Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) - EXAMINATION – SUMMER 2017

Subject Code:2152409 **Date:03/05/2017**

Subject Name: Microcontroller for Power Electronics

Time:02:30 PM to 05:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1		**Short Questions**	**14**
	1	8085 Microprocessor is _____ bit processor.	
	2	Which two buses are multiplexed in 8085 microprocessor ?	
	3	Which SFR of 8051 is not having any address ?	
	4	Which register bank is default register bank?	
	5	What is the content of SP SFR on reset?	
	6	Assembler converts source file into _____ file.	
	7	Correct the instruction MOV A,@DPTR.	
	8	Correct instruction MOV R3,#200h as per 8051?	
	9	How much ROM size generally 8051 have?	
	10	What is the extension of source file created?	
	11	LJMP is _____ byte instruction.	
	12	What would be the content of accumulator register after execu Execution XRL A,A	
	13	What is the effect of a SJMP $?	
	14	Which header file is to be added for embedded C program. Programming?	
Q.2	**(a)**	Give comparison of microprocessor and microcontroller.	**03**
	(b)	Draw neat architecture of 8085A microprocessor.	**04**
	(c)	Draw and explain RAM and ROM organization of 8051 microcontroller.	**07**
		OR	
	(c)	Why delay are required during programming and how they are generated ?	**07**
Q.3	**(a)**	Define bits of SCON & TCON registers.	**03**
	(b)	Explain any two logical instructions of 8051 with example.	**04**
	(c)	Describe various addressing modes of 8051 microcontroller.	**07**
		OR	
Q.3	**(a)**	Write short note on assembler directives.	**03**
	(b)	Explain any two branching instruction of 8051 with example.	**04**
	(c)	Draw output stage hardware diagram for the port 1 and port 3 pin. Also state how they are different. If a port pin is to be initialized as output, what step should be taken before outputting the data on that pin?	**07**
Q.4	**(a)**	Define memory mapped I/O and I/O mapped I/O.	**03**
	(b)	Explain I/O read-write machine cycle of 8051 microcontroller.	**04**
	(c)	Give complete scheme to interface an ADC to 8051 microcontroller with suitable diagrams and algorithm.	**07**
		OR	

Q.4	**(a)**	Explain bits of PSW SFR.	**03**
	(b)	Explain 8051 timer registers and also explain mode 0 operation.	**04**
	(c)	Give complete scheme to interface common anode 7-segment LED display with 8051 microcontroller.	**07**
Q.5	**(a)**	List any six bit addressable SFRs.	**03**
	(b)	Write an embedded C program to generate a square wave of 25% duty cycle on any port pin.	**04**
	(c)	What is interrupt? Explain external interrupt with related SFRs.	**07**

OR

Q.5	**(a)**	Explain the execution of PUSH instruction with respect to stack operations.	**03**
	(b)	What is key de-bounce issue and what are the solutions to avoid that?	**04**
	(c)	Explain timer interrupt with related SFRs.	**07**

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