

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-V • EXAMINATION – WINTER 2017

Subject Code: 650012

Date: 30/11/2017

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)** Explain the following terms **07**
1. Mythical man-month
 2. Market Window
 3. NRE Cost
 4. Design Gap
 5. UART
 6. Renaissance engineer
 7. Watchdog timer
- (b)** What is an embedded system? Why is it so hard to define? **07**
- Q.2 (a)** Explain Requirement Specification for Digital Camera also draw the block diagram for digital Camera **07**
- (b)** List and define the three main processor technologies. What are the benefits of using each of the three different processor technologies? **07**
- OR**
- (b)** Sketch the internal design of a 4×3 RAM.
- Q.3 (a)** For a particular product, you determine the NRE cost and unit cost to be the following for the three listed IC technologies: FPGA: (\$10,000, \$50); ASIC: \$50,000, \$10; VLSI: (\$200,000, \$5). Determine precise volumes for which each technology yields the lowest total cost. **07**
- (b)** List and define the three main IC technologies. What are the benefits of using each of the three different IC technologies? **07**
- Q.4 (a)** Briefly define each of the following: mask-programmed EPROM, EEPROM, flash EEPROM, SRAM, DRAM, PSRAM, and NVRAM. **07**
- (b)** Write short note on tool chain for building embedded software. **07**
- OR**
- (b)** Explain the Cache and cache mapping techniques. **07**
- Q.5 (a)** Short note on DMA for Microprocessor interfacing. **07**
- (b)** Compose $1K \times 8$ ROMs into a $1K \times 32$ ROM. **07**
- OR**
- Q.5 (a)** Discuss the advantages and disadvantages of using memory-mapped I/O versus standard I/O. **07**
- (b)** Write short note on tool chain for building embedded software. **07**
