Seat No.:	Enrolment No.

Subject Code: 172001

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII • EXAMINATION - WINTER 2013

Date: 26-11-2013

T	'ime: 10	Attempt all questions. Make suitable assumptions wherever necessary.	
Q.1	(a) (b)	Define embedded systems with examples. Differentiate between Von-neuman & Harvard architecture with figure. State the bit wise operators in C. Draw and explain the programming model of PIC18F452.	07 07
Q.2		Explain bidirectional control of DC motor using H-bridge circuit in detail. Explain the bit configuration of INTCON & T0CON SFRs of PIC18F452. OR	07 07
	(b)	Explain bit configuration of PIR1 & T1CON SFRs of PIC18F452.	07
Q.3	(a) (b)	Interface a single channel ADC with AT89C51. Explain the bit manipulation instructions in PIC18F452. OR	07 07
Q.3	(a) (b)	Interface a generalized LCD with AT89C51. Explain the instructions related to stack & subroutines in PIC18F452.	07 07
Q.4	(a) (b)	Write a C program to transmit following data serially at maximum baud rate possible. A switch (SW) is connected to P2.4. If SW=0 transmit "Jelly bean" & SW=1; transmit "KitKat" Write 8051 C programs for the following: i.) to find checksum for the code bytes 0x41,0x3C,0x55,0x7A. ii.) to unpack a BCD byte & send complimented values of LSB to port P1 & MSB to port P2. Write the output P1=,P2=	07
Q.4	(a)	Write a C program to generate two different frequencies based upon switch positions. SW=0; 4kHz on P2.3 & SW=1; 7.5kHz on P2.4. SW is connected to P2.2. XTAL = 12MHz. Use timer1 mode2.	07
	(b)	Write 8051 C programs for the following: i.) to send ASCII values of hex data 0x01,0x02,0x0A,0x0B to port P2. ii.) to send out the value 44H serially one bit at a time via P1.0. The LSB should go out first.	07
Q.5	(a)	Write a program to add an array of 10 numbers starting from address 0x50 and save LSB & MSB of the sum in file registers.	07
	(b)	Write instructions to set up INT1 as high priority interrupt & set up a counter to count first 10 interrupts. Increment count on rising edge in PIC18F452. OR	07
Q.5	(a)	Write a subroutine to set up timer1 in 16 bit mode with internal clock at 10MHz to generate 200ms delay.	07
	(b)	Write an assembly program to copy an array of 5 bytes from program memory 0x02000 to data registers staring from address 0x20. ***********************************	07