

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**
