Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem - IV Examination - June- 2011

Subject code: 140701

Subject Name: Microprocessor and Interfacing

Date:06/06/2011 **Time: 10.30 am – 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.**

Q.1 **(a)** List and Explain categories of 8085 instructions that manipulate data. **07**

(b) A set of current readings is stored in memory locations starting at XX50H. The end of the data string is indicated by the data byte 00H. Add the set of readings. The answer may be larger than FFH. Display the entire sum at PORT1 and PORT2 or store the answer in the memory locations XX70 and XX71H. [Data(H) 32,52,F2,C5,00] **07**

Q.2 **(a)** Using diagram illustrate logic pin out of the 8085 Microprocessor. **07**

(b) Explain the timing diagram of the memory write cycle **07**

OR

(b) Illustrate the steps and the timing of data flow when the instruction code 0100 1111 (4FH –MOV C,A), stored in location 2005H, is being fetched. **07**

Q.3 **(a)** A set of three packed BCD numbers (six digits) representing time and temperature are stored in memory locations starting at XX50H. The seven segment codes of the digit 0 to 9 for a common-cathode LED are stored in memory locations starting at XX70H, and the output-buffer memory is reserved at XX90H. Write a main program and two subroutines, called UNPACK and LEDCOD to unpack the BCD numbers and select an appropriate seven segment code for each digit. The code should be stored in the out put buffer memory. **07**

(b) The following block of data is stored in memory locations from XX55H to XX5AH. Transfer the data to the location XX80H to XX85H in the reverse order. [Data(H) 22,A5,B2,99,FF,37] **07**

OR

Q.3 **(a)** Design a down-counter to count from 99 to 0 in BCD with 500 ms delay between each count. Display the count at an output port. **07**

(b) Write a program to sort the following set of marks scored by ten students in a database course in descending order. [Data(H) 63,41,56,62,48,5A,4F,4C,56,56] **07**

Q.4 **(a)** Explain how the 8237 DMA controller transfer 64K bytes of data per channel. **07**

(b) Illustrate designing a square wave generator using the 8155 timer [Assume necessary required data] **07**

OR

Q.4 **(a)** List major components of the 8259A interrupt controller and explain their functions. **07**

(b) Draw logic block diagram of the 8279 and explain major section of it. **07**

Q.5	**(a)**	Discuss about the 8259A	**07**
	(b)	Write a program to generate a continuous square wave with the period of 500 micro Second. Assume the system clock period is 325 ns. And use bit D0 to output the square wave.	**07**

OR

Q.5	**(a)**	Discuss about the 8155	**07**
	(b)	Write a program to generate a rectangular wave with a 200 micro Second on period and 400 Micro Second off period.	**07**

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