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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (OLD) EXAMINATION – WINTER 2018

Subject Code:151001   **Date: 07/12/2018**
Subject Name: Microcontroller 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.**

Q.1	**(a)**	1) Explain difference between microprocessor and microcontroller. 2) List selection criteria of microcontroller for an application.	**07**
	(b)	Write operation of the following instructions 1] SWAP A [2] MOVX A,@DPTR [3] DIV AB [4] RR A [5] XCHD A,R1 [6] MOVC A,@A+DPTR 7) MOV A,30H	**07**
Q.2	**(a)**	List different addressing modes of programing instruction of 8051 microprocessor. Also explain them with a suitable example.	**07**
	(b)	Write a Assembly program to multiply two 16-bit numbers for 8051 controller.	**07**
		OR	
	(b)	Write a program to transfer block of 10 data from internal memory locations to External memory locations for 8051 controller.	**07**

Q.3	**(a)**	A switch is connected to P1.7. Write a program to check the status of switch and perform the following.
		      1. if switch = 0, send letter "N" to P2.
		      2. if switch = 1, send letter "Y" to P2.
			07

	(b)	Write difference between ACALL and LCALL instruction with example.	**07**
		OR	
Q.3	**(a)**	20 bytes are stored in memory location starting from address 100H. Write a program to count the number of even, odd and zero number.	**07**
	(b)	Explain difference between polling and interrupt. List types of interrupts and also give its priority for execution.	**07**
Q.4	**(a)**	Describe TMOD and TCON Special Function registers.	**07**
	(b)	Explain Serial Communication. How it will perform using 8051/52 Controller with PC? Explain it with program and diagram.	**07**
		OR	
Q.4	**(a)**	Write an 8051 C program to generate 5 KHz pulse waveform of 50% duty cycle on pin 1.0 using timer-1 in mode-2.	**07**
	(b)	Write a C program to transfer the message "Gujarat Technological University" serially at 9600 baud, 8-bit data, 1 stop bit. Perform this program for 255 times.	**07**
Q.5	**(a)**	Draw and explain interfacing of 4K bytes External RAM and 16K bytes of ROM with 8051 microcontroller.	**07**
	(b)	Explain interacting of 8 bit ADC with 8051.	**07**
		OR	
Q.5	**(a)**	Draw interface of LCD with 8051. Also write a program to display "Happy" on the first line and "Diwali" on the second line of the LCD.	**07**
	(b)	Draw and explain interfacing of RTC with 8051 microcontroller.	**07**

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1