Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–III EXAMINATION – SUMMER 2016

Subject Code:X31103 **Date:01/06/2016**

Subject Name:Microcontroller And Interfacing

Time:02:30 PM to 05:00 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 main features of 8051 Microcontroller. Also give difference between 8051 and 8052 Microcontroller. **07**

(b) Answer following question in short. **07**

[1] Explain function of EA pin.

[2] List any 4 SFR used for 8051 microcontroller with full name and internal RAM address.

[3] What is the function of ALE signal?

[4] Define Embedded system.

[5] Draw bit format for control word of TMOD register.

[6] Draw Internal RAM structure for 8051 Microcontroller.

[7] Draw port configuration circuit for port 3 of 8051 Microcontroller.

Q.2 **(a)** Draw and explain programming model for 8051 Microcontroller. **07**

(b) List different addressing modes of 8051 Microcontroller. Explain each with one suitable example. **07**

OR

(b) Write an assembly language program to sort block of 10 data stored from 2000H memory location in descending order for 8051 Microcontroller. **07**

Q.3 **(a)** Explain different serial data transmission modes for 8051 Microcontroller. **07**

(b) Explain different Timer modes of 8051 Microcontroller. **07**

OR

Q.3 **(a)** Write an 8051 C language program to generate frequency of 2500 Hz on pin 2.7 using timer 1 mode 2. **07**

(b) Discuss interfacing of external 4K EPROM and 4K RAM with 8051 Microcontroller. **07**

Q.4 **(a)** Write a program for 8051 Microcontroller to transfer "Health is Wealth " serially at 9600 baud rate, 8 bit data, and 1 stop bit. Do this continually. **07**

(b) Write a C language program to display "May 2014" on LCD. **07**

OR

Q.4 **(a)** Explain interfacing diagram of stepper motor with 8051 Microcontroller. Write a program to rotate stepper motor in anticlockwise direction continuously in half step mode. **07**

Q.4 **(b)** Explain RTC interfacing with 8051 Microcontroller. Write program to get values of hour, minute and second from RTC to RAM location 31h, 32h and 33h respectively. **07**

Q.5 **(a)** Explain interfacing of ADC with 8051 Microcontroller. **07**

(b) Explain interfacing of DAC with 8051 Microcontroller. Write program to generate triangular wave at the output of DAC. **07**

OR

Q.5	**(a)**	Define interrupt and polling. Give difference between them.	**07**
	(b)	Explain interfacing of DC motor using PWM method with 8051 Microcontroller.	**07**

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