Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (OLD) • EXAMINATION – WINTER 2017

Subject Code: 162002 Date: 20-11-2017

Subject Name: Micro Processors and Microcontrollers

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.**

Q.1	**(a)**	1.What is the internal RAM and ROM memory size of 8051 Microcontroller? 2. Which instruction can only do data transfer from I/O to external data memory of 8051 Microcontroller? 3. What is the size of address and data bus of 8085 Microprocessor?	**07**
	(b)	Explain the functionality of ALE, TRAP, SOD and X1 & X2 pin of 8085 Microprocessor.	**07**
Q.2	**(a)**	What is the function of Accumulator?Explain the flag register of 8085 Microprocessor.	**07**
	(b)	Explain DAA, DAD, MVI and HLT instructions of 8085 Microprocessor with example.	**07**
		OR	
	(b)	List out the features of 8051 Microcontroller and discuss any embedded application with respect to your answer.	**07**
Q.3	**(a)**	Write an 8085 assembly language program to multiply two 8-bit numbers stored at3000H and 3001H and store the answerat 4000H onwards.	**07**
	(b)	Write an 8085 assembly language programs to subtract an 8 bit stored at 4151H from an 8 bit stored at 4151H using 2's complement method, store the answer at 4153H onwards.	**07**
		OR	
Q.3	**(a)**	Write an assembly language program for 8085 to generate delay 0f 10ms (assume 0.333us clock cycle)	**07**
	(b)	Write an assembly language program in 8051 to convertan 8-bit binary number stored in external memory to BCD number and store your answer to successive external memory location.	**07**
Q.4	**(a)**	When the micro controller executes some arithmetical or logical operations, then the bits of which register are affected? Explain your answer with examples.	**07**
	(b)	Illustrate the internalRAM memory organization of 8051 Microcontroller.	**07**
		OR	
Q.4	**(a)**	Explain the interrupts of 8051 Microcontroller.	**07**
	(b)	Explain*CPL P1.1*,*CLR P1.2*, *ANL C,1* and *ORL A,Rn* for 8051 Microcontroller.	**07**
Q.5	**(a)**	What is Special Function Registers? Explain any three in detail.	**07**
	(b)	Store 01H, 02H, 03H and 04H in register R0, R1, R2 andR3 respectively and exchange data stored in Reg. R0 with R1 and data in Reg. R2 with R3.	**07**
		OR	
Q.5	**(a)**	Draw explain the architecture of the 8051 Microcontroller.	**07**
	(b)	Write a program to toggle the PORT1 LEDs of 8051 Microcontroller.	**07**

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