Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–V • EXAMINATION – WINTER 2015

Subject Code:650012 **Date:10/12/2015**

Subject Name: Software Development for Embedded Systems

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 characteristics and common design metrics of an embedded system.	**07**
	(b)	Define Processor. Describe different Register Transfer Level Combinational Components with diagram.	**07**
Q.2	**(a)**	What do you mean by integrated chip (IC)? What do you mean by IC technology? Explain different IC technology.	**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	
	(b)	Explain in brief about Application Specific Instruction-Set Processors (ASIPs).	**07**
Q.3	**(a)**	Explain how UART is used for communication.	**07**
	(b)	What is memory hierarchy? How does the cache operate? Discuss the cache mapping techniques. List their merits and demerits.	**07**
		OR	
Q.3	**(a)**	Describe the working of an Analog-to-Digital converter with example.	**07**
	(b)	Explain Design flow and Tools under Development Environment for Embedded Software Development with diagram.	**07**
Q.4	**(a)**	Briefly explain Mask-Programmed ROM, EPROM, and NVRAM.	**07**
	(b)	Explain interrupt-driven I/O using vectored interrupt with figure.	**07**
		OR	
Q.4	**(a)**	What is multi – level bus architecture? Explain its need and also the reasons to improve the processor performance by this architecture.	**07**
	(b)	Write short note on Serial Protocols.	**07**
Q.5	**(a)**	Explain tool chain for building embedded software.	**07**
	(b)	List different laboratory tools for testing embedded system. Explain any one in detail.	**07**
		OR	
Q.5	**(a)**	Describe different methods of getting embedded software into the target system.	**07**
	(b)	What is Instruction Set Simulators? What does it simulate? What are the abilities and shortcomings of Simulators?	**07**

****