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Srinivas Institute of Technology
Library, Mangalore

10EC0118

M.Tech. Degree Examination, June/July 2011
Advanced Embedded System Design

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1
 - a. Explain the components of a typical embedded system, in detail. (10 Marks)
 - b. Differentiate between RISC and CISC. Give example for each. (06 Marks)
 - c. Write in brief, the two types of processor architectures available for processor design. (04 Marks)

- 2
 - a. What are the different types of memories used for program storage in embedded design? Explain them (10 Marks)
 - b. Explain in detail, any two wireless external communication interfaces. (10 Marks)

- 3
 - a. What is the different between DFG and CDFG model? Explain their significance in embedded design. (05 Marks)
 - b. Design an automatic Tea/Coffee vending machine based on FSM model where vending is initiated by user inserting a five rupee coin. After inserting the coin, user can either select coffee or tea or press cancel to cancel the order and take back the coin. (08 Marks)
 - c. What are UML diagrams? How are they grouped? Explain only the static diagrams of UML. (07 Marks)

- 4
 - a. Differentiate between "Super Loop" based and 'OS' based embedded firmware design. (05 Marks)
 - b. Explain the advantages of assembly language based development. (08 Marks)
 - c. With sketch, explain the conversion process of a high level language to machine language. (07 Marks)

- 5
 - a. What is monolithic and microkernel? Which one is widely used n RTOS? Why? (06 Marks)
 - b. Explain the task scheduling and also the various factors to be considered for selection of scheduling criterias. (10 Marks)
 - c. Where do we use non-preemptive scheduling? How does it work? (04 Marks)

- 6
 - a. Explain the round robin process scheduling, in detail. (08 Marks)
 - b. What is deadlock? What are the different conditions favoring deadlocks? (12 Marks)

- 7
 - a. List down the features of simulator based debugging and also the four advantages of simulator firmware debugging. (10 Marks)
 - b. Explain in detail, the boundary scan based hardware debugging, in detail. (10 Marks)

- 8
 - a. Explain the Java based embedded application development and the limitations of Java for embedded development. (10 Marks)
 - b. How does .Net CF help for embedded development? Explain. (05 Marks)
 - c. Discuss the bottlenecks faced by embedded industry. (05 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.

