GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2018

Subject Code:2152409   **Date:20/11/2018**
Subject Name:Microcontroller for Power Electronics
Time: 10:30 AM TO 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)**	Explain the bits of PSW register of 8051.	**03**
	(b)	Explain role of microcontroller for power electronics converters.	**04**
	(c)	Explain various addressing modes of 8051 microcontroller with any instruction.	**07**
Q.2	**(a)**	What is multiplexing of data/address bus.	**03**
	(b)	Draw RAM organization of 8051 microcontroller describing general purpose and special function register area.	**04**
	(c)	Give comparison of microcontroller and microprocessor.	**07**
		OR	
	(c)	Explain MVI A,#05h machine cycle for 8085 microprocessor.	**07**
Q.3	**(a)**	Define bits of IE register of 8051 microcontroller.	**03**
	(b)	What is software delay? Where it is necessary?	**04**
	(c)	Draw and explain internal architecture of 8085 microprocessor.	**07**
		OR	
Q.3	**(a)**	What is interrupt vector table ?	**03**
	(b)	Generate 100 microsecond delay by assembly language program assuming each instruction used being of 1 machine cycle. Take crystal frequency of 12 Mhz.	**04**
	(c)	Explain interfacing of LCD display with 8051 microcontroller.	**07**
Q.4	**(a)**	Draw pin diagram of 8051 microcontroller.	**03**
	(b)	Define instruction cycle, machine cycle & T-state.	**04**
	(c)	Explain interfacing of 7-segment display with 8051 microcontroller without 7447 decoder driver.	**07**
		OR	
Q.4	**(a)**	List 3-byte instructions of 8051 instruction set.	**03**
	(b)	In a semester, a student has to take six subjects. The marks of the midsem exam of a student are stored in RAM locations 47H onwards. Write assembly language program to find the average marks and output it on port 1.	**04**
	(c)	Explain interfacing of 7-segment display with 8051 microcontroller with 7447 decoder driver.	**07**
Q.5	**(a)**	List and define branching instructions of 8051 instruction set.	**03**
	(b)	Explain any two arithmetic instruction of 8051 microcontroller.	**04**
	(c)	Draw architecture of 8085 microprocessor and explain its registers.	**07**
		OR	
Q.5	**(a)**	What is interrupt? Give general steps for attending any interrupt.	**03**
	(b)	Explain any two logical instructions of 8051 microcontroller.	**04**
	(c)	Explain timer of 8051 microcontroller. Explain mode 2 operation of timer.	**07**