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## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

First Semester, M. Tech - Electronics and Communication Engineering

(VLSI Design and Embedded System)

Semester End Examination; Jan/Feb. - 2016

Advanced Embedded System

Time: 3 hrs

Max. Marks: 100

*Note: Answer FIVE full questions, selecting ONE full question from each unit.*

### UNIT - I

- 1 a. Compare :
  - (i) SRAM and DRAM 10
  - (ii) RISC and CISC architectures
- b. With a block schematic, explain the various components/units used in an embedded system architecture. 10
- 2 a. Briefly explain any 5 characteristics and any 5 operational quality attributes. 10
- b. Explain the 5 non-operational quality attributes and PLC curve with a diagram. 10

### UNIT - II

- 3 a. With a diagram, explain FSM model for coin operated telephone system. How FSM differs from sequential program model? 10
- b. Distinguish between :
  - (i) DFG and CDFG 10
  - (ii) Structural and behavioral things with examples.
- 4 a. Explain the 2 approaches for the embedded firmware design with their merits/ demerits. 10
- b. With a block diagram, explain HLP based embedded system design for firmware with its advantages and disadvantages. 10

### UNIT - III

- 5 a. Distinguish between :
  - (i) Monolithic Kernel and Micro Kernel 10
  - (ii) Process and Thread
- b. With a state diagram, explain the task state transition and also the structure of a process and memory organization. 10
- 6 a. Describe FCFS scheduling with an example. Determine the performance factors. 10
- b. Explain :
  - (i) Task Synchronization 10
  - (ii) Device driver

**UNIT - IV**

- 7 a. Mention the various components and its functions in brief with a diagram for IDE for an embedded system. 10
- b. Describe list file and preprocessor output files generated during compilation. 10
- 8 a. Explain the MAP file and the HEX files generated during cross compilation. 10
- b. Describe :
  - (i) SIMULATOR and 10
  - (ii) Boundary SCAN Procedure.

**UNIT - V**

- 9 a. Describe waterfall model for EDLC. 10
- b. Explain the processer trends in Embedded System Design. 10
- 10 a. Describe spiral model for EDLC. Also, Mention the various phases of EDLC in a diagrammatic form. 10
- b. Explain the language trends in the software design for an embedded system. Mention the open standards for mobile industry. 10

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