Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (OLD) - EXAMINATION - SUMMER 2017

Su Ti	ibjec me: (structi 1 2	t Code: 172001 t Name: Microcontrollers and Embedded Systems 22:30 PM to 05:00 PM Total Marks: Ons: Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a) (b)	Explain the programming model of PIC18F microcontroller. Draw internal structure of PORTB of PIC18f452 & explain all its pin functions.	07 07
Q.2	(a)	Draw & explain working of H-bridge circuit for DC motor interfacing with 8051.	07
	(b)	Write an assembly language program for 8051 to transmit string "Embedded Systems" at 9.6kbps. Crystal frequency =11.0592MHz.	07
	(b)	Write an assembly language program for 8051 to generate square wave on P1.7 continuously using Auto Reload mode. Crystal frequency =12MHz.	07
Q.3	(a)	Interface Stepper motor with 8051 and explain the working of it. Also explain	07
	(b)	4-step and 8-step sequence. Discuss the step angle. Explain bit configuration of PIR1 & T1CON SFRs of PIC18F452.	07
Q.3	(a) (b)	OR Draw and explain memory organization in PIC18F452. Interface 4x4 matrix keypad with 8051. Discuss De-bouncing problem of key	07 07
0.4	(a)	and its solution.	07
Q.4	(a)	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.	07
	(b)	Write an Assembly/C Program to Display "INDIA" centre of LCD using busy flag mode.	07
		OR	
Q.4	(a)	Write a program to copy an array from program memory to data memory of PIC18F452.	07
	(b)	Write 8051 C programs for the following: i.) to send ASCII values of hex data 0x01,0x02,0x06,0x09 to port P3. ii.) to find checksum for the code bytes 0x98,0x56,0x55,0x70.	03 04
Q.5	(a) (b)	Explain the Branching and Subroutine instructions of PIC18F microcontroller. Interface DAC with 8051.	07 07
Q.5	(a) (b)	OR Explain the bit manipulation instructions in PIC18F452. Interface Multichannel ADC with 8051.	07 07
