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10CS72

Seventh Semester B.E. Degree Examination, June/July 2019

Embedded Computing Systems

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting at least 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 format of ARM data processing instruction. (06 Marks)
- b. Differentiate between Von Neumann and Harvard architectures. (06 Marks)
- c. What is interrupt? With a neat diagram, explain the interrupt mechanism. (08 Marks)
- 3 a. Write the requirement chart of alarm clock. (06 Marks)
- b. Explain Bus with DMA controller. (06 Marks)
- c. Explain: (08 Marks)
 - i) Cross compiler
 - ii) Timer
 - iii) Logic analyzer
 - iv) Displays
- 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 the structure of process. (06 Marks)
- b. What are the factors to be considered for selection of scheduling algorithm? (06 Marks)
- c. What is RTOS? Explain the different services of RTOS. (08 Marks)
- 6 a. Explain L shaped usage distribution. (06 Marks)
- b. Explain: (06 Marks)
 - i) Message passing
 - ii) Counting semaphore
- c. With a neat sketch, explain shared memory communication. (08 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. What is monitor program based firmware debugging? (06 Marks)
- b. Explain the different types of files generated in cross compilation. (06 Marks)
- c. What is simulator? Explain the features, advantages and limitations of simulator based debugging. (08 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.