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

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2152409 Date:02/05/2018

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	**(a)**	Draw only internal structure of 128 bytes RAM in 8051 microcontroller.	**03**
	(b)	Draw Program Status Word register used in 8051 microcontroller & discuss each bit in brief.	**04**
	(c)	Give complete scheme to interface an ADC to 8051 microcontroller with suitable diagrams and algorithm.	**07**
Q.2	**(a)**	Discuss (1) EEPROM (2) DRAM	**03**
	(b)	Compare 8051 microcontroller with 8085 microprocessor.	**04**
	(c)	Explain architecture of 8085 microprocessor in details.	**07**
		OR	
	(c)	Discuss DMA in 8085 with necessary diagrams.	**07**
Q.3	**(a)**	Draw only timing diagram for memory read cycle.	**03**
	(b)	Define (1) op-code (2) operand	**04**
	(c)	Write a program for Toggle the LEDs ON and OFF (Blinking LEDs) that are connected to PORT1 of the 8051 Microcontroller.	**07**
		OR	
Q.3	**(a)**	Draw only timing diagram for memory write cycle.	**03**
	(b)	Define machine cycle & its importance in 8051 microcontroller.	**04**
	(c)	Define (1) ORG (2) EQU (3) END directives used in 8051 microcontroller.	**07**
Q.4	**(a)**	Define the term Subroutines in accordance with 8051 microcontroller.	**03**
	(b)	Compare vectored & non-vectored interrupts for 8051 microcontroller.	**04**
	(c)	Give complete scheme to interface common anode 7-segment LED display with 8051 microcontroller.	**07**
		OR	
Q.4	**(a)**	Classify addressing modes of 8051 microcontroller.	**03**
	(b)	Define (1) Latency time (2) Response time	**04**
	(c)	Explain interfacing of 8051 with External ROM.	**07**
Q.5	**(a)**	Discuss (1) TMOD (2) TCON in 8051 microcontroller.	**03**
	(b)	What is interrupt? Which are the various interrupt sources available in 8051 microcontroller?	**04**
	(c)	Draw internal architecture of 8051 microcontroller. Discuss function of each block in detail.	**07**
		OR	
Q.5	**(a)**	Discuss (1) IE (2) IP in 8051 microcontroller.	**03**
	(b)	State vector locations of interrupts associated with 8051 microcontroller.	**04**
	(c)	Describe interrupt acknowledge machine cycle operation with necessary diagrams.	**07**

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