

## ONE TIME EXIT SCHEME

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10EC74

**Seventh Semester B.E. Degree Examination, April 2018**  
**Embedded System Design**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting at least TWO questions from each part.**

**PART - A**

- 1 a. Write a note on embedded design and development process with neat flow chart and list down the steps involved. (10 Marks)
- b. Explain how information, numbers, addresses and instructions are understood and interpreted in an embedded system design process. (10 Marks)
- 2 a. Write a note on instruction set view of embedded system design with respect to types of instructions and addressing modes. (10 Marks)
- b. Write a note on RTN model for a microprocessor data path and memory interface with a neat block diagram and explain steps in instruction cycle. (10 Marks)
- 3 a. Explain DRAM memory system with neat block diagram. (10 Marks)
- b. Explain direct mapped implementation scheme for cache memory for a main memory with 128 M words, cache with 64 K words. Assume suitable page size, word size and block size. Show the address interpretation with different fields indicated. (10 Marks)
- 4 a. Compare 4 common life cycle models used in embedded system design with respect to advantages and disadvantages. (06 Marks)
- b. What is the difference between system specifications and system requirements with respect to characteristics? (06 Marks)
- c. Explain various steps of prototype implementation. (08 Marks)

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**PART - B**

- 5 a. Explain sharing the CPU in multitasking with respect to scheduling strategy and context. (10 Marks)
- b. Write a note on embedded operating system with respect to functions, services. (10 Marks)
- 6 a. Explain the use of task or process control block with respect to RTOS. (08 Marks)
- b. Explain how stack is associated with task or thread in embedded system. (08 Marks)
- c. Write data flow diagram for a scheduler to handle three jobs bring data, perform computation, display result. (04 Marks)
- 7 a. Write a note on performance and efficiency measures in embedded system design. (10 Marks)
- b. Explain methodology used in embedded system design. (10 Marks)
- 8 a. What are the various steps used in analyzing code in embedded system design? (10 Marks)
- b. What is importance of caches and performance in embedded system design? (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.