SET 4

IV B.Tech I Semester, Supplementary Examinations March 2009
EMBEDDED AND REAL TIME SYSTEMS
(Common to BME and ICE)

Time : 3 hours   Max. Marks: 80
Answer any five questions
All questions carries equal marks
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1. (a) Explain the design approach of custom single purpose processor RT level combinational logic.

   (b) Explain how to optimize the custom single purpose processor design.

   (8+8 = 16 Marks)

2. (a) Explain the basic architecture & operation of micro controller.

   (b) Explain the pipelining concept evolved in digital signal processors.

   (8+8 = 16 Marks)

3. (a) Explain program state machine model with relevant example.

   (b) Explain the implementation of data flow model in real time systems.

   (8+8 = 16 Marks)

4. (a) Explain the implementation of USB communication interface protocol.

   (b) Write notes on Bluetooth technology.   (8+8 = 16 Marks)

5. Explain the architecture of the kernel, tasks & task scheduler & interrupt service routines relevant to embedded RTOS concepts. Draw neat sketches.   (16 Marks)

6. Define and explain the following related to embedded RTOS.

   (i)   Mail boxes.

   (ii)   Message queues.

        (iii)   Pipes & signals.

        (iv)   Event Registers.   (16 Marks)

7. (a) What is meant by handheld operating systems? Write notes on windows CE.

   (b) Explain various timers available in embedded RTOS. Write short notes on priority inversion problem.   (8+8 = 16 Marks)

8. Explain the following in connection with embedded system design.
        (i)   Logic synthesis.
        (ii)   System synthesis.
        (iii)   Hard ware / Software Co design.
        (iv)   Hard ware / Software Co simulation.   (8+8 = 16 Marks)