Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2015

Subject Code: 2140304 **Date:28/05/2015**

Subject Name: Microprocessor and its Interfacing

Time: 10:30am-1.00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	State the function of following instructions. (1) LHLD 16-bit (2) PUSH PSW (3) XRA A (4) RRC (5) XCHG (6) XTHL (7) PCHL (8) STC	**07**
	(b)	Explain how address/data lines AD0-AD7 are demultiplexed. Draw logic diagram to generate control signals MEMW, MEMR, IOW and IOR from IO/M, WR and RD.	**07**
Q.2	**(a)**	Draw the programming model of 8085 processor and explain working of 8085 in detail.	**07**
	(b)	Draw the timing diagram of the instruction LDA 3050H. Find out the execution time of the LDA instruction if processor speed is 3 MHz.	**07**
		OR	
	(b)	How does microprocessor differentiate between an opcode and data? Explain the same with the timing diagram for fetch and execution cycle.	**07**
Q.3	**(a)**	What is interrupt? List the interrupts available in 8085 Microprocessor and explain in brief. Also discuss the function of SIM and RIM instructions.	**07**
	(b)	Draw the diagram for interfacing 8KB of ROM and 8KB of RAM with microprocessor 8085. How much number of pins is used for such interfacing? The starting address for ROM should be 0000H and starting address for RAM should be 8000H	**07**
		OR	
Q.3	**(a)**	What is absolute decoding? Discuss memory mapped I/O and I/O mapped I/O.	**07**
	(b)	Write a program to initiate ADC and to store the digital data in memory.	**07**
Q.4	**(a)**	An 8-bit binary number is stored in memory location 3050H. Write a program to convert the number into ASCII code and save the result in memory.	**07**
	(b)	Write an ALP for 8085 to find the square of the numbers from 0 to 9 using a Table of Square.	**07**
		OR	
Q.4	**(a)**	The following block of data is stored in memory locations from 2055H to 205AH. Transfer the data to the location 3080H to 3085H in the reverse order. [Data(H) 33,B5,A2,99,FE,17].	**07**

	(b)	Interface 8255 with 8085 microprocessor and connect DIP switches to port A and LEDs to port B of 8255. Write an assembly language program to read the DIP switches connected to port A and display its status on corresponding LEDs connected to Port B of 8255.	**07**
Q.5	**(a)**	What is the function of Programmable Timer Counter IC? Explain its control word format and different modes of working.	**07**
	(b)	Write a short note on parallel communication protocols.	**07**

OR

Q.5	**(a)**	Draw the internal diagram and explain working of Programmable Interrupt controller IC.	**07**
	(b)	Discuss serial communication protocols in detail.	**07**

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