Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– V EXAMINATION – SUMMER 2016

Subject Code: 2650012 **Date:13/05/2016**

Subject Name : Software Development for Embedded System (SD-ES)

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 general software design flow and tools for embedded system.	**07**
	(b)	What is Instruction Set Simulators? What does it simulate? What are the abilities and shortcomings of Simulators?	**07**
Q.2	**(a)**	What are different methods of getting the image of the target software (for embedded systems) into the target system? Explain these methods.	**07**
	(b)	What do you mean by integrated chip (IC)? What do you mean by IC technology? In this context briefly explain and exemplify the different design styles involved in IC design technology.	**07**
		OR	
	(b)	Discuss design of digital camera using 8051 Microcontroller, CCD Preprocessor and Software technique to reduce DCT computation.	**07**
Q.3	**(a)**	What is memory hierarchy? How does the cache operate? Discuss the cache mapping techniques. List their merits and demerits.	**07**
	(b)	Describe the working of a PWM with waveforms and example.	**07**
		OR	
Q.3	**(a)**	Explain Direct Memory Access Microprocessor Interfacing.	**07**
	(b)	Briefly explain Basic DRAM architecture and FPM DRAM.	**07**
Q.4	**(a)**	What is Application-Specific Instruction-Set Processor (ASIP)? Describe briefly (i) Microcontrollers and (ii) Digital Signal Processors (DSPs), which are two major types of ASIPs. What are the selection criteria for a microprocessor?	**07**
	(b)	Write note of priority arbiter, daisy-chain arbitration and network-oriented arbitration methods.	**07**
		OR	
Q.4	**(a)**	Explain Datapath, Control Unit, and two memory architectures of General-Purpose Processor.	**07**
	(b)	Discuss OVERFLOW.C, LEVELS.C and DBGMAIN.C modules for Tank Monitoring System.	**07**
Q.5	**(a)**	Explain CAN, PCI Bus and IrDA.	**07**
	(b)	Write an efficient algorithm for finding the GCD of two integer numbers. Also explain how the FSMD for this can be optimized.	**07**
		OR	
Q.5	**(a)**	Define design metrics. Briefly discuss common design metrics of ES.	**07**
	(b)	Briefly describe RT-Level Sequential Components and Sequential Logic Design.	**07**

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