

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER-V • EXAMINATION – SUMMER • 2014

Subject Code: 650012

Date: 02-06-2014

Subject Name: Software Development for Embedded Systems

Time: 10:30 am - 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) 1) What is a “market window” and why is it so important for products to reach the market early in this window? **03**
2) What are the different optimizing design metrics involved in designing an embedded system? How are they competing with one another? **04**
(b) 1) What is zero-bias error? Explain zero-bias adjustment process in digital camera. **03**
2) Define: Instruction-set Simulator, Debugger, Emulator, and Device Programmer. **04**
- Q.2** (a) What do you mean by Design Technology? In this context explain top-down design process and productivity improvers. **07**
(b) With the help of neat diagram, describe Multiplexor, Adder, m Function ALU combinational components of embedded system. **07**
- OR**
- (b) Draw FSM of single-purpose processor for GCD. **07**
- Q.3** (a) Explain in brief about Application Specific Instruction-Set Processors (ASIP). **07**
(b) Explain ADC (Analog to Digital Converter) with suitable example. **07**
- OR**
- Q.3** (a) Explain basic architecture of general purpose processor. **07**
(b) What do you mean by timer, counter, range, resolution and prescaler? Explain reaction timer. **07**
- Q.4** (a) Explain internal view of 4 X 4 RAM and 8 X 4 ROM with block diagram. **07**
(b) 1) Describe Daisy-Chain arbitration. **03**
2) Briefly describe I²C bus structure. **04**
- OR**
- Q.4** (a) 1) Write short note on cache write techniques. **03**
2) Briefly describe three replacement policies normally employed during cache memory operation. **04**
(b) Explain Microprocessor Interfacing using Interrupt-driven I/O. **07**
- Q.5** (a) Explain PROM programmers and ROM Emulators for getting embedded software into the target system. **07**
(b) 1) What are the objections of testing embedded system code on host systems? **04**
2) List abilities of Instruction Set Simulator. **03**
- OR**
- Q.5** (a) Describe tool chain for building embedded system. **07**
(b) List Laboratory tools. Describe software-only monitors. **07**
