## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER - VI EXAMINATION - WINTER 2015** 

Su	bject	Code:162402 Date:17 /12/ 2015	
Su	bject	Name: MICROCONTROLLERS FOR POWER ELECTRONICS	
Time:2:30pm to 5:00pm Total Marks: 70 Instructions:			
		Attempt all questions.  Make suitable assumptions wherever necessary.  Figures to the right indicate full marks.	
Q.1	(a) (b)	Draw and explain Block diagram of microcontroller. Write an assembly language program to perform addition of two 16-bit numbers using 8051 instruction set.	07 07
Q.2	(a) (b)	Explain PSW(Program Status Word) register. Explain RAM(Random Access Memory) memory space allocation in the 8051 microcontroller.	07 07
	<b>(b)</b>	<b>OR</b> Write an assembly language program to (i) Load the accumulator with the value 55H and (ii) Complement ACC 700 times using 8051 instruction set.	07
Q.3	(a) (b)	Draw and explain architectures of 8051 microcontroller.  Draw and explain PIN diagram of 8051 microcontroller.  OR	07 07
Q.3	(a) (b)	Explain Logic and Boolean variable manipulation instructions.  Explain assembler directives with suitable examples.	07 07
Q.4	(a) (b)	Explain priority of Interrupts. Explain TMOD (Timer Mode) register.	07 07
Q.4	(a) (b)	OR Explain handling of subroutines. Explain basic of serial communication.	07 07
Q.5	(a) (b)	Write an 8051 C program to send values 00-FF to port P1. Write an 8051 C program to toggle all the bits of port P1 continuously.  OR	07 07
Q.5	(a) (b)	Explain 8051 microcontroller interface with an LCD. Write short notes on RS-232C.	07 07

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