

Code: R05 411104

SET 1

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 customized single purpose RT-level processor design with suitable diagrams.
b) Define the following terms relevant to embedded systems.

(i) Processor technology

(ii) IC technology

(iii) Design technology
2. a) Explain the operation of pipe lining technique that is employed in general purpose processors.
b) Write notes on application specific instruction-set processors.
3. a) Define the term "State Machine". Explain finite state machines with data path model.
b) What is meant by concurrent processes? Explain the communication among processes with suitable example.
4. a) Differentiate between RS232 and RS422 communication interface devices with respect to various features.
b) With suitable example explain the need of Ethernet protocol.
5. a) What is meant by "Tasks" in RTOS? Explain in detail about task scheduler.
b) Write notes on "Semaphores" and "Mutex" in connection with embedded RTOS.
6. Define and briefly explain the following related to embedded RTOS.
 - a) Message queues
 - b) Event registers
 - c) Pipes

7.
 - a) Explain the memory management that is required for embedded RTOS.
 - b) Write notes on embedded LINUX.

8. Write short notes on the following
 - a) Explain the reuse of intellectual property codes in an embedded system design.
 - b) Differentiate hardware / software co-design and co-simulation with respect to various Characteristics.