


 U.S.N

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

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

(An Autonomous Institution affiliated to VTU, Belgaum)

First Semester, M. Tech - VLSI Design and Embedded System (MECE)

Semester End Examination; Jan - 2017

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. Describe Opto coupler circuit and Brownout reset circuit with diagrams. 10
- b. Compare :
- i) SRAM and DRAM ii) Harvard and Von-Neumann architectures. 10
- 2 a. Explain any five operational and any five non-operational quality attributes. 10
- b. Explain the various characteristics of embedded systems and write a block schematic showing the various components in the embedded system. 10

UNIT - II

- 3 a. With FSM model and sequential model, explain seat belt warning system. 10
- b. Describe relationships and diagrams in UML. 10
- 4 a. Describe ALP based embedded firmware design with its merits and demerits. 10
- b. Distinguish between;
- i) Sugerloop and Embedded OS based firmware design ii) DFG and CDFG. 10

UNIT - III

- 5 a. Compare,
- i) Process and Thread ii) GPOS and RTOS. 10
- b. With a state transition diagram, describe the task scheduling along with the structure of a process and memory organization. 10
- 6 a. Describe round robin scheduling algorithm with 3 process P₁, P₂ and P₃ with estimated completion time 6, 4, 2 milliseconds enter ready queue log in that order and time slice is 2 msec. Determine average waiting turnaround and execution time with diagram. 10
- b. Describe three message passing techniques and a remote procedure call for IPC. 10

UNIT - IV

- 7 a. Explain the various components and their functions with a block diagram for IDE. 10
- b. Describe list file, pre processes output file and map file generated during cross compilation. 10
- 8 a. Explain simulation, emulator and two debugging techniques. 10
- b. Explain flex file and boundary scan procedure. 10

UNIT - V

- 9 a. Write the different phases in EDLC model and explain the first two phases in detail. 10
- b. Describe the embedded OS trends, open standards, frameworks and alliances in embedded industry and the bottlenecks in embedded industry. 10
- 10 a. Describe the linear / waterfall EDLC model and how incremental model is related to it? 10
- b. Explain two different languages trends for the embedded system and two processor trends in embedded industry. 10

* * *