Seat No.:	Enrolment No.
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GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 172001 Date: 26/12/2012			
Su	bjec	t Name: Microcontrollers and Embedded Systems	
Ti	me:	10.30 am – 01.00 pm Total Marks: 70	
In	stru	ctions:	
		. Attempt any five questions.	
	2		
	3	. Figures to the right indicate full marks.	
Q.1	(a)	Draw and explain memory organization in PIC18F452.	07
V.1	(b)	Explain bit configuration of SFRs INTCON, INTCON2 and INTCON3 in PIC	07
	` '	controller.	
Q.2	(a)	Explain the working of stepper motor. Also explain 4-step and 8-step sequence.	07
	(1.)	What is step angle?	0 =
	(b)	Interface temperature sensor LM35 with 8051. OR	07
	(b)	Interface any multi-channel ADC with 8051.	07
	(D)	interface any mutu-channel ADC with 6031.	U/
Q.3	(a)	Write a C program using interrupts to continuously get data from P2.4 and send it	07
	, ,	to P2.5 while simultaneously creating 5kHz wave on P2.7 and transmitting letter	
		'Y' at 4800baud. XTAL= 11.0592MHz.	
	(b)	Write 8051 C programs for following:	07
	(,-)	(i) Convert FFh into its decimal value and display digits on P0,P1 & P2	
		(ii) Convert ASCII digits of '3' and '7' to packed BCD and display them on P1.	
		OR	
Q.3	(a)	Write a C program to toggle all bits of Port P1 continuously every 500ms. Use	07
	(b)	timer1 in mode1. XTAL= 11.0592MHz.	07
	(b)	A switch is connected to P2.7. Write a C program to transmit data 'ACK' if SW=0; and 'NACK' if SW=1 at 9600baud.	07
		XTAL= 11.0592MHz.	
Q.4	(a)	Explain PIC18f stack and stack pointer. Explain with example use of PUSH and	07
		POP instructions.	
	(b)	Explain bit configuration of TMOD and TCON registers.	07
0.4	(-)	OR Explain functions of DODTA and DODTB of DIC196452	07
Q.4	(a) (b)	Explain functions of PORTA and PORTB of PIC18f452. Draw and explain the connection of 8051 to RS232.	07 07
	(D)	Draw and explain the connection of 8031 to K3232.	U/
Q.5	(a)	Write a program to find average of marks of 8 students stored at memory locations	07
	` '	starting from 30H in data memory of PIC controller.	
	(b)	Write instructions to set up INT1 as high priority interrupt and set up a counter to	07
		count till 15and reset the counter again. Increment count on falling edge in	
		PIC18F452.	
0.5	(a)	OR Write a program to convert an 8-bit number stored in WREG into its ASCII. Send	07
Q.5	(a)	one ASCII value to PORTB and another to PORTC.	U/
	(b)	Write a program to copy an array from program memory to data memory of	07
	. /	PIC18F452.	
