Code No: **RT41121**

R13

Set No. 1

EMBEDDED AND REAL TIME SYSTEMS
(Information Technology)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
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PART–A *(22 Marks)*

1. a) Write the hardware components used in embedded system.   [4]
    b) What is the function of oscillator unit in 8051 micro controller?   [4]
    c) Define a network OS.How does a network OS differ from a conventional OS.   [3]
    d) Write any 3 synchronization issues of RTOS.   [4]
    e) Explain the importance of priority inversion.   [4]
    f) Differentiate micro processor and micro controller.   [3]

PART–B *(3x16 = 48 Marks)*

2. a) Explain about core of embedded system.   [8]
    b) Explain the embedded system with a real time application.   [8]

3. a) Draw and explain the 8051 micro controller architecture.   [8]
    b) Differentiate source current and sinking current in 8-bit micro controller. [8]

4. a) Define RTOS, Explain the types RTOSs.   [8]
    b) Explain about process and threads of RTOS.   [8]

5. a) Explain the task communication of RTOS.   [8]
    b) Explain the boundary scan based hardware debugging in detail.   [8]

6. a) Explain about the task synchronization techniques.   [8]
    b) Differentiate semaphore and mutex.   [8]

7. a) Explain the various testing steps involved at testing on host machine.   [8]
    b) Explain the detailed design development process using the simulator.   [8]