Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2172407 **Date: 26/11/2019**

Subject Name: Embedded Systems 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. **Write only required answer. Avoid writing irrelevant and unnecessary too long answers.**
4. **Figures to the right indicate full marks.**

Q.1	**(a)**	What are different ways to represent number in DSP?	**03**
	(b)	What is Q31? Explain it in brief.	**04**
	(c)	State merits of DSP System?	**07**
Q.2	**(a)**	What is addressing mode? State addressing modes.	**03**
	(b)	Explain any two addressing modes.	**04**
	(c)	What is data path? What are the differences between fixed point data path and floating-point data path?	**07**
		OR	
	(c)	With examples explain meaning of overflow, underflow and rounding in floating point arithmetic.	**07**
Q.3	**(a)**	What is Interlocking?	**03**
	(b)	Justify requirement of interlocking in DSP systems.	**04**
	(c)	Describe (1) Orthogonality (2) Hardware looping	**07**
		OR	
Q.3	**(a)**	Define wait state.	**03**
	(b)	What are the requirements of wait states?	**04**
	(c)	What are the operations associated with pipeline while handling the interrupt request? Describe.	**07**
Q.4	**(a)**	What are parallel I/O ports and Bit I/O ports?	**03**
	(b)	Explain differences between parallel I/O ports and Bit I/O ports.	**04**
	(c)	Explain why Serial ports are used in DSP chips?	**07**
		OR	
Q.4	**(a)**	Explain meaning of debugging of a system in brief.	**03**
	(b)	Explain the features of scan-based emulation.	**04**
	(c)	“Timers are important part of the DSP systems.” Justify.	**07**
Q.5	**(a)**	What is IDE? Name any one IDE.	**03**
	(b)	Explain how CCS can be used for application development.	**04**
	(c)	What is In Circuit Emulator? Explain how it can be used in hardware development.	**07**
		OR	
Q.5	**(a)**	What is meaning of multitasking environment?	**03**
	(b)	What is difference between RTOS and any general-purpose Operating System (like Windows)?	**04**
	(c)	State various on chip peripherals used in standalone DSP based embedded system for Power Electronics applications. Explain any one.	**07**

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