Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B E Sem-VI Examination May 2011

Subject code:162402

Subject Name: Microprocessor for Power Electronics

Date:17/05/2011 **Time: 10.30 am – 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)**	Draw the architecture for 8051 microcontroller and explain each block in detail.	**07**
	(b)	Explain various addressing modes of 8051 microcontroller with examples.	**07**
Q.2	**(a)**	Explain 8051 data types and assembler directives with examples.	**07**
	(b)	Explain TMOD register & mode 0 operation of 8051 microcontroller timer.	**07**
		OR	
	(b)	What is the difference between ACALL & LCALL instructions. Describe the effect of these instructions on stack and stack pointer.	**07**
Q.3	**(a)**	Write an assembly language program to blink an LED connected to P0.0. Provide time delay by loop inside loop technique.	**07**
	(b)	Explain different data types in 8051 C.	**07**
		OR	
Q.3	**(a)**	Explain Logical instructions with examples.	**07**
	(b)	How to interface a 4 x 4 key board with 8051. Give primitive hardware connection sketch and flow chart describing the programming logic.	**07**
Q.4	**(a)**	Make a comparative table of microprocessor & micro controller.	**07**
	(b)	Write an 8051 C program to monitor bit P1.5. If it is high, send 55h to P0; otherwise, send AAh to P2.	**07**
		OR	
Q.4	**(a)**	Explain function of PSW, PC,SP & DPTR registers.	**07**
	(b)	Write an assembly language program to compute $\sum 10$ & send the result at Port 0.	**07**
Q.5	**(a)**	Explain a scheme to display 0 to 9 on a seven segment display connected to Port 1 of 8051 & give assembly language program.	**07**
	(b)	What is a subroutine and how it works.	**07**
		OR	
Q.5	**(a)**	Explain different types of memories used for code and data storage.	**07**
	(b)	Explain different branching instructions with example.	**07**

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