume the Port A address is E8H. Write the ALP program to sense the position of a switch connected to the input port and to turn ON and OFF a LED at the output port depending on the position of the switch. | 10 |

A - 10
B = 11
C = 12
D = 13
E = 14