



Seventh Semester B.E. Degree Examination, June/July 2024
Embedded Computing Systems

Time: 3 hrs.*

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Define embedded computing system. Explain the embedded system design process. (10 Marks)
- b. Explain the design process for GPS moving map. (10 Marks)
- 2 a. Explain the major data instructions in ARM. (10 Marks)
- b. Define interrupt. Explain interrupts in ARM7 and steps involved when responding to an interrupt ARM 99B. (10 Marks)
- 3 a. Explain the four cycle hand shake bus protocol. (04 Marks)
- b. With a neat diagram, explain the DMA controller. (08 Marks)
- c. Draw the UML state diagram for scan keyboard and explain the same. (08 Marks)
- 4 a. Explain different types of performance measures on programs. (06 Marks)
- b. Explain program generation from compilation through loading. (06 Marks)
- c. Explain different program optimization techniques. (08 Marks)

PART – B

- 5 a. Explain with a neat diagram basic components of an O.S. and their interfaces. (10 Marks)
- b. Explain the difference between GPOS and RTOS. (05 Marks)
- c. Explain the basic functions of real time Kernel. (05 Marks)
- 6 a. In a bus based system, how shared memory communication works? Explain in detail. (10 Marks)
- b. Explain in detail the operational working of the telephone answering machine. (10 Marks)
- 7 a. With a neat diagram, explain CAN frame format. (06 Marks)
- b. Explain the distributed embedded architecture. (06 Marks)
- c. With a neat diagram, explain various fields of IP packet. (08 Marks)
- 8 a. Define IDE. With a neat diagram, explain the embedded system development environment. (08 Marks)
- b. Explain the various details stored in an Object file, Map file, List file and Hex file generated during the process of cross compiling in embedded 'C' file. (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.