# JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
## M.TECH I - SEMESTER EXAMINATIONS, APRIL/MAY-2012
## MICROCONTROLLERS FOR EMBEDDED SYSTEM DESIGN
**(COMMON TO DIGITAL ELECTRONICS & COMMUNICATION SYSTEMS, DIGITAL SYSTEMS & COMPUTER ELECTRONICS, ELECTRONICS & COMMUNICATION ENGINEERING, EMBEDDED SYSTEMS, EMBEDDED SYSTEMS & VLSI DESIGN, VLSI SYSTEM DESIGN, VLSI & EMBEDDED SYSTEMS)**

Time: 3hours                                                                    Max. Marks: 60

**Answer any five questions**
**All questions carry equal marks**
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1.a)    Explain the hardware units and devices in an Embedded system.
  b)    Give the classification of embedded systems.

2.a)    Discuss in detail the architecture of 8051 microcontroller.
  b)    Explain the need for counters.

3.    Discuss in detail memory and I/O devices interfacing to the microcontroller.

4.a)    Compare Continuous timer blocks and Switched capacitor blocks.
  b)    Draw the architecture of Programmable system-on-chip.

5.a)    Explain in detail the architecture of Embedded RISC processor.
  b)    Explain the modes of operation of ARM processor.

6.a)    Explain the following terms:
       i) Context switch
       ii) Interrupt latency
  b)    Explain the device drivers for internal programmable timing devices.

7.    Describe the following:
       a) Serial communication protocols
       b) SDMA

8.    Write notes on the following:
       a) Embedded software
       b) I/O ports
       c) Digital blocks.


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