

ONE TIME EXIT SCHEME

USN

--	--	--	--	--	--	--	--	--	--

CMRIT LIBRARY
BANGALORE - 560 037

10TE765

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

Time: 3 hrs.

Max. Marks:100

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

PART - A

- 1 a. Explain the major elements of an embedded system design and development process with a suitable schematic. (08 Marks)
- b. With a block diagram, explain briefly the various components in a microprocessor based embedded system. (07 Marks)
- c. Write an explanatory note on finite state machine model. (05 Marks)
- 2 a. What are the various addressing modes in an instruction? Explain each with an example. (10 Marks)
- b. Draw and explain the architecture of the datapath and the memory interface for a simple microprocessor at the register transfer level. (10 Marks)
- 3 a. List and explain the various types of memory. (06 Marks)
- b. With a neat diagram, explain the design of a 4K × 16 SRAM system. (08 Marks)
- c. Draw the internal diagram of DRAM and write timing diagram for read and write operation. (06 Marks)
- 4 a. Briefly explain V cycle model and spiral model. (10 Marks)
- b. Explain system specification versus system requirements. (06 Marks)
- c. Enumerate the difference between functional model and architectural model. (04 Marks)

PART - B

- 5 a. What is a thread? Explain the different types of threads used in an operating system. (06 Marks)
- b. Explain Task Control Block (TCB). (06 Marks)
- c. Explain the different functions of embedded operating system. (08 Marks)
- 6 a. What is context switching? Describe the sequence of steps that are necessary to handle an occurrence of an interrupt. (06 Marks)
- b. Describe virtual model and high level model for OS architecture. (08 Marks)
- c. Explain three kinds of stack. (06 Marks)
- 7 a. Discuss the design of a memory map used in memory loading with an example. (07 Marks)
- b. Write 'C' functions to determine the sum of the elements in an array and analyze it line by line for its time complexity. (06 Marks)
- c. Explain the purpose of the complexity analysis by suggesting a suitable algorithm for that. (07 Marks)
- 8 a. What is time loading? Explain the primary methods used to compute the times. (08 Marks)
- b. Write short notes on the following:
 - (i) Tricks of the trade.
 - (ii) Performance optimization (12 Marks)

* * * * *
CMRIT LIBRARY
BANGALORE - 560 037

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.