4. (a) Draw and explain the internal architecture of 8255 PPI. Discuss its various modes of operation. (CO4)

   (b) Explain the working of a DMA controller. What is the difference between the slave mode and master mode of DMA controller ? (CO4)

   (c) Discuss the IRR, ISR and IMR registers of 8259 PIC. Explain its various priority modes and types of EOI (end of interrupt). (CO4)

5. (a) Discuss the control word format and all operating modes of 8254 PIT. (CO5)

   (b) Consider an 8 bit DAC calibrated over 0 to 5 V range. Determine the following for it : (CO5)

   (i) Resolution

   (ii) Full scale output voltage

   (iii) Output voltage if the input is 2A H

   (c) Draw the internal architecture of ADC 0808. Explain the method used by it for analog to digital conversion. (CO5)



**H** **Roll No.** 2194026

# TCS–403

## B. TECH. (CSE)
## (FOURTH SEMESTER)
## END SEMESTER EXAMINATION,
## June, 2023

MICROPROCESSORS

**Time : Three Hours**

**Maximum Marks : 100**

**Note :** (i) All questions are compulsory.

(ii) Answer any ***two*** sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) Draw the pin diagram of 8085. Discuss the multiplexed Address-Data bus and its demultiplexing. (CO1)

   (b) Draw the flag register of 8085. Discuss all the flags with suitable examples. (CO1)

***P. T. O.***

(c) Interface a 16 KB RAM with 8085 assuming the first address is C000H. Determine the last address of this RAM. (CO1)

2. (a) Distinguish between the following : (CO2)

(i) Memory mapped I/O and Peripheral I/O

(ii) Maskable and Non-maskable interrupts

(iii) RAR and RRC instructions

(b) Discuss the following 8085 instructions with examples : (CO2)

(i) CALL

(ii) SHLD

(iii) LXI

(iv) ADI

(c) Write an 8085 assembly language program to transfer a block of 14 bytes stored at starting address 4500H to a new memory block starting at an address 5500H. (CO2)



3. (a) What is the difference between minimum and maximum modes of 8086 ? Explain the function of the following pins of 8086 : (CO3)

(i) LOCK′

(ii) NMI

(iii) MN/MX′

(iv) $QS_1$, $QS_0$

(b) Discuss various segment registers, index registers and pointers of 8086. How 8086 computes the 20 bit address for various memory segments ? (CO3)

(c) What do you mean by an addressing mode ? Discuss the following addressing modes of 8086 with illustrative examples : (CO3)

(i) Direct

(ii) Register indirect

(iii) Register relative