GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2023

Subject Code:3160712   **Date:06-07-2023**
Subject Name:Microprocessor and Interfacing
Time:10:30 AM TO 01:00 PM   **Total Marks:70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Differentiate between Microcontroller and Microprocessor.	**03**
	(b)	Explain the purpose of the following signals in 8085 1. READY 2. AD0-AD7 3. HOLD 4. IO/ M 5. INTR	**04**
	(c)	Draw the architectural diagram of 8085 microprocessor and list out the following: 1. General Purpose Registers 2. Special Purpose registers with their functions 3. Flags in the flag register with required explanation	**07**
Q.2	**(a)**	If an 8085 is an 8 bit microprocessor, how many bits can be loaded by the 3 register pairs (BC, DE, HL, or SP) using LXI?	**03**
	(b)	Define significance of ALE pin with an example or a diagram.	**04**
	(c)	If an 8085 microprocessor has a 2 MHz crystal frequency, what is the assembly language code required creating a delay of 1 second?	**07**

OR

	(c)	Draw the interfacing of a 4KB EPROM having a starting address0000h and two 2KB static RAMs having starting addresses 4000hand 8000h, respectively, with 8085 microprocessor. Use demultiplexed address/data lines and use 3-to-8 decoder (74LS138).	**07**
Q.3	**(a)**	State the addressing modes of the following instructions: 1. CMA 2. LDA 2500H 3. ANA M 4. LXI SP	**03**
	(b)	Using stack operations, write an 8085 assembly program to set the sign, zero, and parity flags while resetting the auxiliary carry and carry flags.	**04**
	(c)	Can you describe the process by which the 8085 processor executes the CALL instruction, and how does the timing diagram illustrate this sequence of events?	**07**

Q.3 **(a)** An array of ten data bytes are stored from memory locations 2100H onwards. Write an 8085 assembly language program to find the minimum number from this array and store it to new memory location 2200H. **03**

(b) Can you provide a diagram illustrating the de-multiplexing of the Address/Data bus (AD0-AD7) in the 8085 microprocessor? **04**

(c) Explain the different addressing modes available in the 8085 microprocessor, with examples to illustrate each mode. **07**

Q.4 **(a)** Explain instruction set of 8085. **03**

(b) Compare the memory-mapped IO with the standard IO-mapped IO **04**

(c) Can you provide an example program in assembly language that initializes a single 8259 Programmable Interrupt Controller (PIC) connected to an 8085 processor? **07**

OR

Q.4 **(a)** List the Software and Hardware interrupts of 8085? **03**

(b) Discuss the operation of the 8255 Programmable Peripheral Interface and how it is interfaced with an 8085 microprocessor. What are the different modes of operation and how are they selected? **04**

(c) How does the instruction sequence **07**
MVI A, 07H
RLC
MOV B, A
RLC
RLC
ADD B
Use the values stored in registers A and B to execute a specific mathematical function in an assembly language program?

Q.5 **(a)** Differentiate 80286 with 80386 microprocessor. **03**
(b) Describe the importance of bus interface unit (BIU) and execution unit (EU) the 8086 microprocessor. **04**
(c) Draw and explain internal architecture and PIN diagram of 8086 microprocessor. **07**

OR

Q.5 **(a)** Differentiate between the real mode and protected mode of the 80286 microprocessor. **03**
(b) How the physical addresses are calculated from segment register in 8086 microprocessor? **04**
(c) Describe the architecture of the 80286 with a neat block diagram. **07**

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